DEVELOPMENT OF A CUSTOMIZED MIS SOFTWARE FOR AUTO GENERATION OF PROJECT REPORTS FOR REB – A CASE STUDY
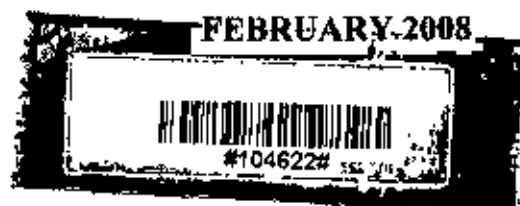
By

MOHAMMAD MIZANUR RAHMAN SIDDIQUE

A Thesis work submitted to the Department of Industrial and Production Engineering in partial fulfillment of the requirements for the Degree of Master of Advanced Engineering Management

DEPARTMENT OF INDUSTRIAL AND PRODUCTION ENGINEERING
BANGLADESH UNIVERSITY OF ENGINEERING & TECHNOLOGY

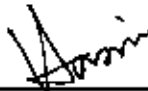FEBRUARY-2008

CERTIFICATE OF APPROVAL

The thesis work titled "DEVELOPMENT OF A CUSTOMIZED MIS SOFTWARE FOR AUTO GENERATION OF PROJECT REPORTS FOR REB – A CASE STUDY" submitted by Mohammad Mizanur Rahman Siddique, Roll No.: 040408104 F, Session: April, 2004 has been accepted as satisfactory in partial fulfillment of the degree of **Master of Advanced Engineering Management** on February 9, 2008.

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February 2008

CANDIDATE'S DECLARATION

It is hereby declared that this thesis or any part of it has not been submitted elsewhere for the award of any degree or diploma.

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Mohammad Mizanur Rahman Siddique

ACKNOWLEDGEMENT

ABSTRACT

The Bangladesh Rural Electrification (RE) Program was founded with a Presidential Ordinance in October 1977 that established the Rural Electrification Board (REB) as the semi-autonomous government agency reporting to the Ministry of Power Energy and Minerals Resources, which is responsible for electrifying rural Bangladesh. The purpose of this document is to develop a customized management information system software for auto generation of projects reports for REB. These reports are usually needed for top level management to take decision so that the project can be implemented effectively and efficiently. At present management information system is a unique tool for decision making to meet the competitive edge of global market and face the competitive challenge of the 21st century. That is why all the leading business organizations established an MIS department to produce various identical reports for decision making. REB is a national level service organization which distributes electricity in the rural and other areas of Bangladesh. Electrification contributes a unique role for socio-economic development of Bangladesh. Program Planning Directorate of REB is responsible for formulation of new RE projects, preparation of annual development budget, securing foreign financing, undertaking impact evaluation of the RE projects and submission of development reports to the Government and development partners. The Program Planning Directorate collects data from 70 PBSs and other directorates of REB and formulates these data in necessary format. Currently five assistant directors, three assistant engineers, one tabulator and two data entry operators are engaged in formulating these reports. Since there is no database or MIS in program planning directorate, it is so much time consuming, erroneous and laborious for generating reports in the necessary format. If an MIS could be developed, it can save enough time, manpower and reduce expenditure. A central MIS is therefore extremely needed for program planning directorate of REB.

This thesis work focuses on developing a customized MIS system for auto generation of project reports for REB, namely a) annual development budget report, b) monthly progress report, c) quarterly progress report, d) annually progress report, e) Project completion report as well as various project reports required time to time

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CHAPTER I
INTRODUCTION

1.1 Introduction

Rural Electrification (RE) Program in Bangladesh started its journey in 1978, primarily with the technical assistance of National Rural Electric Cooperative Association (NRECA) of United States of America with an aim to provide the electricity outside the strata. The program is based on the concept of member-owned, *Palli Bidyut Samities* (PBSs) similar to the rural electric cooperatives that exist in the United States. Seventy PBSs have been organized to date in Bangladesh.

RE Program aimed initially at electrification of irrigation pumps and tube-wells, agro-based industries and serving domestic and commercial loads of only those villages, which fall right alongside the electrical distribution facilities built for irrigation purposes. To date, electricity made available through PBS areas, is intended to use for all possible applications that serve the purpose of improved living conditions of rural populace. Introducing electricity into different consumers – domestic/household, industrial, irrigation equipment, commercial, street light and office use, provides the necessary infrastructure for accelerated economic activities as well as creating environment for realizing human capabilities. Since 1978 more than a thousand-fold increase (1237 times) in terms of number of services connected reveals an annual average growth rate of 40%. The development of rural electrification in Bangladesh is one of the major success stories of external development assistance to a developing nation

REB (Rural Electrification Board) is implementing the RE Programme according to the master plan by various development project. REB has successfully organized 70 PBSs by 26 completed projects Currently 17 projects are running. The Program planning directorate of REB is responsible for generating various reports and distribute these reports to the Government (Energy Power and Mineral Resource Ministry), IMED (Implementing Monitoring & Evaluation Division, Ministry of Planning), Donor Partners (World Bank, Asian Development Bank, Japan Bank of International Co-operation etc.) and Some other organization.

The Program planning Directorate collects data from 70 PBSs and other directorates of REB and formulates these data in necessary format. Currently five Assistant Directors, Three Assistant Engineers, One tabulator and three data entry operators are engaged in formulating these reports Since there are no central database or MIS in program planning directorate, it is so much time consuming, erroneous and laborious for generating reports in the necessary format. If an MIS could be developed, it can save enough time, manpower and reduce expenditure A central MIS is therefore extremely needed for program planning directorate of REB.

1.2 Objectives of the study: Broad and Specific

The broad objective of the study is to develop customized MIS software for auto generation of reports for development project of Rural Electrification Board.

In line with the Terms of Reference and the broad objective, the specific objectives of the study were:

- To design and develop a database for development projects.
- To develop various Graphical User Interfaces (GUI) for data entry.
- To generate various report needed by Programme Planning Directorate.
- Integrate the whole system as a customize software.

1.3 Scope of the study

This study provides a brief description of the database software. Output of the research could be divided into two parts:

1. **Study or report part**
2. **Database part**

Study or report part helps the general people to understand the following issues

- It provide a general idea about the database development process
- It helps to gathered knowledge about MIS
- It provide a knowledge to operate the specific database developed by the research

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A database part of the study helps to solve following issues for various organizations

- Preparation of monthly, quarterly and annual report for REB
- It provides the utilization of the database in practical project works
- It helps to understand efficiency level of REB project
- It provide the future guideline for increase the efficiency level of REB

1.4 Methodology

This research has carried out to describe the customize software related to it. This research has used primary and secondary data in total system analysis process.

- o Primary data sources of the project are the current project information to evaluate the efficiency
- o Secondary data of the research related to MIS and other literature as per necessity of the project software and report preparation.
- o Secondary information has been collected from various books, journals and report relevant of the work.

The all information has gathered and cumulatively focuses the total work.

CHAPTER II
ORGANIZATIONAL PROFILE OF REB

2.1 Background of REB

The Bangladesh Rural Electrification (RE) Program was founded with a Presidential Ordinance in October 1977 that established the Rural Electrification Board (REB) as the semi-autonomous government agency reporting to the Ministry of Power Energy and Minerals Resources, which is responsible for electrifying rural Bangladesh. Since its inception, the purpose of the program has been to use electricity as a means of creating opportunities for improving agricultural production and enhancing socio-economic development in rural areas, whereby there would be improvements in the standard of living and quality of life for the rural people.

Today there are 70 operating rural electric cooperatives called Palli Bidyut Samity (PBS), which bring service to approximately 65,00,000 new connection being made and more than 14,000 kms of line being constructed each year.

Enormous changes have occurred in areas all across rural Bangladesh due to people having access to electricity. The magnitude of changes and the impact of the RE Program is vast and diversified and information documenting these have become more acute in recent years All stakeholders, particularly the Government of Bangladesh and the development partners need documentation that supports the large funding requirements that are needed to expand the program further. Given these circumstances, decisions were taken to have this "Economic and Social Impact Evaluation Study of the Bangladesh Rural Electrification Program". this Study was begun in March 2002 with the selection of the Human Development Research Center (HDRC), an established Bangladeshi consulting firm.

This eight-month Study involved more than 100 male and female qualified enumerators, as well as a number of data quality controllers, working to collect quantitative and qualitative data through the completion of questionnaires during the interview of 378 cases in more than 70 villages/thanas in both electrified and non electrified areas of 23 different PBSs dispersed across the country. in addition, the fieldwork also included 27

"focus group discussion" and nine "group discussion with the PBS Board and Members". The four major categories of consumers namely Domestic, Commercial. Irrigation and Industry were included when preparing the sampling sizes for both experimental and control groups. Fourteen different instruments ere designed, field tested, and used for the information collection phases of the Study.

2.2 Development and REB

Development plans of Bangladesh has identified rural electrification as one of the major components of overall infrastructure, implementation of which, it is held, can accelerate the pace of economic growth, employment generation, alleviation of poverty and improve living standard. A well planned and organizational rural electrification program was however, not existed till 1970s. The electrification program as carried out by the Bangladesh Power Development Board (BPDB) was mainly limited to urban centers and at best to their peripheries. At that time, the Government of Bangladesh engaged two consulting firms of USA to carry out a comprehensive feasibility study on rural electrification in Bangladesh. The firms studied all related issues in depth and put forward recommendation towards a sustainable and viable rural electrification program. In addition to the new institutional framework, the study emphasized for Area Coverage and Co-operative concept. It is against this backdrop, Rural Electrification (REB) was created by the Government of Bangladesh (GOB) in late 1970's through REB ordinance LI of 1977. The Board is a statutory Government organization primarily responsible for Implementing countrywide rural electrification

Since inception, REB sets the following major objectives in implementing the rural electrification program.

- Ensure peoples participation in policy formulation in a democratic way.
- Provide reliable and sustainable electricity to the rural people at affordable price.
- Improve economic condition of the rural people by using electricity in agriculture, cottage and agro based industry.
- Improve living condition of rural peoples.
- Bring about entire rural Bangladesh under RE program on an area coverage basis.

To achieve the objectives of rural electrification program at the implementation level, the Board established Palli Bidyut Samities (PBS) [which means Rural Electric Societies in

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English Language] based on the model of Rural Electric Co-operatives in USA under the universal principle of co-operative, democratic decentralization and ownership of consumers A PBS, which owns, operates and manages a rural distribution system within its area of jurisdiction is an autonomous organization registered with REB. The member consumers participate in policy making of PBS through elected representative to the PBS governing body known as Board of Directors.

Right from the establishment of a PBS, REB assists the PBSs with

- Initial organizational activities.
- Training of manpower.
- Operational and management activities
- Procurement of funds.
- Providing liaison between Bangladesh Power Development Board, Dhaka Electric Supply Authority (Bulk power supplies) and other concerned Government and Non-Government agencies.

2.3 Feasibility Study on RE program

On 05 October 1976, the Bangladesh Power Development Board entered into an agreement with the National Rural Electric Co-operative Association (NRECA) and the Commonwealth Associates Inn (now Glibber Commonwealth) of the USA to carry out a comprehensive Feasibility Study on Rural Electrification in Bangladesh. Financed by the US Agency for International Development (USIAD), it was a short-term project. The two consulting firms carried out extensive study in the following 12 (twelve) core study areas·

Table 2 1. Zone of REB

East Zone	West Zone
Daudkandi (Comilla)	Shahjadpur (Pabna)
Kaliakoir (Dhaka)	Sherpur (Bogura)
Madhupur (Tangail)	Mithapukur (Rangpur)
Trisal (Mymensing)	Jhikargacha (Jessore)
Banderban (Chittagong H.T.)	Bhanga (Faridpur)
Chunarughat (Habiganj)	Natore (Natore)

The study was completed in June 1977. The report among others contained the following recommendations:

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a) Bangladesh should go for Area Coverage Rural Electrification Program to be implemented under the framework of a perspective plan phased over a period in consonance with its resource mobilization capacity.

(b) Each Rural Electrification Project area should form a Palli Bidyut Samity (Rural Electric Society) on the principle of consumer's co-operative to ensure maximum possible participation of the prospective beneficiaries of the RE Program.

(c) To organize, finance, administer and monitor the activities of the Palls Bidet Samities (PBSs), a central agency should be established under the Government.

2.4 Strategies of RE Program

Ensure attainment of the objectives by accelerating socio-economic development of the country with special emphasis on:

Economic viability and overall economic sustainability;

Electrification through PBSs with scopes for participation of consumer-members; Techno-economic considerations for determining the priority of electrification areas; Ensure preference for areas with better prospects of utilization and economic return; Financial support for the PBSs in case of consideration other than technical and economic viability; Develop tariff structure affordable to rural communities by ensuring economic viability of the PBS.

2.5 Conducting election of PBS

Central to the PBS system, the area coverage concept generally comprises 5-10 thanas having a geographical area ranging between 1500-2000 sq. km. For each PBS load forecast is made for the next 20 years based on detailed study and accordingly load centers are set up in order to identify the location of the distribution Sub-Stations. The cost of the distribution system is given on a thirty three years term loan to the PBSs with first eight years as grace period with an interest rate of 3% per year. To maximize consumer welfare, the PBSs operate on the financial principle of "No-loss & No-profit" basis.

Rural electrification in a developing country like Bangladesh is a huge capital-intensive program. In order to ensure the mobilization of fund and steady growth of the electrification program REB had taken a pragmatic plan to implement the gigantic task by phases. REB started functioning in early 1978 with the first project under the 1st phase

undertaken for establishment of 13 PBSs in different parts of the country. Over the last twenty-six years, more PBSs were organized in various phases which brings the current total at 70. The fifth phase of the Rural Electrification program is now under implementation. REB plans to cover all the village of Bangladesh by the year 2020 A.D

Rural electrification in Bangladesh is often viewed as one of the most successful program and has also been credited both in the country as well as in international arena. Relatively low System loss in the range of 15% and high rate of bill collection nearly 100% is the achievement widely appreciated by the Development partners and International agencies. This has been possible due to the unstinted and unflinching support that the Government of Bangladesh and our development partners have placed in the operation and philosophy of Rural Electrification. But given the huge task that lies ahead involving the total electrification of the country, there is no room for complacency as yet.

2.6 The Concept of Rural Electrification

The Government of Bangladesh, from the experience of nearly three dozen developed and developing nations, had adopted the cooperative concept to implement rural electrification program covering the entire rural areas of the country in phases. The cooperative concept was found to be suitable in the context of the program's enormous size and its implication to the socio-economic reality of the country. Thus, the RE Program of Bangladesh is something more than mere electrification of the villages. It is a movement for socio-economic upliftment of the rural populace hitherto deprived of due share of the national development endeavor as well as modern amenities of life & the modern technique of production.

The concept envisages decentralization of the operation and management of power distribution system by forming cooperatives. Each cooperative is called Palli Bidyut Samity (PBS), which normally comprises 5 to 9 upa-zillas covering 1000 to 1500 square kilometers. The responsibility of operating a PBS's financial & management affairs are entrusted with the member-consumers themselves in accordance with set rules of the PBS

Rural Electrification Board, which has been set up to carry forward rural electrification program in a planned manner, helps PBSs attain self-sufficiency in the operation and management of its activities. REB assists each PBS in the following field of activities

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- Initial organizational activities relating to institutional development, System design and construction, both civil & electrical;

- Training of Manpower & providing manuals, policy Instructions & guidelines in all sphere of operation and management;

- Arrangement of funds for system development & operation;

- Monitoring of management, financial & system operational activities of the PBS;

- Providing liaison between the Power Development Board, Dhaka Electric Supply Authority, and other concerned government agencies.

One of the remarkable feature of the rural electrification is that the affairs & business of a PBS is operated on a no loss - no profit principle. In the event of any operating surplus or deficit, it is adjusted in the form of lower or higher electric rates for the consumers of that particular PBS. REB as apex organization continuously monitors & assesses the engineering, financial & management aspects of the PBSs, and ensures that nothing short of the highest standard set by the REB is achieved.

To look after the day-to-day business & affairs of the PBS, the PBS Board of Directors, with prior approval of the REB appoints a General Manager who again appoints other officers & staff of the PBS in pursuance to the policy guidelines of the PBS.

The RE program of Bangladesh took off in its true sense with the energization of the first village under Dhaka PBS-I at Dhamrai on 02 June, 1980 As pioneered by the USIA in extending financial & technical assistance, Bangladesh RE program is modeled after US Rural Electric Cooperative concept. Basic characteristic of the model are:

- It is based on Area Coverage Rural Electrification (ACRE), each area is called a Palli Bidyut Samity (PBS), It is an autonomous body based on co-operative principles.

- A PBS is owned by the Member-Consumers & the affairs and business is managed by a Board of Directors elected by the Member-Consumers on the basis of one Member one vote.

- A unique system of accountability of all employees of a PBS has been established through introduction of Annual Performance Target Agreement signed between the REB and the PBS. Employees are reattributed depending on achievement of or failure to achieve the agreed performance targets.

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- Transparency of the affairs of the PBSs is ensured through publication of all sorts of operational and management data in a monthly report called Management Information System (MIS), The report contains monthly as well as year-to-date consumer growth, consumption, system loss, accounts receivable, accounts payable, disconnection, reconnection and all other operational & financial information required to monitor a PBS and take corrective measures where necessary.

2.7 Functions of REB

The govt. through the ordinance has empowered REB to discharge the following responsibilities:

- Establish electricity generation, transmission, transformation and distribution system in the rural and semi urban areas of Bangladesh
- Take measures for effective use of electricity to foster rural development such as development of agriculture and establishment of rural industries.
- With the approval of the govt. determine the criteria for rural electrification and associated works, conduct surveys and feasibility studies and prepare schemes for establishment of electrical system in the rural areas.
- Submit reports and project proposals to the govt. for approval and to execute the approved projects
- Take over distribution lines, sub-stations and assets from Bangladesh Power Development Board and Dhaka Electric Supply Authority (DESA) and arrange for their management.
- Organize the potential consumers of electricity into formal and informal groups, such as Palls Bidet Samities societies, associations and companies for the purpose of execution and management of schemes and providing related services.
- Prescribe by-laws for the Palls Bidet Samities and other groups for their registration with the board and determine the manner of their functioning.
- Receive grants and loans from the govt. and other bodies and individuals for creating funds for the purpose of carrying out its business. Advance funds on such terms and conditions as it may determine to any sanity or other group for the execution of the approved projects.

- Hand over to any Palli Bidyut Samity or other group complete schemes for operation and maintenance.

- Organize effective program for preparation, execution, operation and management of rural electrification program.

- Prescribe standards for works, equipment's, operations, maintenance, procurement, warehousing, personnel and fiscal administration and other aspects of management to be followed by the Board and the Palls Bidet Samities.

- Prescribe relenting terms for the Palls Bidet Samities borrowing funds from the government and prescribe regulations for project appraisal and credit administration.

- Enter into any business including manufacture of electric equipment's and enter into any contract and arrangements with others for efficient discharge of program activities

- Approve the rate of electricity to be levied by the Samities for sale of electric power.

- Appoint such officers and other employees and engage such consultants, advisors, auditors and contractors as it may deem necessary for the performance of the functions.

2.8 Role of RE program in agriculture

The greatest result of Rural Electrification program has been achieved in the agricultural sector. The use of electric pumps for irrigation in the dry seasons (January-April) brought revolution in the food production culture. Boro paddy produced in this dry period fully depends on irrigation from surface or underground water. Hand driven tube wells proved to be inadequate for large fields and diesel pumps are too expensive source of water. Diesel pumps need regular maintenance, skilled operators and mechanics are not readily available This method of irrigation lost popularity in course of time and farmers showed reluctance to use diesel pumps. Comparatively cheap irrigation of land is provided by electric pumps which need negligible maintenance.

As a result, popularity of electric irrigation pumps among farmers of Bangladesh has grown up in past years. With less than 2000 electric pumps in 1981-82 Fiscal Year, the number of pumps come under electrification has increased tremendously exceeding 2,04,724 up to February 2007. The role of Rural Electrification Board and GOB in

popularizing electric pumps in agricultural sector was very important Although tariff of all other categories of consumers has gone up over a period of time, tariff for irrigation consumption remains almost same for last five years It enables the farmers to keep cost of production low and price of products competitive in the market

2.9 Present status of rural electrification program

REB started functioning in early 1978 and conceived 1st project containing 13 PBS. After twenty seven years, the number of PBS now stands at 70.

Table 2.2: The main features of rural electrification in Bangladesh

Number of RES organized	70
Number of RES operating commercially	70
Number of district under the program	61
Number of Up-Zillas under the program	433
Number of villages electrified	46,581
Total distribution line constructed	2,10,717 Km
Total distribution line energized	2,06,814 Km
Total 33/11 KV sub-stations constructed and commissioned	373 (305 Constructed by REB, 68 taken over from PDB & DESA)
Installed Capacity of Sub-stations	2704 MVA
Total number of consumers	72,08,046
Total number of irrigation pumps connected	2,04,724
System Loss	12.13%(cumulative),7.82% (Feb-07)

2.10 Rural electrification program at a glance (as on February, 2007)

Table 2.3: Rural electrification program at a glance

*	Number of Approved Projects	45
*	Number of Approved PBSs	70
*	Number of PBSs organized	70
*	Number of PBSs electrified	70
*	Number of District included in RE program	61

*		Number of Upa-zillas included in RE program		433
*		Number of villages energized		46,581
*		Distribution Line constructed (Km)		2,10,717
*		Number of 33/11KV Sub-station constructed		373
*		Average system loss (70 PBSs)		12.13%
*		Number of population in Programme Area		9,25,13,296
*		Category wise connection -		
1	Domestic		61,13,146	
2	Commercial		7,57,940	
3	Irrigation		2,04,724	
4	Industry		1,18,285	
5	Others		13,951	
6	Total		72,08,046	

2.11 Organizational chart of REB

2.11.1 Composition of the board

- The Board consists of a Chairman and four full time Members
- In addition there are four part time Members who attend Board meetings only The board a body corporate with perpetual succession
- The Chairman and four full time Members are appointed by the Govt. Four part time members represent:
- Bangladesh Power Development Board (BPDB)
- Bangladesh Agricultural Development Corporation (BADC) Bangladesh Small and Cottage Industries Corporation (BSCIC). Bangladesh Rural Development Board (BRDB).

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2.11.2 Chairman

CHAIRMAN

MEMBER (ADMINISTRATION) | MEMBER (PBS TRAINING) | MEMBER (FINANCE) | MEMBER (ENGINEERING)

SECRETARIAT | PROGRAM & PLANNING DIRECTORATE | INTERNAL AUDIT DIRECTORATE
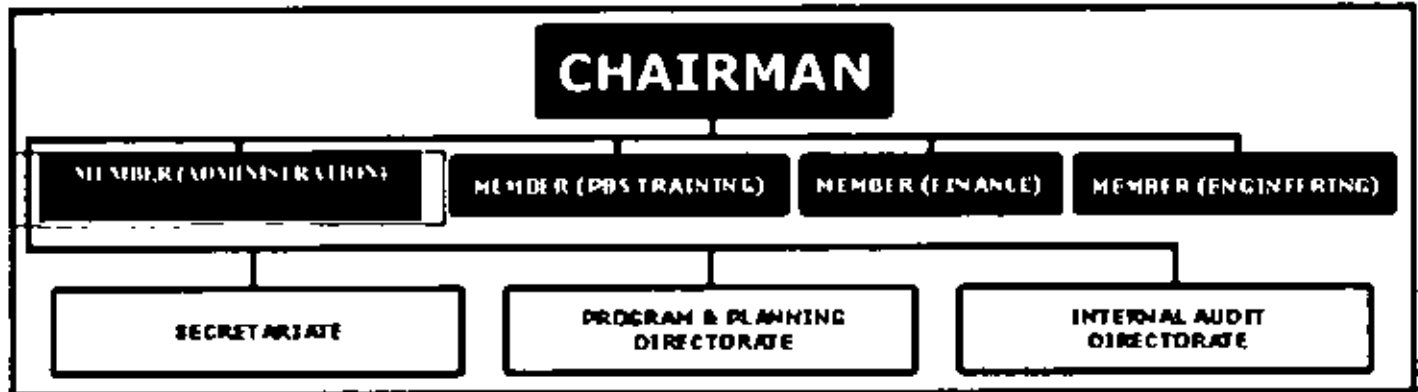
Figure 2.1: Organizational Chart of chairman

Chairman

- Secretariat is responsible for recording the minutes of the Board meeting and issuance of Board decision for execution. Secretariat is also responsible for legal matters and expatriate consultant administration.

- Programme Planning Directorate is responsible for formulation of new RE projects, preparation of Annual Development Budget, securing foreign financing, undertaking impact evaluation of the RE projects and submission of Development Reports to the Govt, and development partners.

- Internal Audit Directorate is responsible for ensuring financial control and discipline of various offices of REB.

2.11.3 Member (Administration)

MEMBER ADMINISTRATION

ENQUIRY & DISCIPLINE DIRECTORATE | PERSONNEL ADMINISTRATION DIRECTORATE | PUBLIC RELATION DIRECTORATE
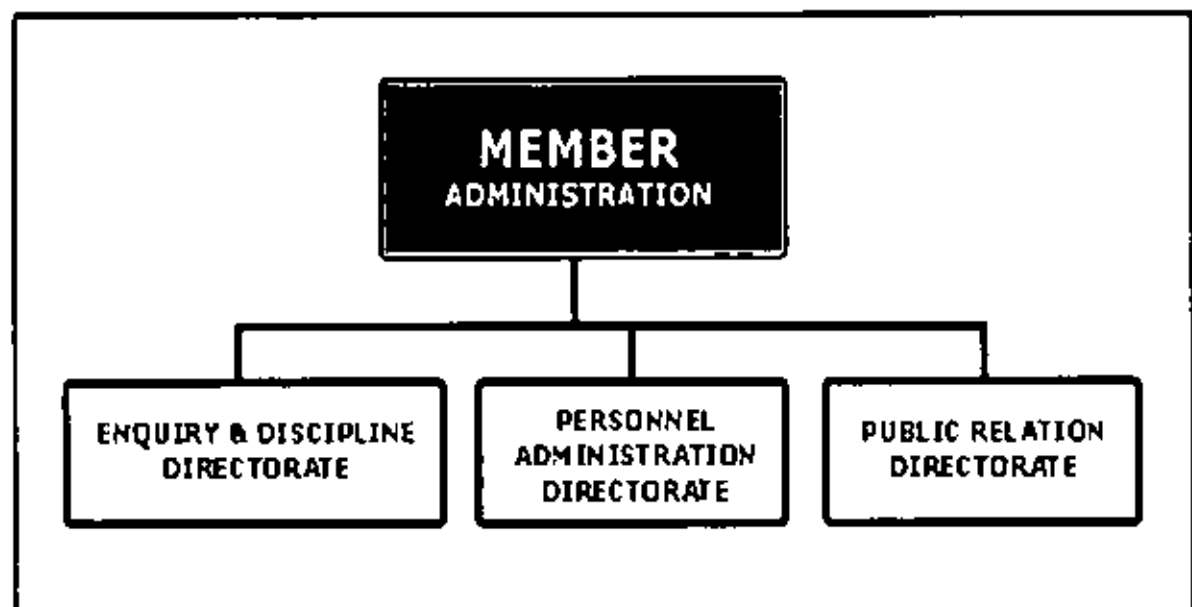
Figure 2.2: Organizational Chart of Member (Administration)

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Member (Administration)

- Enquiry & Discipline Directorate is responsible for conducting enquires against different allegations of REB/PBS officials and take appropriate actions with the approval of the competent authority.
- Personnel Administration Directorate is responsible for recruiting, transfer, posting, administrative orders, employees retirement benefit and all associated service related matters.
- Public Relations Directorate is responsible for media coverage, publication of advertisement in the newspapers, publication of annual report and associated activities

2.11.4 Member (Engineering)

- Chief Engineer (Project) is responsible for overall constructional activities of REB/PBS which involves electrical line, sub-stations and civil constructions.
- Chief Engineer (Planning and Operation) is responsible for Engineering planning, Design and Operational activities of the PBSs
- Material Planning and Standard Specification Directorate is responsible for preparation of material specification, materials indent and allocation of materials to the project for line construction.
- Superintending Engineer (Generation) is responsible for coordination of purchase of power from the Independent Power Producers, invitation of tenders for setting up Power Plants, selection of locations for Power Plants for supply of power to Palli Bidyut Samities.

Member (Engineering)
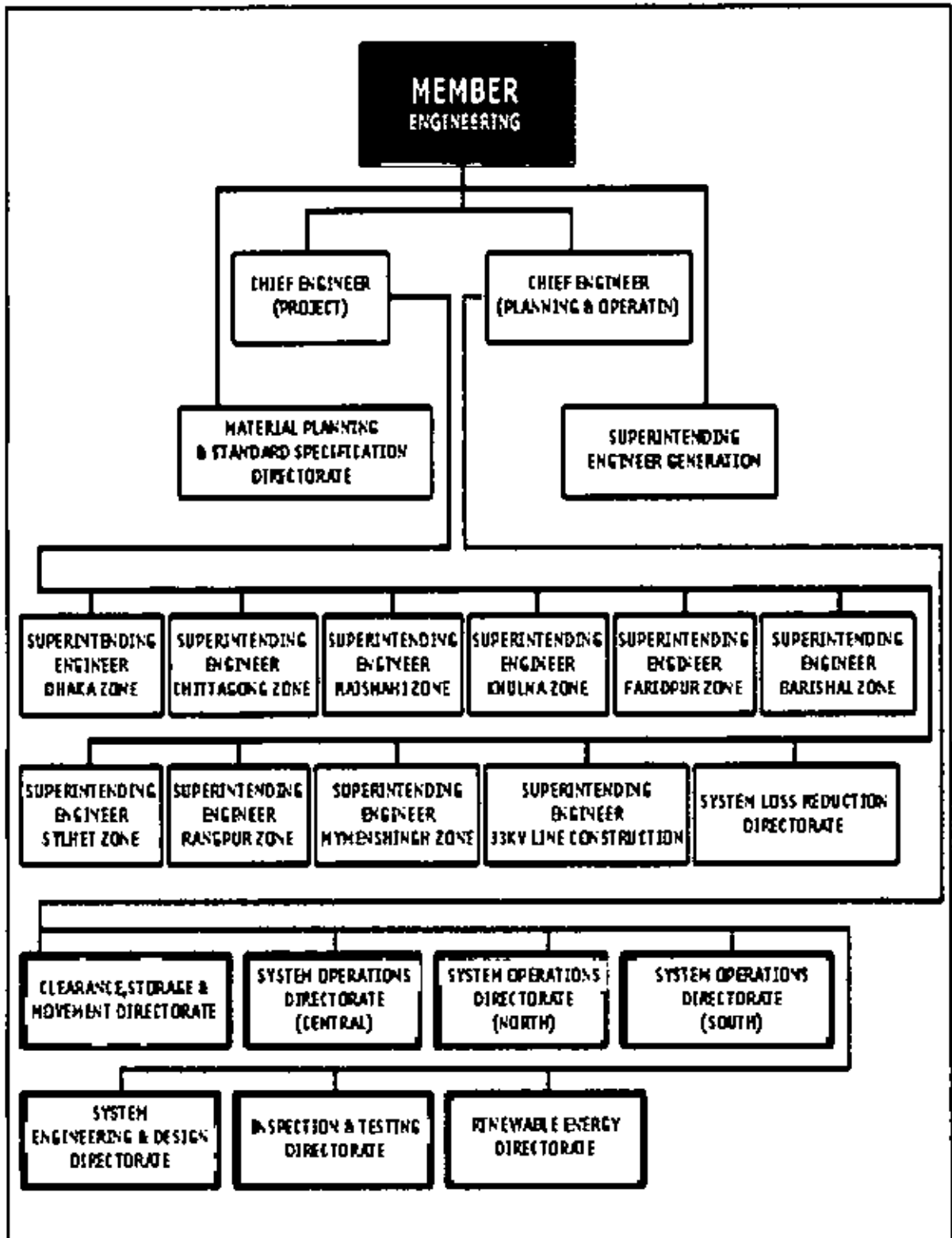
Figure 2.3: Organizational Chart of Member (Engineering)

2.11.5 Member (Finance)
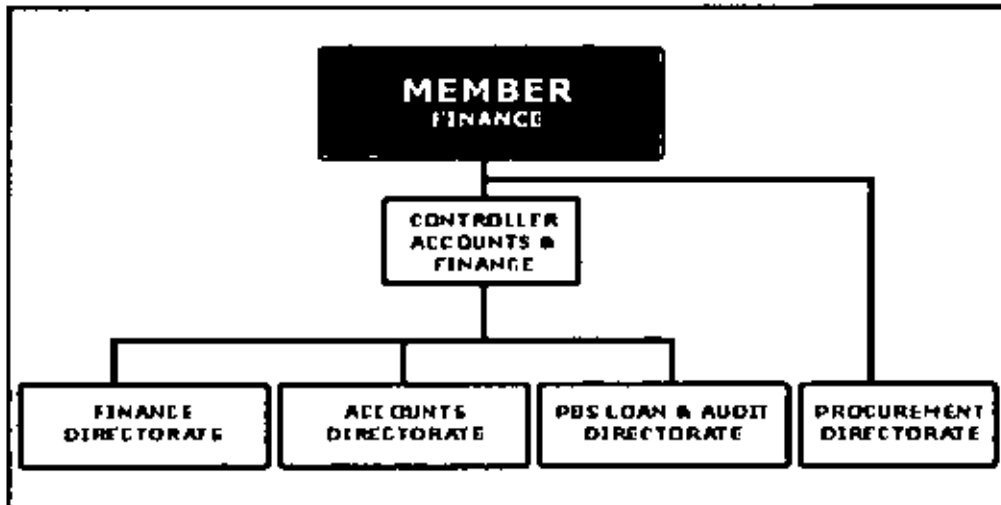
Figure 2.4: Organizational Chart of Member (Finance)

Member (Finance)

- Controller is responsible for the overall financial management of REB and the PBS, including budgetary control.
- Finance directorate is responsible for release of fund from the Govt. PBS financial management monitoring, budget clearance & release of fund, debt service liabilities etc. Accounts directorate is responsible for payment of employee's financial benefit, contractor payment, management of REB fund etc.
- Palli Bidyut Samity Loans & Audit Directorate is responsible for allocation of PBS annual development budget, loan reconciliation, PBS annual audit etc.

2.11.6 Member (PBS & Training)
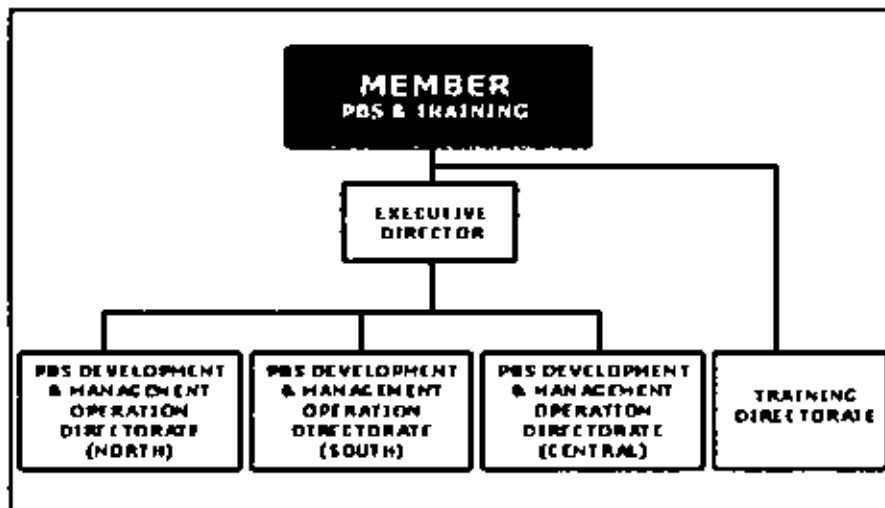
Figure 2.5: Organizational Chart of Member (PBS & Training)

Member (PBS & training)

- Executive Director is responsible for overseeing the operational and management activities of the PBSs. He is also responsible for the recruitment, transfer, posting, promoting of PBS officials.

- Palli Bidyut Samity Development & Management Operation Directorate North/South/Central are responsible for the overall management and monitoring of the PBSs within their own jurisdiction. Existing 70 (Seventy) PBSs are divided within these three directorates for their functional and administrative activities.

- Training Directorate is responsible for conducting training of REB/PBS officials and employees, preparation of proper curriculum for training activities, undertaking departmental examinations and selection of employees for foreign and local training's.

- Superintending Engineer Information and Computer Technology is responsible for establishment of REB website and to keep it update with all sorts of information about RE program and responsible for establishment of computer networks throughout REB and PBS officers.

2.12 Sequential Amendments of REB

2.12.1 First Amendment

Ordinance No. L III of 1985

Amendment of section 9, Ord. LI of 1977. In the Rural Electrification Board Ordinance, 1977 (LI of 1977) hereinafter referred to as the said Ordinance, in section 9 (a) after the word "contained", the words "In this Ordinance or" shall be inserted, and (b) in clause (a) after the word "system" the words "including one in a municipality" shall be inserted. Insertion of new section 9A, Ord. L1 of 1977 In the said Ordinance, after section9, the following new section shall be inserted, namely 9A" Special provision regarding operation, etc, of certain electricity system-Notwithstanding anything contained in this Ordinance or in any other law for the time being in force, where any rural area is included in a municipality after the establishment therein of electricity generation, transmission transformation and distribution systems by the Board , the systems so established shall continue to be operated, maintained and managed by the Board, as if the area had not been included in the Municipality.

DHAKA
The 28th October, 1985

H.M. ERSHAD, ndc,psc
LIEUTENANT GENERAL
President.

MD. ABUL BASHAR BHUIYAN
Deputy Secretary.

2.12.2 Second Amendment

Ordinance No. XV of 1987

Ord. LI of 1977 - এর সংশোধন। - Rural Electrification Board Ordinance, 1977 (LI of 1977) এর section 23 এর পরে নিম্নরূপ section সন্নিবেশিত হইবে, যথা :-

"23A. Board, etc. not to be construed as shop, etc - Notwithstanding anything contained in any other law for the time being in force, the Board or a Samity shall not be construed as a "shop", "commercial establishment", "factory" or "industry" within the meaning of the Shops and Establishments. Act. 1965 (E.P. Act VII of 1965), the Factories Act, 1965 (E.P. Act IV of 1965), or the Industrial Relations Ordinance, 1969 (XXIII of 1969).

ঢাকা :
২১শে সেপ্টেম্বর, ১৯৮৭
৪ঠা আশ্বিন, ১৩৯৪

হুসেইন মুহম্মদ এরশাদ
রাষ্ট্রপতি।

2.12.3 Third Amendment

২০০১ সালের ২৪নং আইন
Rural Electrification Board Ordinance, 1977 (LI of 1977)

এর অধিকতর সংশোধনকল্পে প্রণীত আইন

যেহেতু নির্বলিত উদ্দেশ্যসমূহ পূরণকল্পে Rural Electrification Board Ordinance, 1977 (LI of 1977) এর অধিকতর সংশোধন সমীচীন ও প্রয়োজন,

সেহেতু এতদ্বারা নিম্নরূপ আইন করা হইল ঃ

১। সংক্ষিপ্ত শিরোনাম। - এই আইন The Rural Electrification Board (Amendment) Act, 2001 নামে অভিহিত হইবে।

২। Ord. LI of 1977 এর section 9 এর সংশোধন। - Rural Electrification Board Ordinance, 1977 (LI of 1977) এর section 9 এর clause(c) তে "Power Development Board" শব্দগুলি পর "and any power generating station run by any person or entity under a contract with the Government" শব্দগুলি সন্নিবেশিত হইবে।

Figure 2.6: Third amendment of REB

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2.12.4 Fourth Amendment

Figure 2.7: Forth amendment of REB

2.12.5 Fifth Amendment

Figure 2.8: Fifth Amendment of REB

CHAPTER III
LITERATURE REVIEW (MIS)

3.1 Information

Data on its own has no meaning, only when interpreted by some kind of data processing system does it take on meaning and become information. People or computers can find patterns in data to perceive information, and information can be used to enhance knowledge. Since knowledge is prerequisite to wisdom, we always want more data and information. But, as modern societies verge on information overload, we especially need better ways to find patterns.

3.2 Information system

An information system can be any organized combination of people, hardware, software, communication networks, and data resources that collect transforms, and disseminate information in an organization. People have relied on information systems to communicate with each other using a variety of physical devices (hardware), information processing instructions and procedures (software), communication channels (networks), and stored data (data resources) since the down of civilization.
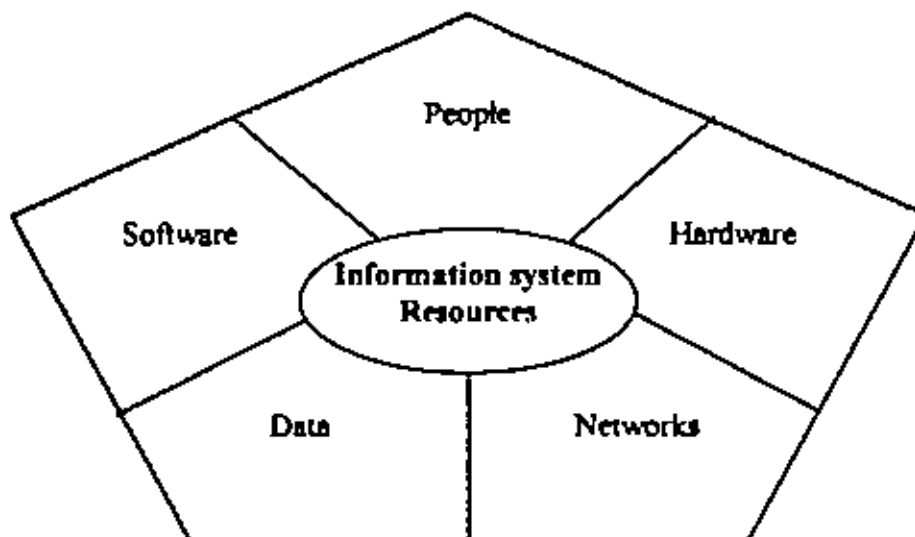
Figure 3.1: Information System Resource

3.3 MIS

Short for management information system or management information services, and pronounced as separate letters, MIS refers broadly to a computer-based system that provides managers with the tools for organizing, evaluating and efficiently running their departments. In order to provide past, present and prediction information, an MIS can include software that helps in decision making, data resources such as databases, the hardware resources of a system, decision support systems, people management and project management applications, and any computerized processes that enable the department to run efficiently. Management information system provides information in the form of reports and displaced to managers and many business professionals for example sales may use network computer and web browser to get instantaneous displaces about the sales results of their products and to access their intranet for daily sales analysis reports that evaluate sales made by each sales person.

Within companies and large organizations, the department responsible for computer systems is sometimes called the MIS department. Other names for MIS include IS (Information Services) and IT (Information Technology)
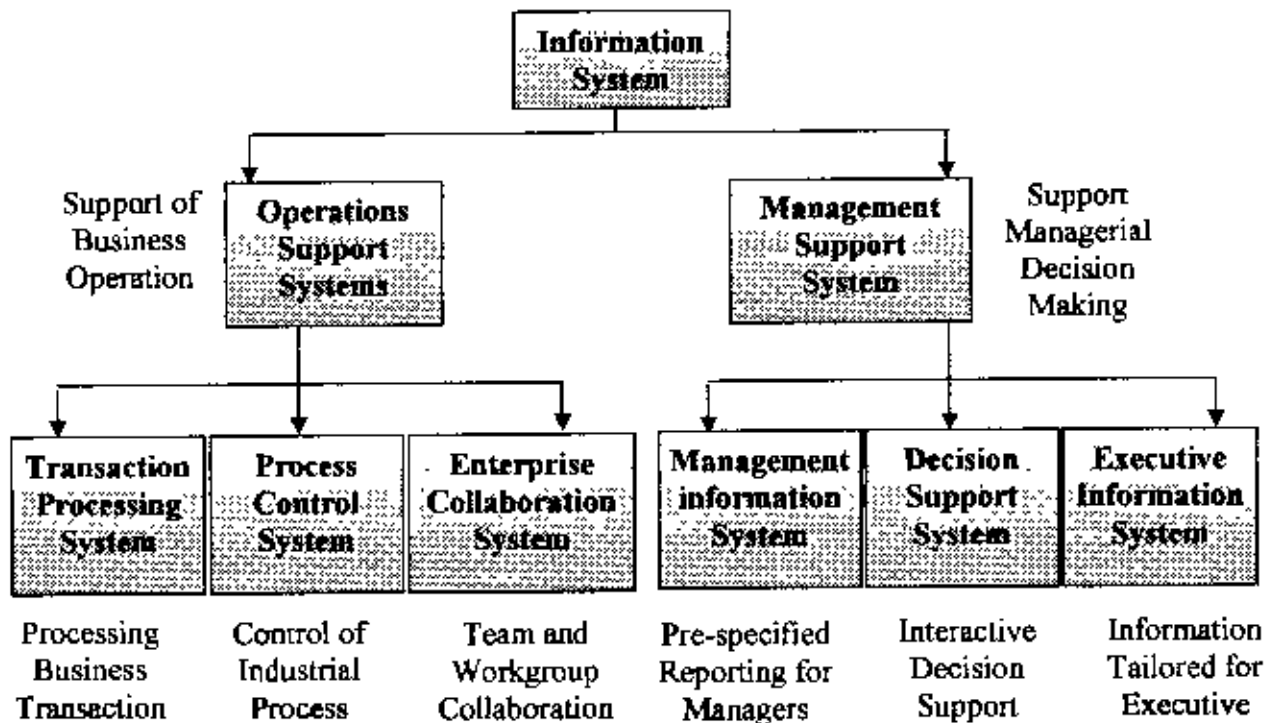
Figure 3.2: Diagram of Information System

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3.4 Data

In a broad sense raw data are numbers, characters, images or other outputs from devices which convert ideas or physical objects into symbols. Raw data is a relative term; data processing commonly occurs by stages, and the "processed data" from one stage may be considered the "raw data" of the next.

3.5 Database

A collection of information organized in such a way that a computer program can quickly select desired pieces of data. You can think of a database as an electronic filing system.

Traditional databases are organized by fields, records, and files. A field is a single piece of information; a record is one complete set of fields; and a file is a collection of records. For example, a telephone book is analogous to a file. It contains a list of records, each of which consists of three fields: name, address, and telephone number.

An alternative concept in database design is known as Hypertext. In a Hypertext database, any object, whether it be a piece of text, a picture, or a film, can be linked to any other object. Hypertext databases are particularly useful for organizing large amounts of disparate information, but they are not designed for numerical analysis. To access information from a database, you need a database management system (DBMS). This is a collection of programs that enables you to enter, organize, and select data in a database

3.6 GUI

A graphical user interface or GUI is a type of user interface which allows people to interact with a computer and computer-controlled devices. Instead of offering only text menus, or requiring typed commands: graphical icons, visual indicators or special graphical elements called "widgets", are presented. Often the icons are used in conjunction with text, labels or text navigation to fully represent the information and actions available to a user. The actions are usually performed through direct manipulation of the graphical elements.

The term GUI is historically restricted to the scope of flat display screens with display resolutions capable of describing generic information, in the tradition of the research at Palo Alto Research Center (PARC). The term does not apply to other high resolution

types of interfaces that are non-generic, such as videogames, or not restricted to flat screens, like volumetric displays.

3.7 Tabular Data

A table is a data structure that uses columns and rows to organize the data. As an example, consider the following ledger sheet sample of a charity containing details of the donations

Table 3.1: Hypothetical View of Tabular Data

Donor	Donation 1	Donation 2	Donation 3
Marco Pinelli	$200 Solar Scholars		
Victor Gomez	$100 Pear Creek	$100 Danube Land Trust	$50 Forest Asia
Seung Yong Lee	$150 Forest Asia		

Tables represent entities, which are unique items like people, objects, and relationships about which we wish to store data. Each row represents an instance of the entity. In the above example, each row represents an instance of one donor. In relational database terminology, an instance is known as a record, but the terms row or tuple are also used.

Each column represents an attribute of the entity, or something about the entity. In this case, each column represents a donation made by the donor, listing the amount of the donation and the project to which the money is donated. In relational database terminology, an attribute is known as a field, but the term column is also very common. Adding or removing columns would change both the data stored in the table and the actual structure of the table, whereas adding or removing rows would only change data stored in the table. In other words, removing a column removes information about entities whereas removing a row only removes one instance of an entity but no information about them in general.

3.8 Entity

An entity is something that must be distinctly represented in an e-business system. People, organizations, accounts, products and services, customers, orders, and suppliers, are all examples.

3.9 Key

A key is a field which uniquely identifies each record in a database.

3.10 Primary Key

It is a unique data element on which the other dependent data element within a record depends.

3.11 Foreign key

Foreign key is an attribute of an entity which is primary key of another entity.

3.12 Persistence

For our purposes think of persistence as the characteristics of continuity, reliability, and connectedness. Persistence of data and business logic, over time, and throughout an e-business process, even as it spans multiple software components, or even as a system is stopped and restarted, is critical to creating a seamless and stable system

3.13 Relational Database Management System (RDMBS)

A database management system (DBMS) is a computer program (or more typically, a suite of them) designed to manage a database; a large set of structured data, and run operations on the data requested by numerous users. See: relational databases.

3.14 Relational approach to managing data

When managing data using the relational approach information is represented by data values arranged in mathematical relations. The data is operated upon by means of a relational calculus and algebra. The relational model permits the database designer to create a consistent logical model of information, to be refined through database normalization

Designing a system to perform well for all its anticipated and unanticipated functions requires us to think about the architecture of that system --and most importantly, the way in which its software operates and interacts.

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Software architecture is like building architecture in that it is to do with the purpose, themes, materials, and concept of a structure. A software architect employs extensive knowledge of software theory and appropriate experience to conduct and manage the high-level design of a software product. The software architect develops concepts and plans for software modularity, module interaction methods, user interface dialog style, interface methods with external systems, innovative design features, and high-level business object operations, logic, and flow.

3.15 Sources of data

Data that is relevant to decision may come from anywhere. The most important sources of data include:

Master data: this is data that is collected (usually once and once only) to define the entities in an e-business system (customer file, product file, account codes, pricing codes, etc)

Configuration data: as the term implies this is data that defines the nature of the system itself. The system is configured to reflect the nature and needs of the business

Operations data (OLTP): also known as activity this data is generated by daily business activities such as sales orders, purchase orders, invoices, accounting entries, and so on.

Information systems (OLAP): these are sophisticated applications that collect information from various internal and external sources to analyze data and distill meaningful information.

3.16 Database Management System (DBMS)

DBMSs are the technology tools that directly support managing organizational data. With a DBMS you can create a database including its logical structure and constraints, you can manipulate the data and information it contains, or you can directly create a simple database application or reporting tool. Human administrators, through a user interface, perform certain tasks with the tool such as creating a database, converting an existing database, or archiving a large and growing database. Business applications, which perform the higher level tasks of managing business processes, interact with end users and other applications and, to store and manage data, rely on and directly operate their

own underlying database through a standard programming interface like ODBC. The following diagram illustrates the five components of a DBMS.

Figure 3.3: Model data

3.17 Data warehouses

Data warehouses are logical collections of information gathered from many different operational databases used to perform detailed analysis of all available data. They might be used to compare various departments (Canada vs Europe, East vs. West, Toronto office vs. Montreal office etc.), seemingly disparate pieces of data (revenue vs. stock price, revenue vs. weather, revenue during an ad campaign, revenue on days of competitor sales promotion, and so on) or historical trends (sales year-to-date vs. last year, vs. ten years ago, etc.) Using software tools to extract information from a data warehouse is sometimes referred to as data mining.
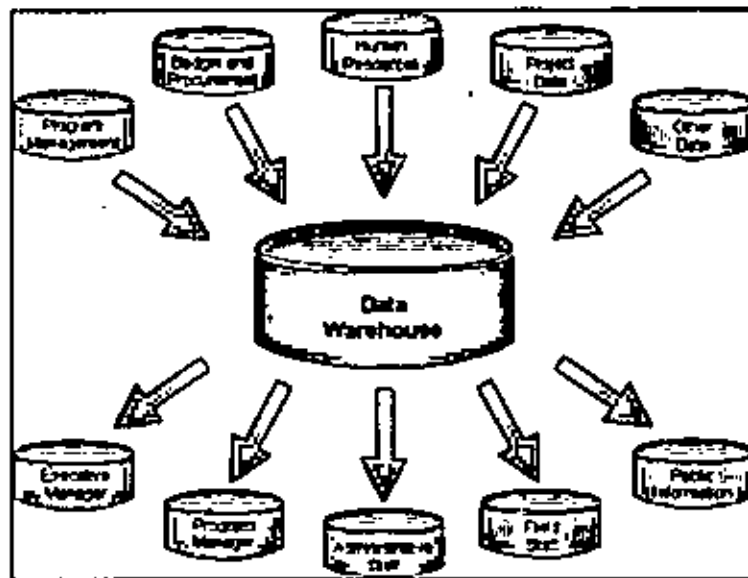
Figure 3.4: Data warehouse

3.18 Relational Databases

An integral part of any e-Business system is its database. A relational database turns raw data into persistent structured collections of information. In addition to managing information a database defines the relationships within an e-business system.

Relational Database Model

PubID	Publisher	PubAddress
03-4472822	Random House	123 4th Street, New York
04-7733903	Wiley and Sons	45 Lincoln Blvd, Chicago
03-4859223	O'Reilly Press	77 Boston Ave, Cambridge
03-3920886	City Lights Books	99 Market, San Francisco

AuthorID	AuthorName	AuthorBDay
345-28-2938	Hale Solassie	14-Aug-82
392-48-0065	Joe Blow	14-Mar-15
454-22-4012	Sally Hemmings	12-Sept-70
663-69-1254	Hannah Arendt	12-Mar-00

ISBN	AuthorID	PubID	Date	Title
1-34532-482-1	345-28-2938	03-4472822	1990	Cold Fusion for Dummies
1-38482-995-1	392-48-0065	04-7733903	1985	Macrame and Straw Tying
2-35921-499-4	454-22-4012	03-4859223	1952	Fluid Dynamics of Aqueducts
1-38276-293-4	663-59-1254	03-3920886	1967	Beads, Baskets & Revolution

Figure: 3.5: Relational Database Model

CHAPTER IV

DEVELOPMENT OF MIS FOR REB   ·

4.1 Importance of information

All organizations have an information system of some kind. Many might see a minimal system as sufficient—say, a manual accounting system that produces reports three months late. Having good information is essential for an institution to perform efficiently and effectively—the better its information, the better it can manage its resources. In a competitive environment the institution with better information has a distinct advantage.

A good information system could transform this institution. The organization may have capable and motivated staff, but if they lack information, they will be unable to perform up to their potential. A good information system can revolutionize the work of field staff, enabling them to better monitor their portfolio and serve their clients, all while working with a growing number of clients. It can enable supervisors to better monitor the work under their responsibility, provide better guidance to their staff, and pinpoint the areas that most require their attention. And it can help executive managers to orchestrate the work of the entire organization by allowing them to monitor the institution's health through a set of well-chosen indicators and by informing critical operational and strategic decisions. As more and more institutions scale up their activities, managers are becoming increasingly aware of the need to improve their information systems.

For many institutions, methodological issues, staff development, and even financing are no longer the critical constraints to growth. Instead, the most pressing need is often a system to track the status of their portfolios in a timely and accurate manner. The reliability of such systems can make the difference between the success and failure of lending operations—and therefore of an institution A system that performs tolerably at a moderate volume of activity can collapse as it's fed more and more information Manual systems may end up with huge backlogs of unprocessed data. Spreadsheet-based portfolio systems can become unwieldy as the spreadsheet grows. An institution unprepared for rapid growth will eventually undermine the quality of its services and its financial health. But an institution that develops a system capable of producing accurate, timely, and comprehensive information on operations, especially on the loan portfolio, will strengthen its financial performance and expand its client reach. Developing a solid management

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information system is one of the most important tasks facing institutions, particularly those scaling up.

4.2 Meaning of Management information

What exactly is a management information system? For the purposes of this handbook, a management information system is the series of processes and actions involved in capturing raw data, processing the data into usable information, and disseminating the information to users in the form needed.

An MIS is not simply a computer program, and it involves more than just calculating numbers Information management is first and foremost people communicating with one another about events that affect the work of their organization. The chart of accounts, all the forms used by an institution—from receipts to loan applications to staff vacation requests—meetings, reports, policies and procedures, the staffing structure, job descriptions, the planning process, and, yes, the computer software—all these and more influence the flow of information in an institution and so, together, make up the management information system. Aging, information that can be used to make a decision on loan follow-up or provisioning. An institution can be swimming in data and yet have little information.

| Data (input) | → | Management information system | → | Information (output) |
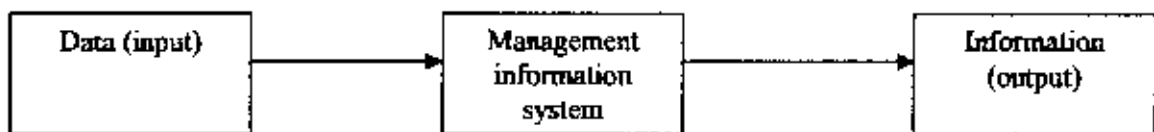
4.3 Developing and Implementing a Management Information System

Phase 1: Conceptualization. The institution defines its needs and performs an initial assessment of viable alternatives.

Phase 2: Detailed assessment and design. The institution carefully assesses systems under consideration for purchase If it has decided to modify an existing system or to develop a custom system, it will address design issues.

Phase 3: System development and implementation. The institution develops (or refines or adapts) the system it has chosen and implements the system.

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Phase 4: System maintenance and MIS audits. In this final phase the institution focuses on issues that must be addressed after the MIS has been developed and implemented—system maintenance, modifications, and periodic audits to ensure that the system is functioning properly.

4.3.1 Phase 1: Conceptualization

The conceptualization phase focuses on:

- Identifying the institution's needs
- Determining what is feasible with respect to technology, staff capabilities, and financial resources
- Performing an initial assessment of the alternatives—purchasing an off-the-shelf system, customizing a standard system, or developing a custom in-house system

The conceptualization phase culminates in a report on the findings that will guide the second phase

4.3.2 Phase 2: Detailed assessment and design

In phase 2 the MIS project team builds on the research findings from phase 1 to produce the final decisions that will be implemented in phase 3. The steps in this phase are few but challenging. This phase requires the detailed technical review of software programs under consideration, reviews that can take up to a week each. Then the entire system needs to be designed in detail—from the database table structures to the information to be collected, the rules to he applied, and the report formats to be generated. Finally, a detailed implementation plan, timetable, and budget need to be prepared.

4.3.3 Phase 3: System development and implementation

Phase 3 can be the longest of the phases, depending on the choice made in phase 2. Developing and testing software, whether to modify an existing program or create a new one, can take much time. Installation and data transfer can also be a lengthy process, depending on the size of the institution The steps in this phase need not be sequential, and each step can take much time. So, where possible, the steps should overlap to minimize the total time required to develop and implement the system. The order, timing, and duration of the steps should be detailed in the project team's MIS plan.

4.3.4 Phase 4: System maintenance and MIS audits

The software firm's responsibility does not end with the installation. It must provide reliable and timely support to the institution, to ensure that if the system does go down, it does not stay down long. Internationally supported software will have a technical support unit in a country only if it has a substantial market there. If not, support will be provided by email, phone, and fax. The alternative for an institution using international software is to employ someone with strong technical skills or to contract with a local software consulting firm that can provide ongoing support. The cost of support will depend on the system's stability and reliability, with a relatively new system that has not been thoroughly tested requiring much more support. The cost will normally decline as the institution grows more experienced with the MIS and thus more capable of solving problems. The cost of revisions and modifications needed as the institution evolves and changes its procedures usually is not included in charges for support. Firms will charge additional fees for upgrades of the source code and for customized modifications. Finally, regular reviews of the program—MIS audits—will be needed to ensure that the system continues to function properly, reflects the institution's current policies and procedures, and meets its information and management needs. A review is recommended once every three years

4.5 The Phase of the System Development Life Cycle

It is virtually impossible to manage effectively, a systems development project without a deep understanding of the phases necessary for the development of an application system. The systems development life cycle (SDLC) is a phased approach to analysis and design that holds that systems are best developed through the use of a specific cycle of analyst and user activities.

Analysts disagree on exactly how many phases there are in the systems development life cycle, but they generally land its organized approach The seven phase of SFLC are shown in figure 1.1 Although each phase is activities can occur simultaneously. And activities may be repeated. It is more useful to think of the SDLC as accomplished in phases (with activities in full swing overlapping with others and then tampering off) and not in separate steps.

1. Identifying Problems,
   Opportunities & Objectives

2. Determining Information
   Requirements

3. Analyzing System Needs

7 Implementing &
  Evaluating the System

4. Designing the
   Recommended System

6. Testing & Maintaining the
   System

5. Developing & Documenting
   Software
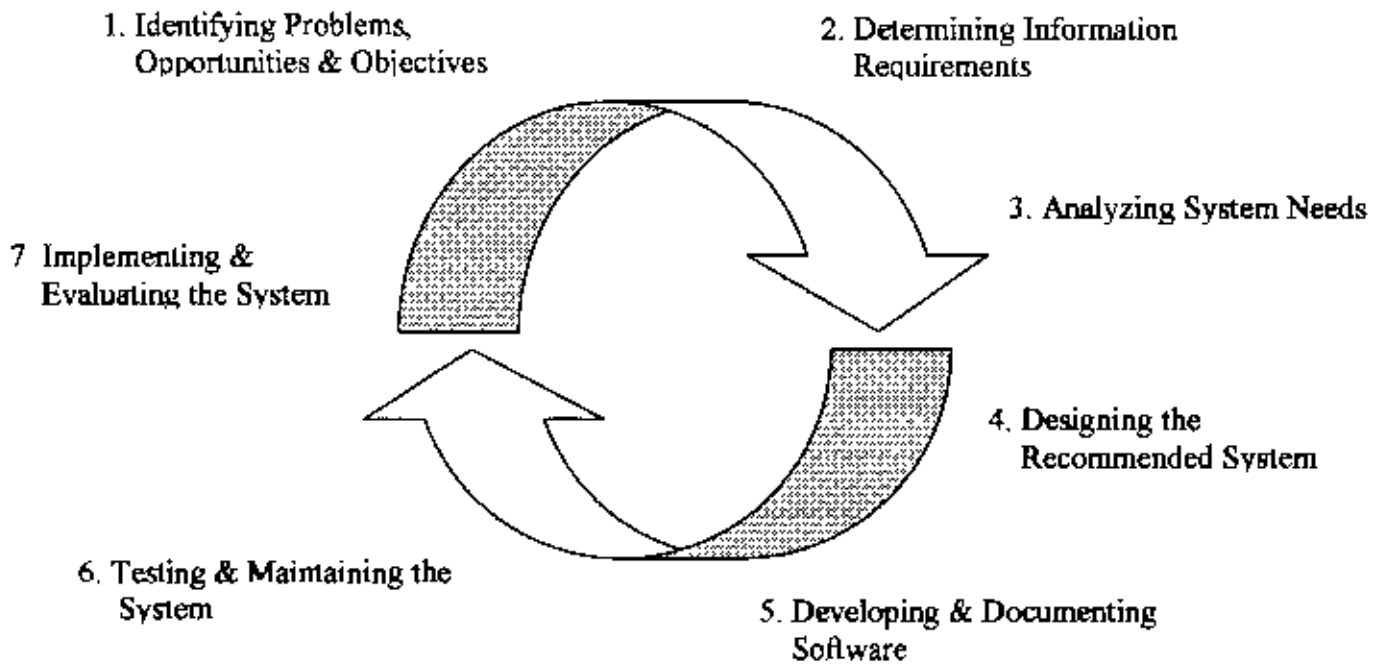
Figure 4.1· The seven phases of the systems development life cycle.

The descriptions of the seven phases of systems development life cycle are given below.

4.5.1 Identifying problems, Opportunities & Objectives

In this first phase of the systems development life cycle, the analyst is concerned with identifying problems, opportunities and objectives. This stage is critical to success of the rest of the project, because no one wants to waste subsequent time addressing the wrong problem.

The first phase requires that the analyst look honestly at what is occurring in a business. Then, together with other organizational members, the analyst pinpoints problems. Often, the others will up these problems, and they are the reason the analyst was initially called in Opportunities are situations that the analyst believes can be improved upon through the use of computerized information systems. Seizing opportunities may allow the business to gain a competitive edge or set an industry standard.

Identifying objectives is also an important component of the first phase. First, the analyst must discover what the business is trying to do. Then the analyst will be able to see if some aspect of information systems application can help the business reach its objective by addressing specific problems and opportunities.

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Therefore, this phase involves defining the problem and fixing up its boundaries. The needs and problems faced by the client are recorded in this phase. At the end of this phase, the team becomes clear with the project objectives and their work purview. Inputs to this phase are always unstructured. These inputs are gathered from interactions had with clients.

The activities involved in this phase:
- ➤ Meeting the client
- ➤ Understanding the client's needs.
- ➤ Identifying the probable solutions
- ➤ Defining the scope of the project

4.5.2 Determining Information Requirements

During this phase the analyst enters is that of determining information requirements for the particular users involved. Among the tools used to define information requirements for the particular users involved. Among the tools used to define information requirements in the business are sampling and investigating hard data, interviewing, observing decision maker's behavior and office environment and even prototyping.

In the information requirements phase of the SDLC, the analyst is striving to understand what information users need to perform their jobs. There are several methods for determining information requirements involve interacting directly with users. These phase serve to fill in the picture that the analyst has of the organization and its objectives. Sometimes only the first two phase of the systems development life cycle are completed

The people involved in this phase are the analyst and users, typically operations managers and operation workers. The systems analyst needs to know the details of current system function: who (the people who involved), what (the business activity), where (the environment in which the work takes place), when (the timing), and how (how the current procedures performed) of the business under study. The analyst must then ask why the business uses the current systems. There may be good reasons for doing business using the current methods, and these should be considered when designing any new system.

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4.5.3 Analyzing System Needs

The next phase that the system analyst undertakes involves analyzing system needs. Again, special tools and techniques help the analyst make requirement determinations. One such tool is the use of data flow diagrams to charts the input, processes and output of the business's functions in a structural graphical form. From the data-flow diagram, a data dictionary is developed that lists all the data items used in the system, as well as their specifications: whether they are alphanumeric or text or how much space they take up when printed

4.5.4 Designing the Recommended System

In the design phase of the systems development life cycle, the system analyst uses the information collected earlier to accomplish the logical design of the information system. The analyst designs accurate dada-entry procedures so that data going into the information system are correct. In addition, the analyst provides for effective input to the information system by using techniques of good form and screen design.

Design phase involves the preparation of the blue print of the proposed system, which involves the following:

4.5.5 Designing the GUI standards

When an application is designed, it must follow standards with respect to flow, Appearance and look of an application. Standards are used to bring about consistency throughout the application

4.5.6 Designing the Interface for the Application

Here the layouts of the screens are designed in line with the GUI standards set. These screens can be either input forms, which accepts the user inputs, or reports used for displaying information to the user. In this phase, the contents and appearance of the input forms and reports are decided along with their number and purpose of each one. The navigation details of the entire application are also specified during this phase if the application has a browser interface.

4.5.7 Designing the Database

In this phase, the information from the Entity relationship Diagram (ERD), a visnal representation of the entities of the system and interactions between these entities in the

system, is used to design the database. The entities in an ERD represent the tables that have to be created and their attributes represent the fields that are in each table. Table design will follow the rules of Normalization

4.5.8 Designing the Process Modules

Process design involves translating the process definitions, arrived at in the analysis phase, into code modules. This module design is then expanded into program specifications. The type of validations needed to verify the functionality of each process in the project is also specified in this phase.

4.5.9 Designing the Coding Standards

The process modules designed will be considered good if they are standardized Standardized involves setting up of naming conventions of program entities and database referencing to name a few. Standardization helps to bring about better readability and easy maintenance of the code. Standard naming conventions make it easy to program entities like forms and modules. When standard naming conventions are used, the names of the variables, forms and modules will denote their purpose even to a program other than the developer.

4.5.10 Designing the Prototype

Next a prototype of the application is created and shown to the client for approval. The designer delegates the development of the prototype to the developer. The prototype is a model of what the application would like. The prototype's screens allow the client to view the User Interface of the application It also allows him/her to understand the functionalities that will be achieved in the completed application

4.5.11 Assigning and Monitoring Tasks

When the project development starts, the project leader needs to budget the number of person-hours required to complete the project. In order to do so, the project leader may create a task sheet, with which he/she will be able to track and monitor the various phases of project development, thus him/her to anticipate delays.

4.5.12 Developing & Monitoring Software

In the fifth phase of the system development life cycle, the analyst works with programmers to develop any original software that is needed. Some of the structure techniques for designing and documenting software include structure charts, pseudo code.

4.5.13 Testing & Maintaining the System

This is the most crucial phase where each unit is tested for it's functionality. Test data is used to check if the module is able to process it without causing any errors. Test data may be live data extracted from existing records in the system or dummy data. Then the individual tested modules are integrate and tested as a whole through its various paths.

The activities during this phase can be;

> Unit Testing
> Validating Screen Inputs
> Peak Load Testing
> Volume Testing
> Reliability Testing
> Integration Testing

4.5.14 Implementation & Evaluating the System

In this last phase of system development, the analyst helps implement the information system. This phase involves training users to handles the systems. Some training is done by vendors but oversight of training is the responsibility of the system analyst. In addition the analyst needs to plan for a smooth conversion from the old system to the new one. This process includes converting files from old format to new ones or building a database, installing equipment and bringing the new system into production.

Design Questions   Program Spec Ques.   Program Bugs & Error   Installation Bugs

| Analysis | Design | Program Design & Coding | Program Testing | Installation |

Requirements   Program Specifications   Program Source Code   Completed System
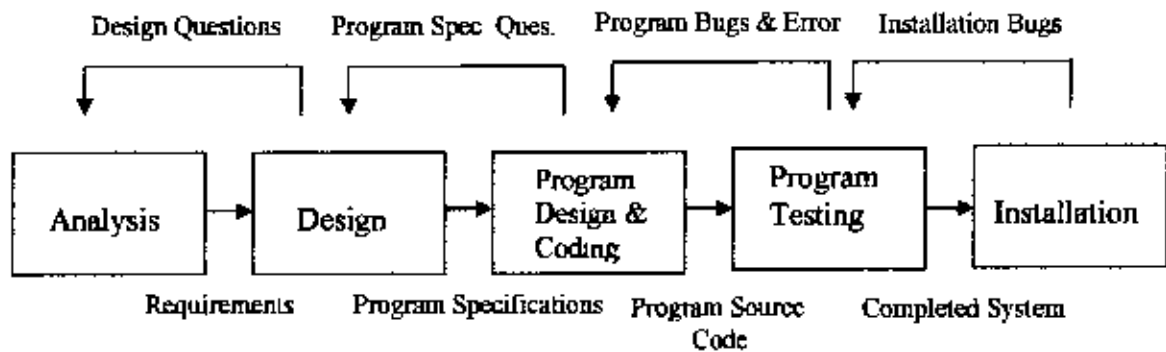
Figure 4.2: Feedback from Different phases of Systems development Life Cycle.

4.6 Designing a Database – Understanding Relational Design

4.6.1 Database

Database is not merely a collection of files. Rather, a database is a central source of data meant to be shared by many users for a variety of applications. The heart of a database is the database management system (DBMS), which allows the creation, modification and updating of the database; the retrieval of data; and the generation of reports.

4.6.2 The Database Design Process

The key to effective database design lies in understanding exactly what we want to store and the way a database management system (RDBMS), such as Visual FoxPro, Microsoft SQL Server, Microsoft access store data.

4.6.3 Steps in Designing a Database

The steps in the database design process are

Step One: Determine the purpose of the database

Step Two. Determine the tables we need.

Step Three. Determine the fields we need.

Step Four: Determine the relationships.

Step Five; Refine your Design

4.6.4 Description of Normalization

Normalizing a logical database design involves using formal methods to separate the data into multiple related tables. A greater Number of Narrow tables (with fewer columns) are characteristics of a normalized database A few tables (with more columns) are characteristics of normalized database.

Some of the benefits of the normalization include·

- ❖ Faster sorting and index creation
- ❖ A large number of clustered indexes
- ❖ Narrow and more compact indexes
- ❖ Fewer indexes per a table, which improves the performance of insert, update and delete statements.
- ❖ Fewer NULL values and less opportunity for inconsistency, which increase database compactness

4.4 Developer of SDLC

The commission and implementation of any computerized system involves the work of a team people. This is led by a Project leader. A Project Leader essentially decides which tasks are to be performed by each team member and how much times should be allotted to each project development Phase.

A team typically consists of the following people:

4.4.1 Analyst

The analyst studies the requirements of the system and defines the problem. The
Analyst identifies the needs of the system and determines the Inputs, the Outputs and the Process involved in transforming these inputs into outputs.

4.4.2 Designer

The Designer creates a blueprint of the system in terms of the database structure, screens, forms and reports.

4.4.3 Developer/Programmer

The Developer builds the user interface according to the specifications prepared by the Designer. Then the Developer builds the prototype of the system. After receiving Client approval on the prototype, the Developer adds the necessary code to make the prototype a full-fledged system.

4.4.4 Tester

The tester tests the working of an application by first testing each module for functionality Test data is used to check if the module is able to process it without causing any errors. Test data may be live data extracted from existing records in the system or dummy data. The Tester then also verifies the integrated application's functionality with test data.

4.4.5 Implementation Engineer

The Implementation Engineer ports the completed application to the Client's computers The Implementation Engineer will ensure that the installation process has been carried out accurately and hands over the system to the Client.

4.4.6 Maintenance Engineer

The maintenance Engineer is responsible for taking care of the maintaining the system that has been built. Maintenance includes extending troubleshooting support and performing software upgrades in case of changes in the external system.
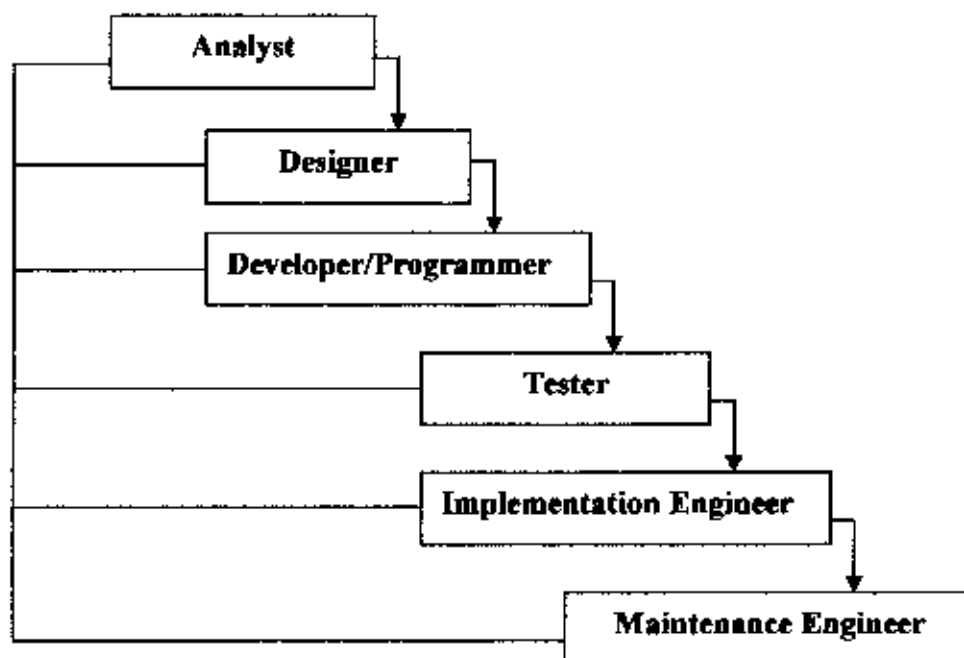
Figure 4.3· Developers relation in a SDLC

4.7 Tools Used

Front End: Visual Basic 6 0

Back End: Microsoft SQL Server 6.0

Reporting Tools: Crystal Report

4.8 Database characteristics of MIS System

The structure of the database is based on SQL database server, mainly due to its flexibility, friendly environment of organization of the data sources, and the flexibility in upgrading the final product. SQL database server is the world's most popular database Over six million installations use SQL to power high-volume Web sites and other critical business systems. SQL server is well-known for its operational speed and its enhanced reliability.

The relational database model of SQL offers improved capabilities in the design of complex relational data. The transfer of the data into and out of the database is fast, secure and reliable even if the number of the records saved in the database is extremely large. Furthermore, there is no limit in the size of the data that can be saved into the database (the limit comes from the capacity of the hard disk) and back-ups of all the data can be created with extremely low capacity cost and within logical frequency rates.

4.9 E R model of MIS of program planning directorate

An Entity-relationship model is a relational schema database modeling method used to model a system and its requirements in a top-down approach. This approach is commonly used in relational (RDBMS) database design. The diagrams created using this method are called ER diagrams.An entity-relationship model (ERM) is an abstract conceptual representation of structured data; entity-relationship modeling is the process of generating these models The end-product of the modeling process is an entity-relationship diagram (ERD) or ER diagram, a type of conceptual data model or semantic data model.

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4.10 Database Design of MIS of program planning directorate

After finding and analyzing the development project related data has been divided into 12 categories. Each category data will be kept in following 12 tables.

- o Project description
- o Objective achievement

4.11 Database structure
There are seven main components that comprise the MIS System database: Technical reports, Basic Project data, Financial data, Physical data, Work break down Structure, Yearly Project Target data and Estimated Project target data with approximately 12 supporting tables Each of these tables is linked to each other, where appropriate, and all of the supporting tables are linked to one or more of these seven main components. The following sections demonstrate the main field included in the main System components of the MIS database

The detail database layout and entity relationship are given below.
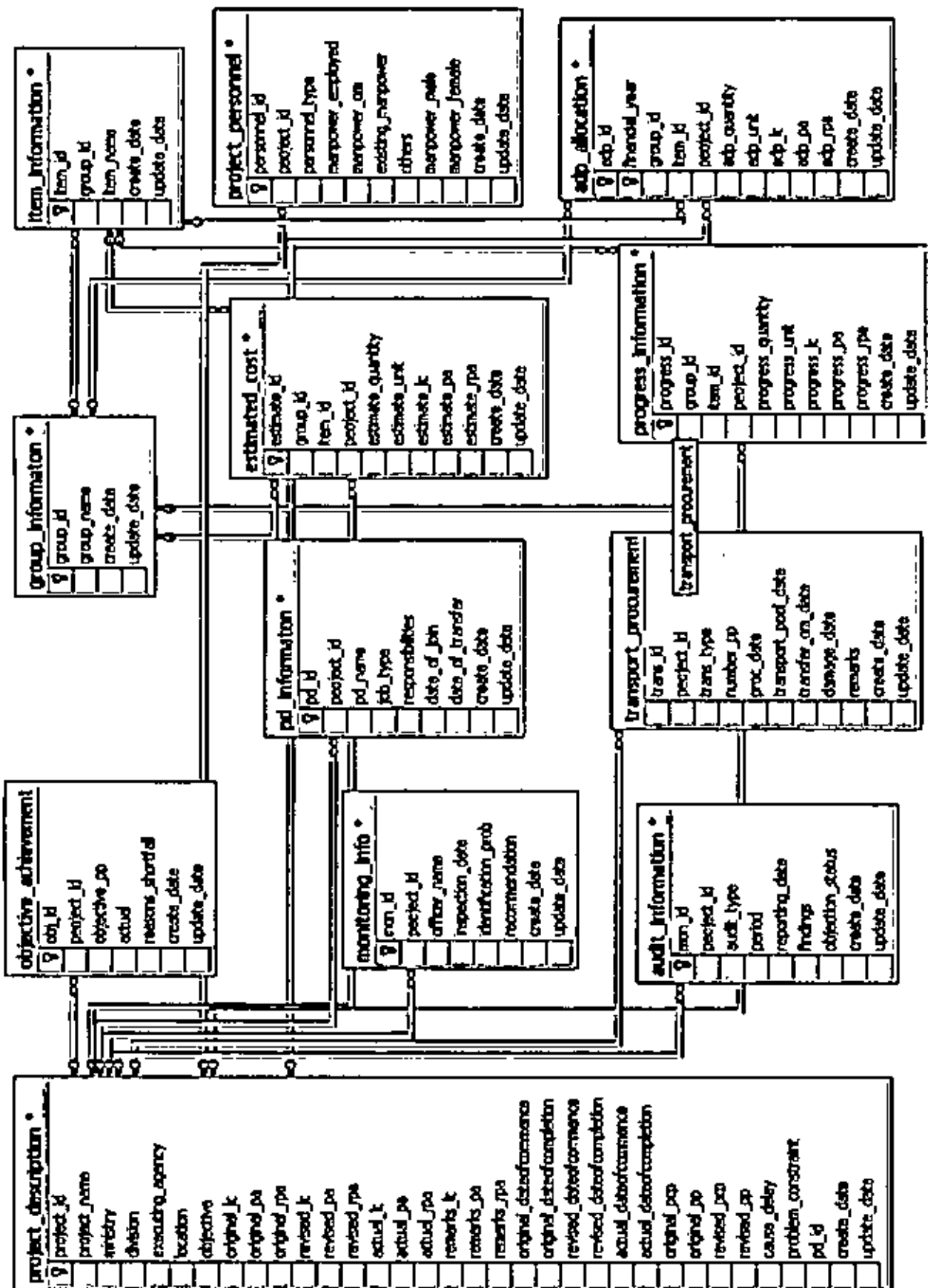
Figure 4.4: The database design of REB MIS System

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CHAPTER V
IMPLIMENTATION OF MIS FOR REB

A complete database system includes also the interface with which the user can communicate with the database in order to insert, update and delete data. For this issue interface applications were generated for each individual section of the database. These applications are compatible with all the types of Windows Operational System (95, 98, 2000, XP, etc) with small capacity requirements (less than 30 MB) and low CPU and RAM usage. These applications can be installed locally to any computer, providing a communication connection with the central database at the main server which gives access to any number of remote computers. In each remote host computer, an ODBC driver is also installed and binds the central server database with the application through internet or intranet connection. This driver is based on the TCP-IP communication protocol with the potential of the SSL encrypted protocol for secure transfer of the data via the net (internet or intranet). The user can retrieve the data and modify them appropriately and in some cases analyze them to changes of the data. Security of these interfaces is guaranteed through the access and installation of the specific application interface. which is further protected through appropriate usernames and passwords. The detail interface description is given in the following section.

5.1 Form Design of the Project

The form design of the project given in the figures below:
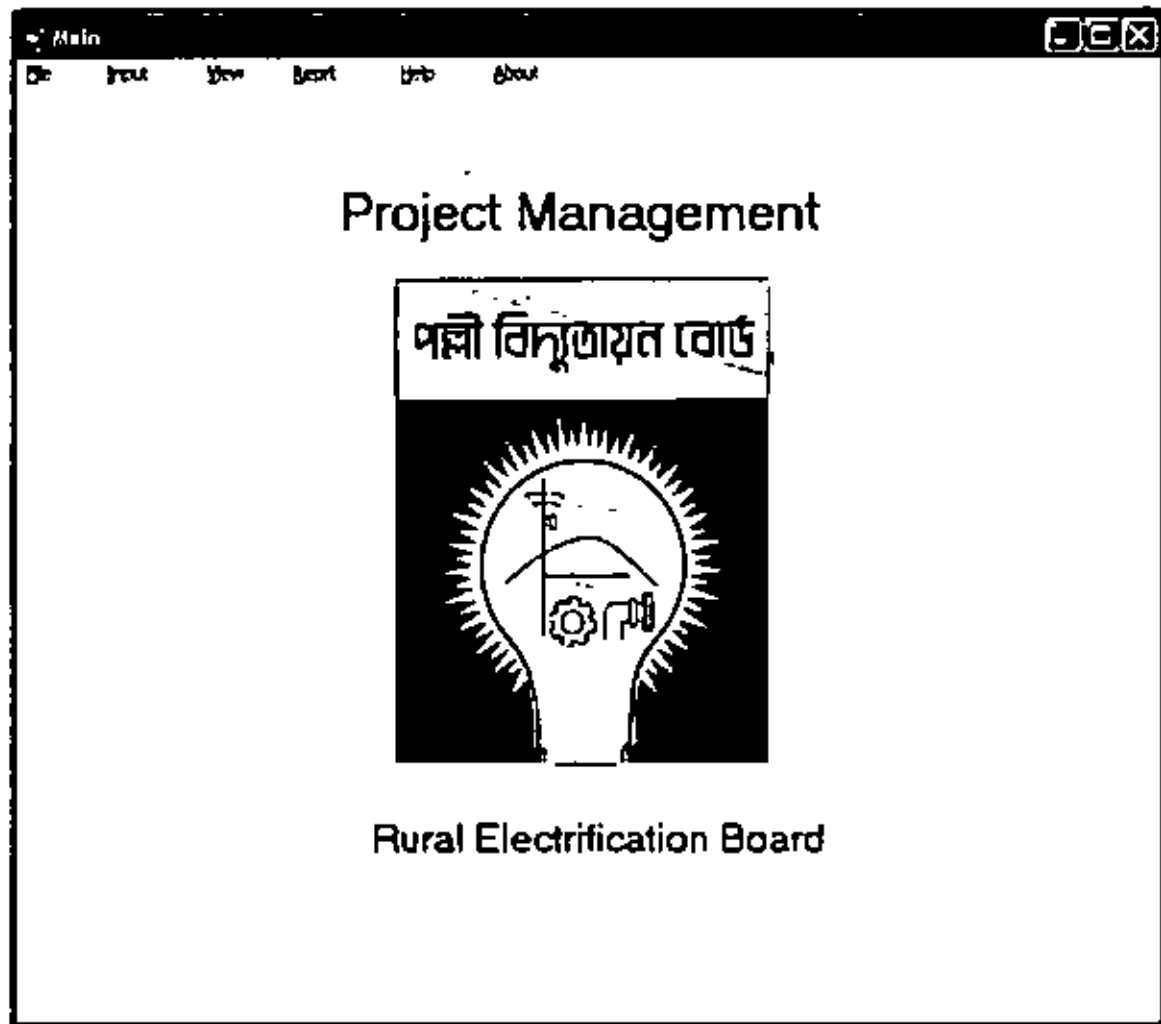
Figure 5.1: Main Interface

This is the main interface of the MIS project. This interface contain file, input, view, report, help and about in the menu bar. This interface is giving the primary introduction about the MIS system.
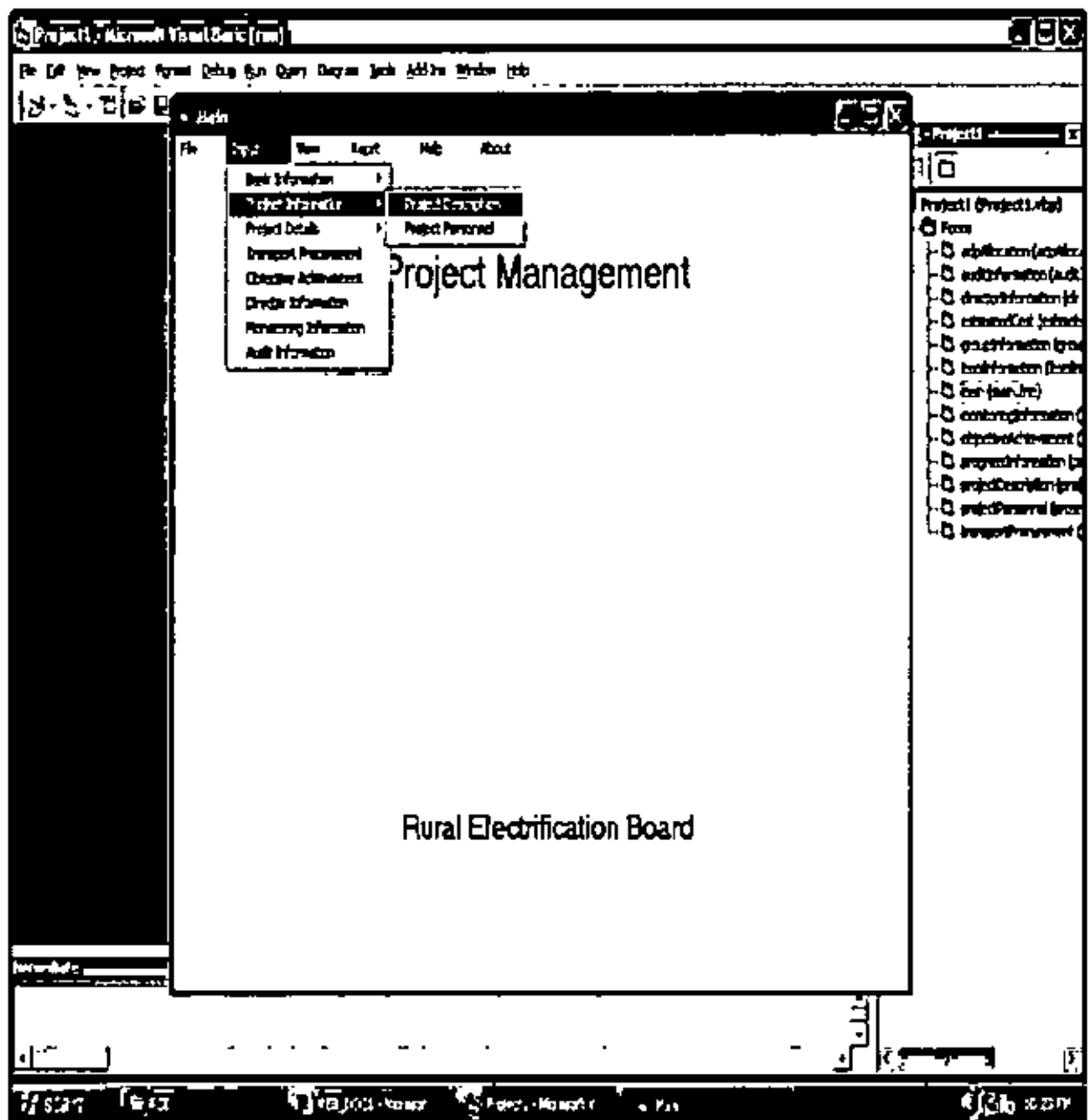
Figure 5.2: Insert Menu and Sub Menu

This interface showing the detail items contain in the menu bar of the MIS project. In the input item contain basic information, project information, project details, transport procurement, objective achievement, director information, monitoring information and audit information. This part is related with the project description of project management system.

Project Description

Name Of The Project : [Text1]

Sponsoring Ministry : [Text4]

Division : [Text5]

Executing Agency : [Text5]

Location Of The project : [Text6]

Objective Of The Project : [Text7]

Implementation Period

	Date Of Commencement	Date Of Completion
Original	[Text21]	[Text22]
Later Revised	[Text23]	[Text5]
Actual	[Text24]	[Text25]

Estimated Cost (Lakh Taka)

	LC	PA	ELPA
Original :	[Text9]	[Text10]	[Text11]
Revised :	[Text12]	[Text13]	[Text14]
Actual	[Text15]	[Text16]	[Text17]
Remarks	[Text18]	[Text19]	[Text20]

Date Of Approval

	PCP	PP
Original :	[Text27]	[Text29]
Latest Revised :	[Text28]	[Text30]

Causes of Project Delay : [Text31]

Problem and Constraint for Project Implementation : [Text32]

Project Director Name, Desg., Address : [Text33]

Save   Remove   Update

Figure 5.3: Project Description Form

This interface is for inputting the primary information of project. This interface contain name of the project, sponsoring ministry, division, executing agency, location and object of the project as primarily. Secondly, this interface contains place for the project estimation cost. Under this heading original, revised, actual cost and remarks have incorporated. Thirdly, this interface contain implementation period. Under this heading original, latest revised and actual period have incorporated. Finally, date of approval, causes of project delay, problems and project director name have incorporated. This part is related with the project description of project management system.

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Figure 5.4: Project Personnel Form

This interface is project personnel interface. Under this interface project name with detail information of project personnel have incorporated. Under this interface personnel type, manpower employed, manpower recruit for O & M, existing manpower in O & M, male employed, female employed and other information have incorporated. This part is related with the project description of project management system.
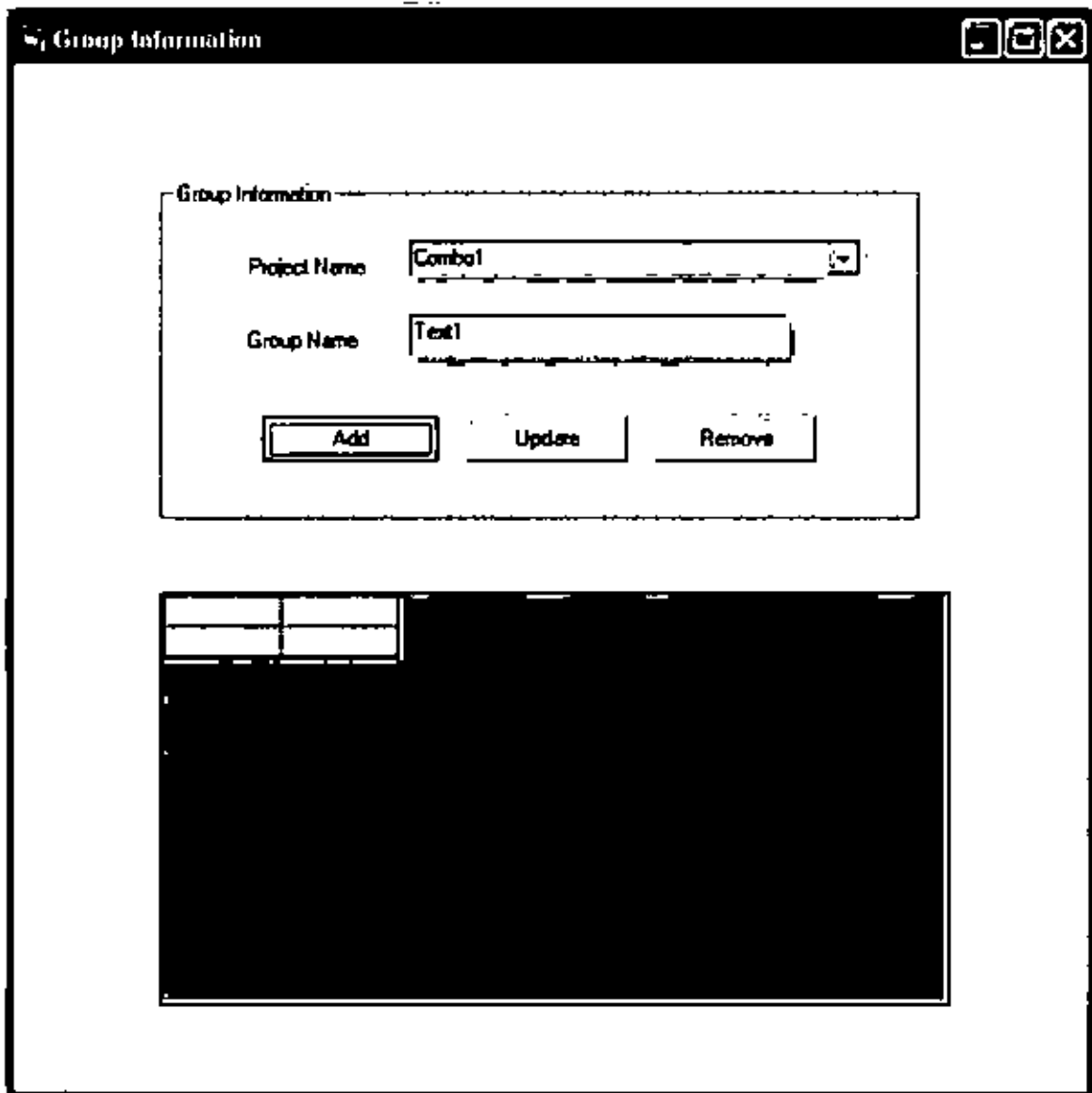
Figure 5.5: Group Information Form

This interface is for the group information. This interface contains project name and group name. Add, update and remove is incorporated in the interface. This part is related with the group information of project management system.

Figure 5.6: Item Information Form

This interface is for item information. This interface contains project name, group name and item name. Add, update and remove is incorporated in the interface. This part is related with the item information of project management system.

Figure 5.7: Project Estimate Form

This interface is related with the estimated cost of project management system. This interface contains project name, item group, name of item, L C, P A and R P A. Add remove update and save delete function possible in the interface.
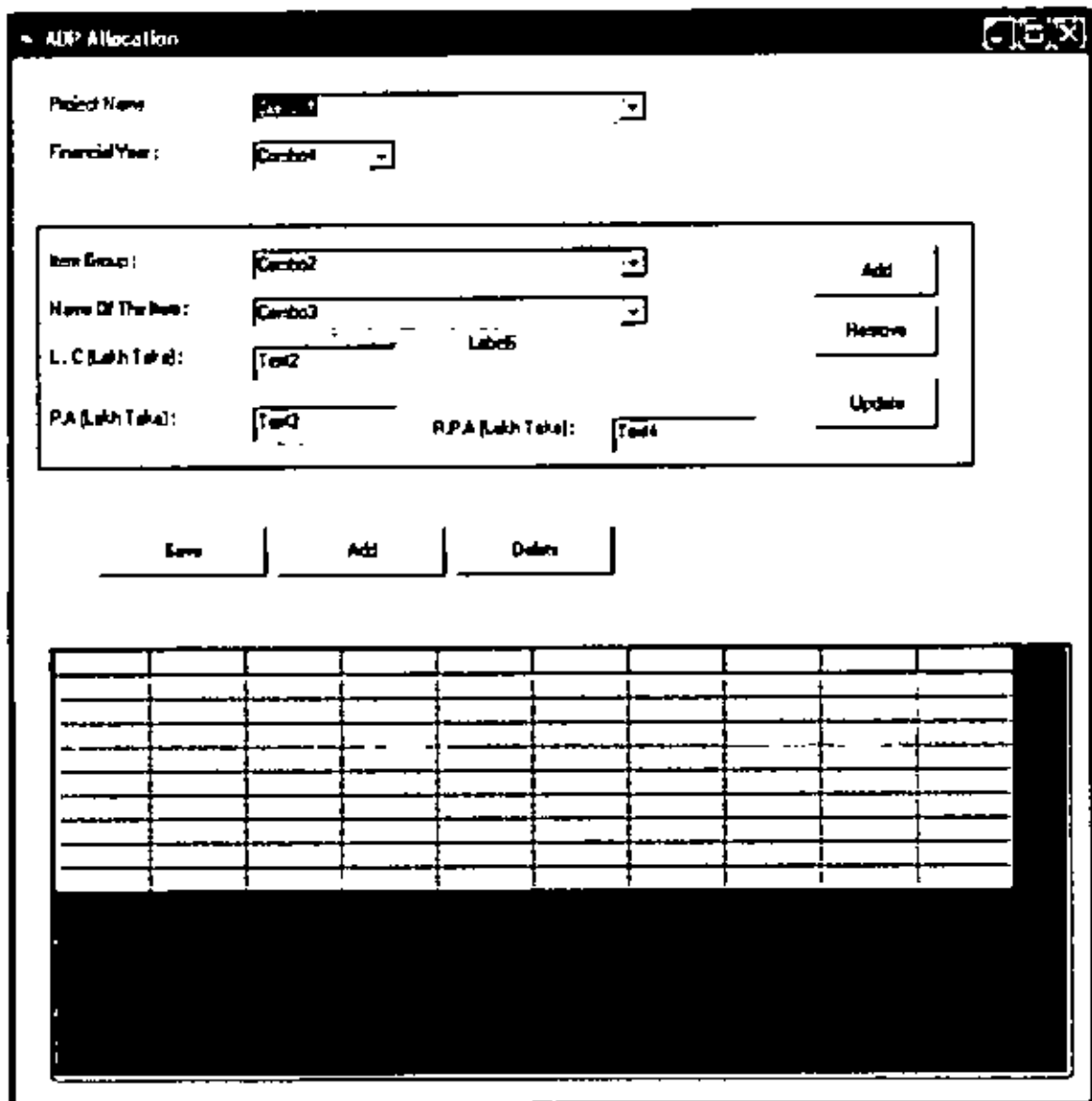
Figure 5.8: Project ADP allocation Form

This interface is related with the ADP allocation of project management system. This interface spatially contain financial year. This interface contains project name, item group, name of item, L C, P A and R P A for ADP. Add remove update and save delete function possible in the interface.

Figure 5.9: Project Progress Form

This interface is related with the progress information of project management system. This interface contains project name, item group, name of item, quantity L C, P A and R P A. Add remove update and save delete function possible in the interface.

Figure 5.10: Project Transport Procurement Form

This interface is related with the transport procurement of project management system. This interface contains project name, transport type, number as PP, procured with date, transfer to transport pool with date, condemned damaged with date, and remark. Add remove update and save delete function possible in the interface.

Figure 5.11: Project Objective Achievement Form

This interface is related with the objective achievement part of project management system. This interface contains project name, objective of PP, actual achievement and remark. Add remove update and save delete function possible in the interface.

Figure 5.12: Project Director Information Form

This interface is for storing the director name of project and related with PD information part of project management. This interface contain director name with the project name and status of job type of director.

Figure 5.13: Project Monitoring Information Form

This interface is related with the monitoring information part of project management system. This interface contains project name, official name, date of inspection. identified problems and recommendation. Add remove update and save delete function possible in the interface.

Figure 5.14: Project Audit Information Form

This interface is related with the audit information part of project management system. This interface contains project name, audit type, period of audit, date of submission audit report, major findings and objective resolve or not. Add remove update and save delete function possible in the interface.
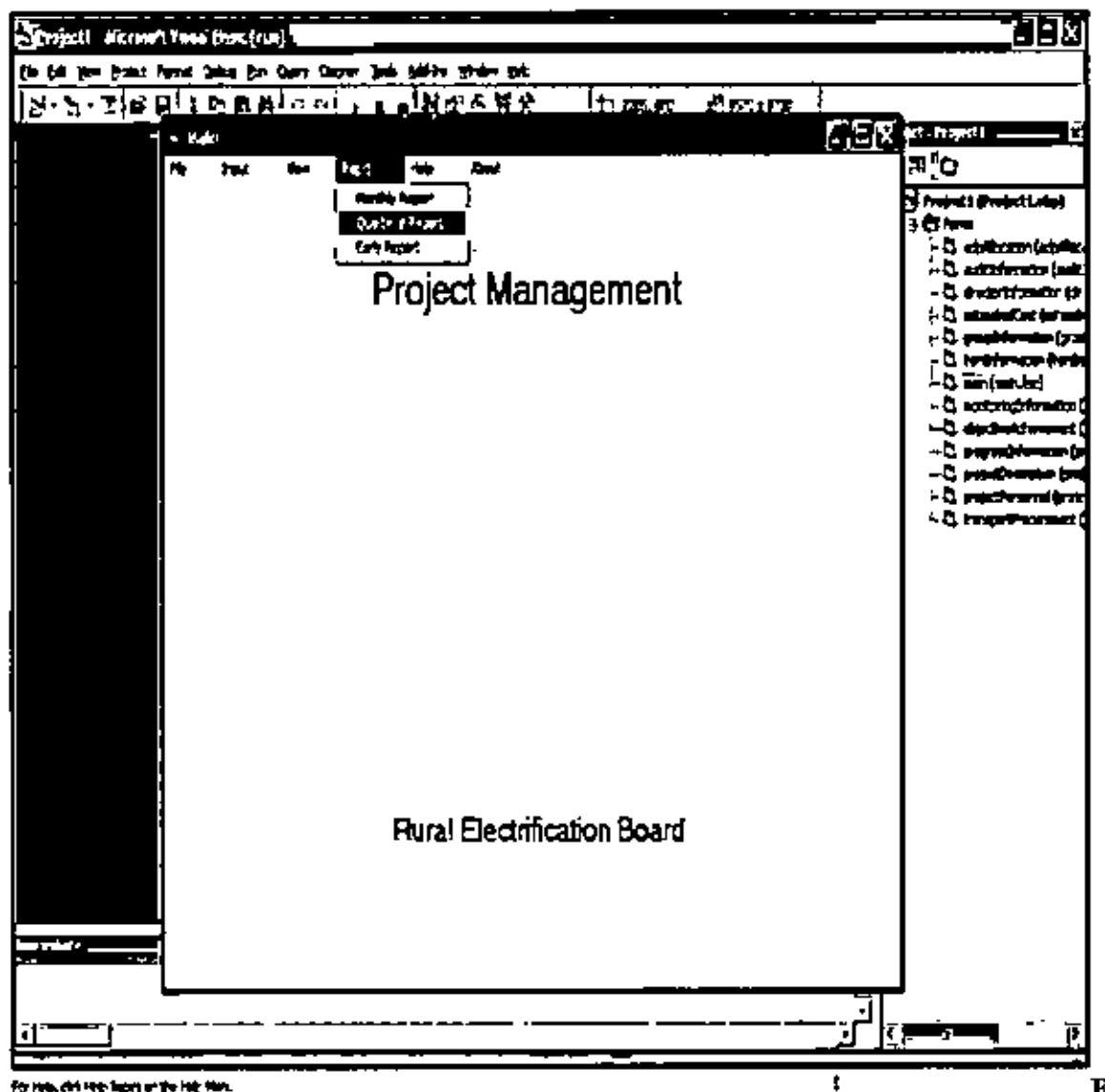
Figure 5.15: Project Report Menu

This interface is the main interface of project. This interface is showing the report menu of project. Three types of report can generated from the management system. Monthly, quarterly and yearly report can generate from the menu.

Implementation is the main part of the MIS design. This MIS system generated automatic report from the inputted data for REB. This MIS system generated three specific report for REB those are become the most important tools for the report evaluation of REB.

- Monthly progress Report
- Quarterly Report
- Annual Report

5.2 Monthly progress Report

Monthly progress report covered various part of project of REB. Firstly, it provides information original and revised project of REB. Secondly, it provides progress and process of found release. Thirdly, it provides quarterly financial and physical status of project. Fourthly, it indicates the Target and Achievement of the Components of the Project. Finally, it provides IMED inception and the pending project information.

5.3 Format of monthly report

Monthly Progress Report

Reporting Period:

Name of the Ministry/Division/Organization   :

1.   Name of the Project   :
2.   Objectives of the Project   :
3.   Location of the Project   :
4.   Aproval, Estimated Cost and Implementation Period   '

(In Lakh Taka)

PP/DPP/TPP	Date of aproval	Implementation period	Total	Taka	Physical (% of Total Project)
i. Original:					
ii. Revised					

5.   Progress of Processing of Fund Release Proposal   :

(In Lakh Taka)

	Date of				Amount Released
	Proposal Sending to Ministry/Division	Issue of order	Sending to Finance Division	Endorsment From Finance Division	
1st quater					
2nd quater					
3rd quater					
4th quater					

6.   Quarterly Financial and Physical   :

(In Lakh Taka)

	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical
a) Target :								
b) Achievement : (Physical progress as the % of total project)								

7.   Target and Achievement of the Components of the Project:

(In Lakh Taka)

SI No.	Work components as per PP (With quantity)	Estimated Cost as per PP	Achievement upto last June		Target of the current year		Progress upto the Reporting month of the current year	
			Financial	Physical (% of the component)	Financial	Physical (% of the component)	Financial	Physical (% of the component)
Total								

8.

IMED's Inspection Report   :

Date and Place of Inspection	Major findings/Recommendation	Action taken so far on the IMED's Recommendation

9.   Matters referred from the Project but pending with other offices including the Administrative Ministry :

Subject	Name of the office where the matter is still pending	Date on which the matter was referred to that office	Problems faced by project fo this pending issue

10.   Reasons for the delay of
       Project implementation

11.   Existing problems of
       implementation of the project

5.4 Quarterly Report

Quarterly report one of the major components of project evaluation of REB. It covered a large portion of area for project evaluation and analyzing the effectiveness of project. It cover name, administrative ministry, executive agency, estimation cost, implementation period of the project as the initial information. Then it covered the financial information of the project as foreign financing, GOB financing, utilization of aid, RPA and cost of the project. After that this report covered detail information related to the project personnel, their training information, progress and facilities information. It also cover financial and physical program information related to the project, achievement of objectives, benefit analysis and monitoring and auditing information.

5.5 Format of Quarterly Report

Quarterly Report

(01) Name of the Project   :

(02)   Administrative Ministry/Division   :

(03) Executing Agency   :

(04) Location of the Project   :

(05) Objective of the Project   :

(06) Estimated Cost   :

(In lakh Taka)

	Original	Latest Revised
(a) Total		
(b) Taka		
(c) Foreign Currency		
(d) Project Aid		
(e) RPA		

(07)   Date of Approval   :   PCP   PP

(a) Original	:		
(b) Latest Revised	:		

(08) Implementation Period   :

	Date of Commencement	Date of Completion
(a) Original		
(b) Latest Revised		
(c) Actual		

(09) Financing Arrangement (Source-wise):

(9.1) Status of Loan/Grant

a) Foreign Financing :

Source (s)	Currency as per Agreement	Amount in US $ (Million)	Nature (Loan/Grant / supplier's/ credit)	Date of Agreement	Date of Effectiv e-ness	Date of Closing	
						Origin al	Revise d
1	2	3	4	5	6	7	8

b) GOB :

(In lakh Taka)

Total amount	Loan	Grant	Cash Foreign Exchange
1	2	3	4

(9.2) Utilization of Project Aid : (Source wise)

(In million)

Source (s)	Total Amount		Actual Expenditure		Unutilized Amount	
	In US $	In Local Currenc y	In US $	In Local Currenc y	In US $	In Local Currency
1	2	3	4	5	6	7

(9.3) Re-imbursible Project Aid (RPA) :

(In lakh Taka)

RPA Amount		Amount Spent	Amount Claimed	Amount Re-imbursed	Remarks
As per PP	As per Agreement				
1	2	3	4	5	6

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B. IMPLEMENTATION POSITION

(01) Implementation Period:

Implementation Period as per PP		Actual Implementation period	Time Over-run (% of original implementation period)	Remarks
Original	Latest Revised			
1	2	3	4	5

(02) Cost of the Project :

(In lakh Taka)

Description	Estimated Cost		Actual expenditure	Cost over-run (% of original cost)	Remarks
	Original	Latest revised			
1	2	3	4	5	6
TOTAL					
TAKA					
PA					

(03) Project Personnel :

Sanctioned strength as per PP	Manpower employed during execution	Status of the existing manpower			Manpower Employed	
		Manpower requirement for O&M as per pp	Existing manpower for O & M	Others	Male	Female
1	2	3	4	5		
Officer (s)						
Staff(s)						
Total :						

(04) Training of Project Personnel (Foreign/Local) :

Field of Training /Study tour/worksho p/Seminer etc.	Provision as per PP		Actual		Remarks
	Number of person	Man - months	Number of person	Man - months	
1	2	3	4	5	6
Foreign					
Local					

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(05) Component-wise Progress (As per latest approved PP):

(In lakh Taka)

Items of work (as per PP)	Unit	Target (as per PP)		Actual Progress		Reasons for deviation (±)
		Financial	Physical (Quantity)	Financial	Physical (Quantity)	
1	2	3	4	5	6	7

(06) Information regarding Project Director (s):

Name & Designation with pay Scale.	Full time	Part time	Responsible for more than one project	Date of		Remarks
				Joining	Transfer	
1	2	3	4	5	6	7

(07) Procurement of Transport (in Nos.):

Type of transport	Number as per P.P.	Procured with date	Transferred to Transport Pool with date	Transferred to O & M with date	Condemned/ damaged with date	Remarks
1	2	3	4	5	6	7
Car						
Jeep						
Microbus						
Minibus						
Bus						
Pick-up						
Truck						
Motor Cycle						
By-cycle						
Speed Boat						
Launch						
Others with name						

(08) Procurement of Goods, Works and Consultancy Services:

Goods & Works of the Project costing above Tk. 200.00 lakh. and Consultancy above Tk. 100.00 lakh :

Description of procurement (goods/works /consultancy) as per bid document	Tender/Bid/Proposal Cost (in crore Taka)		Tender/Bid/Proposal		Date of completion of works/services and supply of goods	
	As per PP	Contracted value	Invitation date	Contract signing/ L.C opening date	As per contract	Actual
1	2	3	4	5	6	7

(09) Use of Project Consultant (s) (Foreign/Local):

Name of the Field	Approved man month		Actual man month utilised	Remarks
	As per PP	As per contract		
1	2	3	4	5
Foreign				
Local				

(09) Construction/Erection/Installation Tools & Equipment :

Description of items	Quantity (as per PP)	Quantity procured with date	Transferred to O & M with date	Disposed off as per rule with date	Balance	Remarks
1	2	3	4	5	6	7

C. <u>FINANCIAL AND PHYSICAL PROGRAMME</u> :

(01.a) Original and revised schedule as per PP :

<div align="right">(In lakh Taka)</div>

Financial Year	Financial provision & physical target as per original PP				Financial provision & physical target as per latest revised PP			
	Total	Taka	P.A.	Physical %	Total	Taka	P.A.	Physical %
1	2	3	4	5	6	7	8	9

(01.b) Revised ADP allocation and progress :

(In lakh Taka)

Financial Year	Revised Allocation & target				Taka releas e	Expenditure & physical progress			
	Tota l	Taka	P.A .	Physical %		Total	Taka	P.A.	Physical %
1	2	3	4	5	6	7	8	9	10

D. ACHIEVEMENT OF OBJECTIVES OF THE PROJECT :

Objectives as per PP	Actual achievement	Reasons for shortfall, if any
(a)		
(b)		
(c)		
(d)		

E. BENEFIT ANALYSIS

(01) Annual Out-put:

Items of out-put	Unit	Estimated quantity expected at full capacity	actual quantity of out-put during the 1st year of operation at full capacity (or during, real production for newly completed project).
(a)			
(b)			
(c)			
(d)			

(02) Cost / Benefit :

Item	Estimated	Actual

(1) Benefit cost ratio of the project
    (i) Financial
 	
    (ii) Economic		

(2) Internal Rate of Return
    (i) Financial
 	
    (ii) Economic		

(03) Please give reasons for shortfall, if any, between the estimated and actual benefit:

F. MONITORING AND AUDITING

(0.1) Monitoring:

Name & designation of the inspecting official	Date of Inspection	Identified Problems	Recommendations
1	2	3	4

Period of Audit	Date of submission of Audit Report	Major findings/ objections	Whether objections resolved or not.
1	2	3	4

5.6 Annual Report

Annual report of REB is one of the major components of project evaluation. The total allocation of yearly represent in the report, in this allocation physical component, L.C, F.E and allocation measured. After that annual progress of the work classified in Physical, L.C, F.E and total progress measured. As like previous two categories the cumulative progress measured in the annual report. From the design database all the information cumulatively can be extract from the total database.

5.7 Format of Annual Report

Sl.No.	Name of the Items (As per PP)	Estimated Cost				Cumulative Progress upto June'2007				ADP Allocation for (2007-2008)				Progress Up to September, 2007			
		Quantity & Unit	Total	L.C.	F.E.	Physical (% of The Component)	Total	L.C.	F.E.	Physical (% of The total Component)	Total	L.C.	F.E.	Physical (% of The Comp onent)	Total	L.C.	F.E.
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	Pre-Construction Expenditure :																
a)	Advance Expenditure																
b)	Land Acquisition	5.94 Acres	13.6	13.60	0.00	5.94 Acres (100)	13.60	13.60	0.00		0.00	0.00	0.00		0.00	0.00	0.00
c)	Land Development	5.94 Acres	59.4	59.40	0.00		0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00
d)	Right of Way		0.00	0.00	0.00						0.00	0.00	0.00		0.00	0.00	0.00
e)	Others		0.00	0.00	0.00						0.00	0.00	0.00		0.00	0.00	
2.	Construction Work										0.00	0.00	0.00			0.00	
a)	Functional Building	1672 Sq. m	161.00	161.00	0.00	1672 Sq. m (100)	134.87	134.87	0.00		0.00	0.00	0.00		0.00	0.00	0.00
c)	Workshop-Cum-Ware house Bldg		0.00	0.00	0.00		179.83	179.83	0.00		39.00	39.00	0.00		0.00	0.00	0.00
d)	Residential Bldg.	1008 Sq. m	99.00	99.00	0.00	1008 Sq. m (100)	92.32	92.32	0.00		0.00	0.00	0.00	400 (40)	0.00	0.00	0.00
e)	Other Construction Works	5356 Sq. m	320.00	320.00	0.00		93.12	93.12	0.00		0.00	0.00	0.00		0.00	0.00	0.00
3.	Machinary & Equipment:																
a)	Imported:																
	i) C & F cost		36067.32	0.00	36067.32		25096.83	1000.00	24096.83		10000.00	0.00	10000.00		591.94	0.00	591.94
	ii) Duties & taxes		9550.00	9550.00	0.00		5613.00	5613.00	0.00		3475.00	3475.0 0	0.00		1735.5 0	1735.5 0	0.00

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Item													
iii) Landing charges & trans Cost,					1288.28	1288.28	0.00	193.00	193.00	0.00	1.10	1.10	0.00
Insurance &	2940.29	2940.29	0.00		243.81	243.81	0.00	97.00	97.00	0.00	10.50	10.50	0.00
Bank Charge					398.90	398.90	0.00	147.00	147.00	0.00	11.42	11.42	0.00
b) Locally Produced:	31014.32	31014.32	0.00		30014.32	30014.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
i) Duties & taxes						0.00	0.00				0.00	0.00	0.00
ii) Office Furniture	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4. Transport Vehicl :													
a) Imported.													
i) C & F cost (8 Jeep 2 Pick-up 5 Motor Cycle) / 0.00 (6 Jeep 2 Pick-up 5 Motor Cycle)	210.73	210.73	0.00		204.13	204.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ii) Duties & taxes	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iii) Landing charges & trans. cost	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iv) Insurance	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
v) Bank Charge	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b) Locally Produced:	0.00	0.00	0.00		6.60	6.60	0.00	0.00	0.00	0.00	0.00 (5 Motor Cycle)	0.00	0.00
5. Manpower :													
a) Foreign Personnel :													
i) Renumeration	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ii) Taxes	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b) Locally Personnel (Managerial, Skilled, Semi-skilled & Unskilled) (49 officers 57 staffs) / 0.00 (34 officers 28 staffs)	507	507.00	0.00		359.14	359.14	0.00	130.00	130.00	0.00	22.07 (34 officer & 28 staffs)	22.07	0.00
c) Training	113.04	3.43	109.61		109.61	0.00	109.61				0.00	0.00	0.00
						0.00	0.00						
6. Others Costs :													
a) Engg Supervision & Design	1260	1260.00	0.00		1148.98	1148.98	0.00	100.00	100.00	0.00	0.00	0.00	0.00

Cost of Erection and Installation	14200 km 23 nos. 5/3	5391.90	5391.90	0.00	14577 Km (99) 23Nos	4751.44	4751.44	0.00	0 km (0) 0 Nos.	179.00	179.00	0.00	0 Km (0) 0 Nos.	0.00	0.00	0.00
b)																
	Overhead Costs :					0.00	0.00									
i)	Sponsoring Agency (MEMR)	0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00
ii)	Executing Agency (REB)	520	520.00	0.00		347.24	347.24	0.00		0.00	0.00	0.00		0.00	0.00	0.00
iii)	Project office Expenses	0.00	0.00	0.00		83.50	83.50	0.00		70.00	70.00	0.00		19.57	19.57	19.57
iv)	PBS Operating Expenses	0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00
v)	Maintenance & Fuel Cost	90	90.00	0.00		0.00	0.00	0.00		0.00				0.00	0.00	0.00
c)	Training	0	0.00	0		0.00	0.00	0.00						0.00	0.00	0.00
d)	Inspection Cost	70.00	70.00	60.00		0.00	0.00	0.00						0.00	0.00	0.00
e)	Compensation For PDB lines	0.00	0.00	0.00		0.00	0.00	0.00						0.00	0.00	0.00
h)	Allowances for Unforeseen Cost	0	0.00	0		0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00
f)	Interest during Construction	608.72	861.72	0.00		0.00	0.00	0.00		0.00	0.00			0.00	0.00	0.00
g)	Cost Escalations/Others	184.85	59.35	127.6		0.00	0.00	0.00		0.00	0.00			0.00	0.00	0.00
	Total :	89391.27	53021.74	34384.53		70191.52	45855.05	24205.44		14430.00	4430	10000		2393	2393	1801 531.84

5.8 Benefit analysis of MIS

Now a days database management System and MIS becomes a essential tools in every organization. The improved MIS enables evaluation and monitoring to take on a more comprehensive role in the project implementation. This MIS helps to REB in evaluation and monitoring the project by three modules mentioned above (basic project information, financial information, and overall project information), it also extends to include projects profiles and quantitative variables relating to responsible person with the aim of improving the capacity to evaluate the project's impact. In addition, the flexible and updated MIS increases transparency by making project information more readily available. Apart from the MIS the top level management can accompanying auditing arrangements and the higher-level project oversight, effectiveness assessment of the project and provide feedback to improve project operations. The framework has three parts (a) annual physical performance reviews to assess the quality and sustainability of common types of finances of projects, (b)monthly project progress review to implement project effectively and efficiently and (c) evaluation and monitoring review, carried out at quarterly or mid-term. Some benefits of MIS have listed below:

- Store project information in an organized way, which contains physical and financial information on each project.
- Transparent Financial management of projects.
- Generate various project reports according to time to time.
- Reduce execution time.
- Reduce expenditure.
- Improve affectivity and efficiency.

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CHAPTER VI
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Now a days MIS become the most powerful tools in every business organization for decision making and strategic planning to meet the competitive edge of the current global market. This thesis work focuses on the development of an MIS to implement the projects effectively and efficiently. This study developed a database management system for storing, manipulating and retrieving project related data and generate various reporting which is used for decision making and strategic planning of the organization.

This thesis work developed a customized MIS system for auto generation of project reports for REB mainly a) annual development budget report, b) monthly progress report, c) quarterly progress report, d) annually progress report, e) Project completion report as well as various project reports required time to time.

This thesis work concludes that after implementing this MIS system the organization's efficiency will be increased and execution time will be decreased as well as expenditure will be reduced. Moreover the information will be kept in an organized way which can be retrieved in future when needed.

6.2 Recommendation

This research work recommends the followings:-

1. There is a scope to incorporate project planning technique to develop a new project proforma to face the real situation according to time to time.

2. There is also a scope to incorporate this database in web format so that data can be collected from 70 PBSs efficiently and effectively.

3. Any database development project is a continues process. In future this database can be used as a central database for formulating various reports as well as storing information from project proforma to project completion report.

4. Because of the time constraint, the project's MIS has been developed in this thesis work but it is recommended to incorporate advanced level of statistical tools for planning, monitoring and evaluation of the project.

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APPENDIX

THE DETAIL CODING OF THE SOFTWARE

THE DETAIL CODING OF THE SOFTWARE

Coding of Main Interface:

```
Private Sub mnuAdpAllocation_Click()
adpAlloc.Show
End Sub

Private Sub mnuAuditInformation_Click()
auditInformation.Show
End Sub

Private Sub mnuDirectorInformation_Click()
directorInformation.Show
End Sub

Private Sub mnuEstimatedCost_Click()
estimatedCost.Show
End Sub

Private Sub mnuFinancialReport_Click()
financialRpt.Show
End Sub

Private Sub mnuGroupInformation_Click()
groupinformation.Show
'Form1.Show
End Sub

Private Sub mnuItemInformation_Click()
itemInformation.Show
End Sub

Private Sub mnuMonitoringInformation_Click()
monitoringInformation.Show
End Sub
```

```vb
Private Sub mnuMonthlyReport_Click()
End Sub

Private Sub mnuMonitoringReport_Click()
monRpt.Show
End Sub

Private Sub mnuObjectiveAchievement_Click()
objectiveAchievement.Show
End Sub

Private Sub mnuProgressInformation_Click()
progressInformation.Show
End Sub

Private Sub mnuProjectDescription_Click()
projectDescription.Show
End Sub

Private Sub mnuProjectDescriptionDetail_Click()
projectDetail.Show
End Sub

Private Sub mnuProjectDescriptionReport_Click()
proDesRpt.Show
End Sub

Private Sub mnuProjectPersonnel_Click()
projectPersonnel.Show
End Sub

Private Sub mnuTransportProcurement_Click()
transportProcurement.Show
End Sub

Private Sub mnuTransportProcurementReport_Click()
tpRpt.Show
End Sub
```

Coding of Project Description Form:

```vb
Option Explicit
Private Const UPDATE_CANCELLED As Long = -2147217842
```

```
Private Const ERRORS_OCCURRED As Long = -2147217887
Dim txtSql As String
Dim txtProjectId1 As String
Dim caseDirection As Integer
Dim db As ADODB.Connection
Dim db1 As ADODB.Connection
Dim rs_record1 As ADODB.Recordset
Private Sub DataGrid1_Click()
'DataGrid1.RecordSelectors = True
End Sub

Private Sub Form_Load()

On Error Resume Next

'Dim sqlstr As String
'sqlstr = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
'Set db = New ADODB.Connection
'db.Open sqlstr
'sqlstr = "select * from project_description"
'Dim rs_record As ADODB.Recordset
'Set rs_record = New ADODB.Recordset
'rs_record.Open sqlstr, db, adOpenStatic, adLockOptimistic

'Do While rs_record.EOF = False
'comboProjectName.AddItem rs_record.Fields(1)
'rs_record.MoveNext
'Loop

'comboPersonnelType.AddItem "Officer"
'comboPersonnelType.AddItem "Clerk"

Dim sqlstr1 As String
sqlstr1 = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
Set db1 = New ADODB.Connection
db1.Open sqlstr1
sqlstr1 = "select * from project_description"
Set rs_record1 = New ADODB.Recordset
rs_record1.Open sqlstr1, db1, adOpenStatic, adLockOptimistic

If rs_record1.RecordCount > 0 Then
rs_record1.MoveFirst
Text1.Text = rs_record1.Fields(1)
Text2.Text = rs_record1.Fields(2)
```

```
Text3.Text = rs_record1.Fields(3)
Text4.Text = rs_record1.Fields(4)
Text5.Text = rs_record1.Fields(5)
Text6.Text = rs_record1.Fields(6)
Text7.Text = rs_record1.Fields(7)
Text8.Text = rs_record1.Fields(8)
Text9.Text = rs_record1.Fields(9)
Text10.Text = rs_record1.Fields(10)
Text11.Text = rs_record1.Fields(11)
Text12.Text = rs_record1.Fields(12)
Text13.Text = rs_record1.Fields(13)
Text14.Text = rs_record1.Fields(14)
Text15.Text = rs_record1.Fields(15)
Text16.Text = rs_record1.Fields(16)
Text17.Text = rs_record1.Fields(17)
Text18.Text = rs_record1.Fields(18)
Text19.Text = rs_record1.Fields(19)
Text20.Text = rs_record1.Fields(20)

cmdRemove.Enabled = True
cmdUpdate.Enabled = True
cmdFirst.Enabled = True
cmdPrevious.Enabled = True
cmdNext.Enabled = True
cmdLast.Enabled = True


Else
cmdRemove.Enabled = False
cmdUpdate.Enabled = False
cmdFirst.Enabled = False
cmdPrevious.Enabled = False
cmdNext.Enabled = False
cmdLast.Enabled = False

End If

Set DataGrid1.DataSource = rs_record1
cmdCancel.Enabled = False
cmdAdd.Enabled = False


End Sub
Private Sub cmdNew_Click()
cmdNew.Enabled = False
cmdAdd.Enabled = True
cmdRemove.Enabled = False
```

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```
cmdUpdate.Enabled = False
cmdCancel.Enabled = True
cmdFirst.Enabled = False
cmdPrevious.Enabled = False
cmdNext.Enabled = False
cmdLast.Enabled = False

Text1.Text = ""
Text2.Text = ""
Text3.Text = ""
Text4.Text = ""
Text5.Text = ""
Text6.Text = ""
Text7.Text = ""
Text8.Text = ""
Text9.Text = ""
Text10.Text = ""
Text11.Text = ""
Text12.Text = ""
Text13.Text = ""
Text14.Text = ""
Text15.Text = ""
Text16.Text = ""
Text17.Text = ""
Text18.Text = ""
Text19.Text = ""
Text20.Text = ""




End Sub
Private Sub cmdAdd_Click()
On Error Resume Next
Dim sqlstr1 As String

'If comboProjectName.Text = "Select a project name" Then
 'MsgBox ("Select a Project name")
'ElseIf comboPersonnelType.Text = "Select a personnel type" Then
 'MsgBox ("Select a personnel type")
If Text1.Text = "" Then
 MsgBox "Enter a Project name"
ElseIf Text2.Text = "" Then
 MsgBox "Enter ElseIf Text1.Text = "" Then"
 MsgBox "Enter a Project name"""
ElseIf Text3.Text = "" Then
```

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```
  MsgBox "Enter Division "
ElseIf Text4.Text = "" Then
  MsgBox "Enter Executing Agency "
ElseIf Text5.Text = "" Then
  MsgBox "Enter Location Of The project "
ElseIf Text6.Text = "" Then
  MsgBox "Objective Of The Project"
ElseIf Text7.Text = "" Then
  MsgBox "Enter Original lc"
ElseIf Text8.Text = "" Then
  MsgBox "Enter Original pa"
ElseIf Text9.Text = "" Then
  MsgBox "Enter Original rpa"
ElseIf Text10.Text = "" Then
  MsgBox "Enter Revised lc"
ElseIf Text11.Text = "" Then
  MsgBox "Enter Revised pa"
ElseIf Text12.Text = "" Then
  MsgBox "Enter Revised rpa"
ElseIf Text13.Text = "" Then
  MsgBox "Enter Actual lc"
 ElseIf Text14.Text = "" Then
  MsgBox "Enter Actual pa"
ElseIf Text15.Text = "" Then
  MsgBox "Enter Actual rpa"
ElseIf Text16.Text = "" Then
  MsgBox "Enter Remarks lc"
ElseIf Text17.Text = "" Then
  MsgBox "Enter Remarks pa"
ElseIf Text18.Text = "" Then
  MsgBox "Enter Remarks rpa"
ElseIf Text19.Text = "" Then
  MsgBox "Enter Source of fund"
ElseIf Text20.Text = "" Then
  MsgBox "Enter Approval Stage"

Else

  sqlstr1 = "insert into
project_description(project_name,ministry,division,executing_agency,location,objective,orig
inal_lc,original_pa,original_rpa,revised_lc,revised_pa,revised_rpa,actual_lc,actual_pa,actual
_rpa,remarks_lc,remarks_pa,remarks_rpa,source_of_fund,approval_stage) values ('" &
Text1.Text & "','" & Text2.Text & "','" & Text3.Text & "','" & Text4.Text & "','" &
Text5.Text & "','" & Text6.Text & "','" & Text7.Text & "','" & Text8.Text & "','" &
Text9.Text & "','" & Text10.Text & "','" & Text11.Text & "','" & Text12.Text & "','" &
```

```
Text13.Text & "','" & Text14.Text & "','" & Text15.Text & "','" & Text16.Text & "','" &
Text17.Text & "','" & Text18.Text & "','" & Text19.Text & "','" & Text20.Text & ")"
 db1.Execute (sqlstr1)

 MsgBox ("Data inserted successfully!!!!!!!!!")
 cmdNew.Enabled = True
 cmdAdd.Enabled = False
 cmdRemove.Enabled = True
 cmdUpdate.Enabled = True
 cmdCancel.Enabled = False
 cmdFirst.Enabled = True
 cmdPrevious.Enabled = True
 cmdNext.Enabled = True
 cmdLast.Enabled = True


 rs_record1.Requery
 rs_record1.MoveFirst
 Set DataGrid1.DataSource = rs_record1
 DataGrid1.Refresh


 Text1.Text = rs_record1.Fields(1)
 Text2.Text = rs_record1.Fields(2)
 Text3.Text = rs_record1.Fields(3)
 Text4.Text = rs_record1.Fields(4)
 Text5.Text = rs_record1.Fields(5)
 Text6.Text = rs_record1.Fields(6)
 Text7.Text = rs_record1.Fields(7)
 Text8.Text = rs_record1.Fields(8)
 Text9.Text = rs_record1.Fields(9)
 Text10.Text = rs_record1.Fields(10)
 Text11.Text = rs_record1.Fields(11)
 Text12.Text = rs_record1.Fields(12)
 Text13.Text = rs_record1.Fields(13)
 Text14.Text = rs_record1.Fields(14)
 Text15.Text = rs_record1.Fields(15)
 Text16.Text = rs_record1.Fields(16)
 Text17.Text = rs_record1.Fields(17)
 Text18.Text = rs_record1.Fields(18)
 Text19.Text = rs_record1.Fields(19)
 Text20.Text = rs_record1.Fields(20)

End If

End Sub
Private Sub cmdRemove_Click()
'caseDirection = 1
```

```vb
'Call MoveToRecord
If MsgBox("Are you sure you wish to delete this record?", vbQuestion + vbYesNo, "Delete
Record") = vbYes Then
Dim sqlstr1 As String
rs_record1.Delete
rs_record1.Requery
If rs_record1.RecordCount > 0 Then
rs_record1.MoveFirst

Text1.Text = rs_record1.Fields(1)
Text2.Text = rs_record1.Fields(2)
Text3.Text = rs_record1.Fields(3)
Text4.Text = rs_record1.Fields(4)
Text5.Text = rs_record1.Fields(5)
Text6.Text = rs_record1.Fields(6)
Text7.Text = rs_record1.Fields(7)
Text8.Text = rs_record1.Fields(8)
Text9.Text = rs_record1.Fields(9)
Text10.Text = rs_record1.Fields(10)
Text11.Text = rs_record1.Fields(11)
Text12.Text = rs_record1.Fields(12)
Text13.Text = rs_record1.Fields(13)
Text14.Text = rs_record1.Fields(14)
Text15.Text = rs_record1.Fields(15)
Text16.Text = rs_record1.Fields(16)
Text17.Text = rs_record1.Fields(17)
Text18.Text = rs_record1.Fields(18)
Text19.Text = rs_record1.Fields(19)
Text20.Text = rs_record1.Fields(20)

cmdNew.Enabled = True
cmdAdd.Enabled = False
cmdRemove.Enabled = True
cmdUpdate.Enabled = True
cmdCancel.Enabled = False
cmdFirst.Enabled = True
cmdPrevious.Enabled = True
cmdNext.Enabled = True
cmdLast.Enabled = True
Else
cmdNew.Enabled = True
cmdAdd.Enabled = False
cmdRemove.Enabled = False
cmdUpdate.Enabled = False
cmdCancel.Enabled = False
cmdFirst.Enabled = False
```

```
cmdPrevious.Enabled = False
cmdNext.Enabled = False
cmdLast.Enabled = False

Text1.Text = ""
Text2.Text = ""
Text3.Text = ""
Text4.Text = ""
Text5.Text = ""
Text6.Text = ""
Text7.Text = ""
Text8.Text = ""
Text9.Text = ""
Text10.Text = ""
Text11.Text = ""
Text12.Text = ""
Text13.Text = ""
Text14.Text = ""
Text15.Text = ""
Text16.Text = ""
Text17.Text = ""
Text18.Text = ""
Text19.Text = ""
Text20.Text = ""


End If


MsgBox ("Data updated successfully removed")
End If


End Sub
Private Sub cmdUpdate_Click()
Dim upId As String
Dim sqlstr1 As String
upId = rs_record1.Fields(0)
MsgBox upId
If MsgBox("Are you sure you wish to update this record?", vbQuestion + vbYesNo, "Delete
Record") = vbYes Then
'sqlstr1 = "insert into
project_description(project_name,ministry,division,executing_agency,location,objective,orig
inal_lc,original_pa,original_rpa,revised_lc,revised_pa,revised_rpa,actual_lc,actual_pa,actual
_rpa,remarks_lc,remarks_pa,remarks_rpa) values ('" & Text1.Text & "','" & Text2.Text &
"','" & Text3.Text & "','" & Text4.Text & "','" & Text5.Text & "','" & Text6.Text & "','" &
Text7.Text & "','" & Text8.Text & "','" & Text9.Text & "','" & Text10.Text & "','" &
Text11.Text & "','" & Text12.Text & "','" & Text13.Text & "','" & Text14.Text & "','" &
Text15.Text & "','" & Text16.Text & "','" & Text17.Text & "','" & Text18.Text & "')"
```

```
sqlstrl = " update project_description set project_name='" & Text1.Text & "', ministry='" &
Text2.Text & "',division='" & Text3.Text & "',executing_agency='" & Text4.Text &
"',location='" & Text5.Text & "',objective='" & Text6.Text & "',original_lc='" & Text7.Text
& "',original_pa='" & Text8.Text & "',original_rpa='" & Text9.Text & "',revised_lc='" &
Text10.Text & "',revised_pa='" & Text11.Text & "',revised_rpa='" & Text12.Text &
"',actual_lc='" & Text13.Text & "',actual_pa='" & Text14.Text & "',actual_rpa='" &
Text15.Text & "',remarks_lc='" & Text16.Text & "',remarks_pa='" & Text17.Text &
"',remarks_rpa='" & Text18.Text & "',source_of_fund='" & Text19.Text &
"',approval_stage='" & Text20.Text & "' where project_id='" & upId & " ' "

db1.Execute (sqlstr1)
rs_record1.Requery
rs_record1.MoveFirst
MsgBox ("Data updated successfully")

Text1.Text = rs_record1.Fields(1)
Text2.Text = rs_record1.Fields(2)
Text3.Text = rs_record1.Fields(3)
Text4.Text = rs_record1.Fields(4)
Text5.Text = rs_record1.Fields(5)
Text6.Text = rs_record1.Fields(6)
Text7.Text = rs_record1.Fields(7)
Text8.Text = rs_record1.Fields(8)
Text9.Text = rs_record1.Fields(9)
Text10.Text = rs_record1.Fields(10)
Text11.Text = rs_record1.Fields(11)
Text12.Text = rs_record1.Fields(12)
Text13.Text = rs_record1.Fields(13)
Text14.Text = rs_record1.Fields(14)
Text15.Text = rs_record1.Fields(15)
Text16.Text = rs_record1.Fields(16)
Text17.Text = rs_record1.Fields(17)
Text18.Text = rs_record1.Fields(18)
Text19.Text = rs_record1.Fields(19)
Text20.Text = rs_record1.Fields(20)

End If

End Sub
Private Sub cmdCancel_Click()
caseDirection = 1
Call MoveToRecord
End Sub
Private Sub cmdFirst_Click()
caseDirection = 2
Call MoveToRecord
```

```
End Sub
Private Sub cmdPrevious_Click()
caseDirection = 3
Call MoveToRecord
End Sub
Private Sub cmdNext_Click()
caseDirection = 4
Call MoveToRecord
End Sub
Private Sub cmdLast_Click()
caseDirection = 5
Call MoveToRecord
End Sub
Private Sub MoveToRecord()
On Error GoTo MoveToRecord_Err
'MsgBox caseDirection
Select Case caseDirection



    Case 1 ' Cancel
        If rs_record1.RecordCount > 0 Then
        cmdNew.Enabled = True
        cmdAdd.Enabled = False
        cmdRemove.Enabled = True
        cmdUpdate.Enabled = True
        cmdCancel.Enabled = False
        cmdFirst.Enabled = True
        cmdPrevious.Enabled = True
        cmdNext.Enabled = True
        cmdLast.Enabled = True
        rs_record1.MoveFirst
        Else
        cmdNew.Enabled = True
        cmdAdd.Enabled = False
        cmdRemove.Enabled = False
        cmdUpdate.Enabled = False
        cmdCancel.Enabled = False
        cmdFirst.Enabled = False
        cmdPrevious.Enabled = False
        cmdNext.Enabled = False
        crudLast.Enabled = False

        End If
    Case 2 'MoveFirst
        rs_record1.MoveFirst
```

```vb
    Case 3 'MovePrevious
        rs_record1.MovePrevious
        If rs_record1.BOF Then
        rs_record1.MoveNext
        End If
    Case 4 'MoveNext
        rs_record1.MoveNext
        If rs_record1.EOF Then
        rs_record1.MovePrevious
        End If
    Case 5 'MoveLast
        rs_record1.MoveLast

    Case Else
        'do nothing
End Select


Text1.Text = rs_record1.Fields(1)
Text2.Text = rs_record1.Fields(2)
Text3.Text = rs_record1.Fields(3)
Text4.Text = rs_record1.Fields(4)
Text5.Text = rs_record1.Fields(5)
Text6.Text = rs_record1.Fields(6)
Text7.Text = rs_record1.Fields(7)
Text8.Text = rs_record1.Fields(8)
Text9.Text = rs_record1.Fields(9)
Text10.Text = rs_record1.Fields(10)
Text11.Text = rs_record1.Fields(11)
Text12.Text = rs_record1.Fields(12)
Text13.Text = rs_record1.Fields(13)
Text14.Text = rs_record1.Fields(14)
Text15.Text = rs_record1.Fields(15)
Text16.Text = rs_record1.Fields(16)
Text17.Text = rs_record1.Fields(17)
Text18.Text = rs_record1.Fields(18)
Text19.Text = rs_record1.Fields(19)
Text20.Text = rs_record1.Fields(20)

'Set DataGrid1.DataSource = rs_record1
'DataGrid1.Refresh

MoveToRecord_Exit:
Exit Sub
```

```
MoveToRecord_Err:
  Select Case Err.Number
    Case UPDATE_CANCELLED. ERRORS_OCCURRED
    'do nothing
    Case Else
    'Err.Raise , Err.Number, Err.Source, Err.Description
  End Select
  Resume MoveToRecord_Exit

End Sub
```

Coding of Project Personnel form:

```
Option Explicit
Private Const UPDATE_CANCELLED As Long = -2147217842
Private Const ERRORS_OCCURRED As Long = -2147217887
Dim txtSql As String
Dim txtProjectId1 As String
Dim caseDirection As Integer
Dim db As ADODB.Connection
Dim db1 As ADODB.Connection
Dim rs_record1 As ADODB.Recordset
Private Sub DataGrid1_Click()
'DataGrid1.RecordSelectors = True
End Sub

Private Sub Form_Load()

On Error Resume Next
cmdAdd.Enabled = False
Dim sqlstr As String
sqlstr = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
Set db = New ADODB.Connection
db.Open sqlstr
sqlstr = "select * from project_description"
Dim rs_record As ADODB.Recordset
Set rs_record = New ADODB.Recordset
rs_record.Open sqlstr, db, adOpenStatic, adLockOptimistic

Do While rs_record.EOF = False
comboProjectName.AddItem rs_record.Fields(1)
rs_record.MoveNext
Loop
```

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```
comboPersonnelType.AddItem "Officer"
comboPersonnelType.AddItem "Clerk"

Dim sqlstr1 As String
sqlstr1 = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
Set db1 = New ADODB.Connection
db1.Open sqlstr1
sqlstr1 = "select * from project_personnel"
Set rs_record1 = New ADODB.Recordset
rs_record1.Open sqlstr1, db1, adOpenStatic, adLockOptimistic

If rs_record1.RecordCount > 0 Then
rs_record1.MoveFirst
Text1.Text = rs_record1.Fields(3)
Text2.Text = rs_record1.Fields(4)
Text3.Text = rs_record1.Fields(5)
Text4.Text = rs_record1.Fields(5)
Text5.Text = rs_record1.Fields(6)
Text6.Text = rs_record1.Fields(7)
cmdRemove.Enabled = True
cmdUpdate.Enabled = True
cmdFirst.Enabled = True
cmdPrevious.Enabled = True
cmdNext.Enabled = True
cmdLast.Enabled = True

Else
cmdRemove.Enabled = False
cmdUpdate.Enabled = False
cmdFirst.Enabled = False
cmdPrevious.Enabled = False
cmdNext.Enabled = False
cmdLast.Enabled = False

End If

Set DataGrid1.DataSource = rs_record1
cmdCancel.Enabled = False


End Sub
Private Sub comboProjectName_Click()
```

```
On Error Resume Next
Dim sqlstr As String
sqlstr = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
Set db = New ADODB.Connection
db.Open sqlstr
sqlstr = "select * from project_description"
Dim rs_record As ADODB.Recordset
Set rs_record = New ADODB.Recordset
rs_record.Open sqlstr, db, adOpenStatic, adLockOptimistic

If rs_record.RecordCount > 0 Then
rs_record.MoveFirst
Do While rs_record.EOF = False
If rs_record.Fields(1) = comboProjectName Then
If rs_record.Fields(0) <> " " Then
txtProjectId1 = rs_record.Fields(0)
Else
txtProjectId1 = " "
End If
Exit Sub
End If
rs_record.MoveNext
Loop
End If

End Sub
Private Sub cmdNew_Click()
cmdNew.Enabled = False
cmdAdd.Enabled = True
cmdRemove.Enabled = False
cmdUpdate.Enabled = False
cmdCancel.Enabled = True
cmdFirst.Enabled = False
cmdPrevious.Enabled = False
cmdNext.Enabled = False
cmdLast.Enabled = False
Text1.Text = ""
Text2.Text = ""
Text3.Text = ""
Text4.Text = ""
Text5.Text = ""
Text6.Text = ""
End Sub
Private Sub cmdAdd_Click()
On Error Resume Next
```

```vb
Dim sqlstr1 As String

If comboProjectName.Text = "Select a project name" Then
  MsgBox ("Select a Project name")
ElseIf comboPersonnelType.Text = "Select a personnel type" Then
  MsgBox ("Select a personnel type")
ElseIf IsNumeric(Text1.Text) <> "1" Then
  MsgBox "Enter a valid number for Manpower Employed During Execution "
ElseIf IsNumeric(Text2.Text) <> "1" Then
  MsgBox "Enter a valid number for Manpower Recruitment for O && M as per PP "
ElseIf IsNumeric(Text3.Text) <> "1" Then
  MsgBox "Enter a valid number for Existing Manpower for O && M ( as per PBS
Instruction)"
ElseIf IsNumeric(Text4.Text) <> "1" Then
  MsgBox "Enter a valid number for Others"
ElseIf IsNumeric(Text5.Text) <> "1" Then
  MsgBox "Enter a valid number for Manpower Employed (Male)"
ElseIf IsNumeric(Text6.Text) <> "1" Then
  MsgBox "Enter a valid number for Manpower Employed (Female) "
Else

  sqlstr1 = "insert into
project_personnel(peoject_id,personnel_type,manpower_employed,manpower_om,existing_
manpower,others,manpower_male,manpower_female) values ('" & txtProjectId1 & "','" &
comboPersonnelType.Text & "','" & Text1.Text & "','" & Text2.Text & "','" & Text3.Text &
"','" & Text4.Text & "','" & Text5.Text & "','" & Text6.Text & "')"
  db1.Execute (sqlstr1)

  MsgBox ("Data inserted successfully!!!!!!!!!!")
  cmdNew.Enabled = True
  cmdAdd.Enabled = False
  cmdRemove.Enabled = True
  cmdUpdate.Enabled = True
  cmdCancel.Enabled = False
  cmdFirst.Enabled = True
  cmdPrevious.Enabled = True
  cmdNext.Enabled = True
  cmdLast.Enabled = True

  rs_record1.Requery
  rs_record1.MoveFirst
  Set DataGrid1.DataSource = rs_record1
  DataGrid1.Refresh

  Text1.Text = rs_record1.Fields(3)
  Text2.Text = rs_record1.Fields(4)
```

```vb
  Text3.Text = rs_record1.Fields(5)
  Text4.Text = rs_record1.Fields(5)
  Text5.Text = rs_record1.Fields(6)
  Text6.Text = rs_record1.Fields(7)
End If

End Sub
Private Sub cmdRemove_Click()
'caseDirection = 1
'Call MoveToRecord
If MsgBox("Are you sure you wish to delete this record?", vbQuestion + vbYesNo, "Delete
Record") = vbYes Then
Dim sqlstr1 As String
rs_record1.Delete
rs_record1.Requery
If rs_record1.RecordCount > 0 Then
rs_record1.MoveFirst
Text1.Text = rs_record1.Fields(3)
Text2.Text = rs_record1.Fields(4)
Text3.Text = rs_record1.Fields(5)
Text4.Text = rs_record1.Fields(5)
Text5.Text = rs_record1.Fields(6)
Text6.Text = rs_record1.Fields(7)
cmdNew.Enabled = True
cmdAdd.Enabled = False
cmdRemove.Enabled = True
cmdUpdate.Enabled = True
cmdCancel.Enabled = False
cmdFirst.Enabled = True
cmdPrevious.Enabled = True
cmdNext.Enabled = True
cmdLast.Enabled = True
Else
cmdNew.Enabled = True
cmdAdd.Enabled = False
cmdRemove.Enabled = False
cmdUpdate.Enabled = False
cmdCancel.Enabled = False
cmdFirst.Enabled = False
cmdPrevious.Enabled = False
cmdNext.Enabled = False
cmdLast.Enabled = False
Text1.Text = ""
Text2.Text = ""
Text3.Text = ""
Text4.Text = ""
```

```
Text5.Text = ""
Text6.Text = ""
End If

MsgBox ("Data updated successfully removed")
End If


End Sub
Private Sub cmdUpdate_Click()
Dim upId As String
Dim sqlstr1 As String
upId = rs_record1.Fields(0)
MsgBox upId
If MsgBox("Are you sure you wish to update this record?", vbQuestion + vbYesNo, "Delete
Record") = vbYes Then
sqlstr1 = " update project_personnel set manpower_employed='" & Text1.Text & "' where
personnel_id='" & upId & "' "
db1.Execute (sqlstr1)
rs_record1.Requery
rs_record1.MoveFirst
MsgBox ("Data updated successfully")
Text1.Text = rs_record1.Fields(3)
Text2.Text = rs_record1.Fields(4)
Text3.Text = rs_record1.Fields(5)
Text4.Text = rs_record1.Fields(5)
Text5.Text = rs_record1.Fields(6)
Text6.Text = rs_record1.Fields(7)
End If

End Sub
Private Sub cmdCancel_Click()
caseDirection = 1
Call MoveToRecord
End Sub
Private Sub cmdFirst_Click()
caseDirection = 2
Call MoveToRecord
End Sub
Private Sub cmdPrevious_Click()
caseDirection = 3
Call MoveToRecord
End Sub
Private Sub cmdNext_Click()
caseDirection = 4
Call MoveToRecord
End Sub
```

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```
Private Sub cmdLast_Click()
caseDirection = 5
Call MoveToRecord
End Sub
Private Sub MoveToRecord()
On Error GoTo MoveToRecord_Err
'MsgBox caseDirection
Select Case caseDirection



    Case 1 ' Cancel
        If rs_record1.RecordCount > 0 Then
        cmdNew.Enabled = True
        cmdAdd.Enabled = False
        cmdRemove.Enabled = True
        cmdUpdate.Enabled = True
        cmdCancel.Enabled = False
        cmdFirst.Enabled = True
        cmdPrevious.Enabled = True
        cmdNext.Enabled = True
        cmdLast.Enabled = True
        rs_record1.MoveFirst
        Else
        cmdNew.Enabled = True
        cmdAdd.Enabled = False
        cmdRemove.Enabled = False
        cmdUpdate.Enabled = False
        cmdCancel.Enabled = False
        cmdFirst.Enabled = False
        cmdPrevious.Enabled = False
        cmdNext.Enabled = False
        cmdLast.Enabled = False

        End If
    Case 2 'MoveFirst
        rs_record1.MoveFirst

    Case 3 'MovePrevious
        rs_record1.MovePrevious
        If rs_record1.BOF Then
        rs_record1.MoveNext
        End If
    Case 4 'MoveNext
        rs_record1.MoveNext
        If rs_record1.EOF Then
```

```
        rs_record1.MovePrevious
        End If
    Case 5 'MoveLast
        rs_record1.MoveLast


    Case Else
        'do nothing
End Select


Text1.Text = rs_record1.Fields(3)
Text2.Text = rs_record1.Fields(4)
Text3.Text = rs_record1.Fields(5)
Text4.Text = rs_record1.Fields(5)
Text5.Text = rs_record1.Fields(6)
Text6.Text = rs_record1.Fields(7)

'Set DataGrid1.DataSource = rs_record1
'DataGrid1.Refresh

MoveToRecord_Exit:
Exit Sub

MoveToRecord_Err:
    Select Case Err.Number
     Case UPDATE_CANCELLED, ERRORS_OCCURRED
     'do nothing
     Case Else
     'Err.Raise , Err.Number, Err.Source, Err.Description
    End Select
    Resume MoveToRecord_Exit

End Sub
```

Coding of Group Information form:

```
Option Explicit
Private Const UPDATE_CANCELLED As Long = -2147217842
Private Const ERRORS_OCCURRED As Long = -2147217887
Dim txtSql As String
Dim txtProjectId1 As String
Dim caseDirection As Integer
Dim db As ADODB.Connection
Dim db1 As ADODB.Connection
Dim rs_record1 As ADODB.Recordset
Private Sub DataGrid1_Click()
```

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```
'DataGrid1.RecordSelectors = True
End Sub

Private Sub Form_Load()

On Error Resume Next
cmdAdd.Enabled = False
Dim sqlstr As String
sqlstr = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
Set db = New ADODB.Connection
db.Open sqlstr
sqlstr = "select * from project_description"
Dim rs_record As ADODB.Recordset
Set rs_record = New ADODB.Recordset
rs_record.Open sqlstr, db, adOpenStatic, adLockOptimistic

Do While rs_record.EOF = False
Combo1.AddItem rs_record.Fields(1)
rs_record.MoveNext
Loop

'comboPersonnelType.AddItem "Officer"
'comboPersonnelType.AddItem "Clerk"

Dim sqlstr1 As String
sqlstr1 = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
Set db1 = New ADODB.Connection
db1.Open sqlstr1
sqlstr1 = "select * from group_information"
Set rs_record1 = New ADODB.Recordset
rs_record1.Open sqlstr1, db1, adOpenStatic, adLockOptimistic
rs_record1.MoveFirst
Text1.Text = rs_record1.Fields(2)
'Text2.Text = rs_record1.Fields(4)
'Text3.Text = rs_record1.Fields(5)
'Text4.Text = rs_record1.Fields(5)
'Text5.Text = rs_record1.Fields(6)
'Text6.Text = rs_record1.Fields(7)

Set DataGrid1.DataSource = rs_record1

cmdCancel.Enabled = False
```

End Sub

Private Sub combo1_Click()

On Error Resume Next
Dim sqlstr As String
sqlstr = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False:Initial Catalog=reb"
Set db = New ADODB.Connection
db.Open sqlstr
sqlstr = "select * from project_description"
Dim rs_record As ADODB.Recordset
Set rs_record = New ADODB.Recordset
rs_record.Open sqlstr, db, adOpenStatic, adLockOptimistic

If rs_record.RecordCount > 0 Then
rs_record.MoveFirst
Do While rs_record.EOF = False
If rs_record.Fields(1) = Combo1 Then
If rs_record.Fields(0) <> " " Then
txtProjectId1 = rs_record.Fields(0)
Else
txtProjectId1 = " "
End If
Exit Sub
End If
rs_record.MoveNext
Loop
End If

End Sub
Private Sub cmdNew_Click()
cmdNew.Enabled = False
cmdAdd.Enabled = True
cmdRemove.Enabled = False
cmdUpdate.Enabled = False
cmdCancel.Enabled = True
cmdFirst.Enabled = False
cmdPrevious.Enabled = False
cmdNext.Enabled = False
cmdLast.Enabled = False
Text1.Text = ""
'Text2.Text = ""
'Text3.Text = ""
'Text4.Text = ""

```vb
'Text5.Text = ""
'Text6.Text = ""
End Sub
Private Sub cmdAdd_Click()
On Error Resume Next
Dim sqlstr1 As String
If Combo1.Text = "Select a project name" Then
  MsgBox ("Select a project name")
ElseIf Trim(Text1.Text) = "" Then
  MsgBox ("Enter a group name")
'ElseIf comboPersonnelType.Text = "Select a personnel type" Then
'  MsgBox ("Select a personnel type")
'ElseIf IsNumeric(Text1.Text) <> "1" Then
'  MsgBox "Enter a valid number for Manpower Employed During Execution "
'ElseIf IsNumeric(Text2.Text) <> "1" Then
'  MsgBox "Enter a valid number for Manpower Recruitment for O && M as per PP "
'ElseIf IsNumeric(Text3.Text) <> "1" Then
'  MsgBox "Enter a valid number for Existing Manpower for O && M ( as per PBS
Instruction)"
'ElseIf IsNumeric(Text4.Text) <> "1" Then
'  MsgBox "Enter a valid number for Others"
'ElseIf IsNumeric(Text5.Text) <> "1" Then
'  MsgBox "Enter a valid number for Manpower Employed (Male)"
'ElseIf IsNumeric(Text6.Text) <> "1" Then
'  MsgBox "Enter a valid number for Manpower Employed (Female) "
Else

  sqlstr1 = "insert into group_information(project_id,group_name) values ('" & txtProjectId1
& "','" & Text1.Text & "')"
  db1.Execute (sqlstr1)

  MsgBox ("Data inserted successfully!!!!!!!!!!")
  cmdNew.Enabled = True
  cmdAdd.Enabled = False
  cmdRemove.Enabled = True
  cmdUpdate.Enabled = True
  cmdCancel.Enabled = False
  cmdFirst.Enabled = True
  cmdPrevious.Enabled = True
  cmdNext.Enabled = True
  cmdLast.Enabled = True

  rs_record1.Requery
  rs_record1.MoveFirst
  Set DataGrid1.DataSource = rs_record1
  DataGrid1.Refresh
```

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```
 Text1.Text = rs_record1.Fields(2)
 Text2.Text = rs_record1.Fields(4)
'Text3.Text = rs_record1.Fields(5)
'Text4.Text = rs_record1.Fields(5)
'Text5.Text = rs_record1.Fields(6)
'Text6.Text = rs_record1.Fields(7)
End If

End Sub
Private Sub cmdRemove_Click()
'caseDirection = 1
'Call MoveToRecord
If MsgBox("Are you sure you wish to delete this record?", vbQuestion + vbYesNo. "Delete
Record") = vbYes Then
Dim sqlstr1 As String
rs_record1.Delete
rs_record1.Requery
rs_record1.MoveFirst

MsgBox ("Data updated successfully removed")
Text1.Text = rs_record1.Fields(2)
'Text2.Text = rs_record1.Fields(4)
'Text3.Text = rs_record1.Fields(5)
'Text4.Text = rs_record1.Fields(5)
'Text5.Text = rs_record1.Fields(6)
'Text6.Text = rs_record1.Fields(7)
End If

End Sub
Private Sub cmdUpdate_Click()
Dim upId As String
Dim sqlstr1 As String
upId = rs_record1.Fields(0)
MsgBox upId
If MsgBox("Are you sure you wish to update this record?", vbQuestion + vbYesNo, "Delete
Record") = vbYes Then
sqlstr1 = " update group_information set group_name='" & Text1.Text & "' where
group_id='" & upId & "' "
db1.Execute (sqlstr1)
rs_record1.Requery
rs_record1.MoveFirst
MsgBox ("Data updated successfully")
Text1.Text = rs_record1.Fields(2)
'Text2.Text = rs_record1.Fields(4)
'Text3.Text = rs_record1.Fields(5)
```

```
'Text4.Text = rs_record1.Fields(5)
'Text5.Text = rs_record1.Fields(6)
'Text6.Text = rs_record1.Fields(7)
End If

End Sub
Private Sub cmdCancel_Click()
caseDirection = 1
Call MoveToRecord
End Sub
Private Sub cmdFirst_Click()
caseDirection = 2
Call MoveToRecord
End Sub
Private Sub cmdPrevious_Click()
caseDirection = 3
Call MoveToRecord
End Sub
Private Sub cmdNext_Click()
caseDirection = 4
Call MoveToRecord
End Sub
Private Sub cmdLast_Click()
caseDirection = 5
Call MoveToRecord
End Sub
Private Sub MoveToRecord()
On Error GoTo MoveToRecord_Err
'MsgBox caseDirection
Select Case caseDirection


  Case 1 ' Cancel
     cmdNew.Enabled = True
     cmdAdd.Enabled = False
     cmdRemove.Enabled = True
     cmdUpdate.Enabled = True
     cmdCancel.Enabled = False
     cmdFirst.Enabled = True
     cmdPrevious.Enabled = True
     cmdNext.Enabled = True
     cmdLast.Enabled = True
     rs_record1.MoveFirst
  Case 2 'MoveFirst
     rs_record1.MoveFirst
```

```
      Case 3 'MovePrevious
         rs_record1.MovePrevious
         If rs_record1.BOF Then
         rs_record1.MoveNext
         End If
      Case 4 'MoveNext
         rs_record1.MoveNext
         If rs_record1.EOF Then
         rs_record1.MovePrevious
         End If
      Case 5 'MoveLast
         rs_record1.MoveLast


   Case Else
      'do nothing
End Select


Text1.Text = rs_record1.Fields(2)
'Text2.Text = rs_record1.Fields(4)
'Text3.Text = rs_record1.Fields(5)
'Text4.Text = rs_record1.Fields(5)
'Text5.Text = rs_record1.Fields(6)
'Text6.Text = rs_record1.Fields(7)

'Set DataGrid1.DataSource = rs_record1
'DataGrid1.Refresh

MoveToRecord_Exit:
Exit Sub

MoveToRecord_Err:
  Select Case Err.Number
   Case UPDATE_CANCELLED. ERRORS_OCCURRED
   'do nothing
   Case Else
   'Err.Raise , Err.Number, Err.Source, Err.Description
  End Select
  Resume MoveToRecord_Exit

End Sub
```

Coding of Item Information Form:

```
Option Explicit
```

```vb
Private Const UPDATE_CANCELLED As Long = -2147217842
Private Const ERRORS_OCCURRED As Long = -2147217887
Dim txtSql As String
Dim txtGroupId1 As String
Dim caseDirection As Integer
Dim db As ADODB.Connection
Dim db1 As ADODB.Connection
Dim rs_record As ADODB.Recordset
Dim rs_record1 As ADODB.Recordset
Private Sub DataGrid1_Click()
'DataGrid1.RecordSelectors = True
End Sub


Private Sub Form_Load()

On Error Resume Next
cmdAdd.Enabled = False
Dim sqlstr As String
sqlstr = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
Set db = New ADODB.Connection
db.Open sqlstr
sqlstr = "select * from group_information"
Dim rs_record As ADODB.Recordset
Set rs_record = New ADODB.Recordset
rs_record.Open sqlstr, db, adOpenStatic, adLockOptimistic

Do While rs_record.EOF = False
Combo1.AddItem rs_record.Fields(2)
rs_record.MoveNext
Loop


Dim sqlstr1 As String
sqlstr1 = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
Set db1 = New ADODB.Connection
db1.Open sqlstr1
sqlstr1 = "select * from item_information"
Set rs_record1 = New ADODB.Recordset
rs_record1.Open sqlstr1, db1, adOpenStatic, adLockOptimistic

rs_record1.MoveFirst
Text1.Text = rs_record1.Fields(2)
'Text2.Text = rs_record1.Fields(4)
'Text3.Text = rs_record1.Fields(5)
```

```
'Text4.Text = rs_record1.Fields(5)
'Text5.Text = rs_record1.Fields(6)
'Text6.Text = rs_record1.Fields(7)

Set DataGrid1.DataSource = rs_record1

cmdCancel.Enabled = False


End Sub
Private Sub combo1_Click()

On Error Resume Next
Dim sqlstr As String
sqlstr = "Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security
Info=False;Initial Catalog=reb"
Set db = New ADODB.Connection
db.Open sqlstr
sqlstr = "select * from group_information"
Dim rs_record As ADODB.Recordset
Set rs_record = New ADODB.Recordset
rs_record.Open sqlstr, db, adOpenStatic, adLockOptimistic

If rs_record.RecordCount > 0 Then
 rs_record.MoveFirst
 Do While rs_record.EOF = False
  If rs_record.Fields(2) = Combo1 Then
   If rs_record.Fields(0) <> " " Then
   txtGroupId1 = rs_record.Fields(0)
   Else
    txtGroupId1 = " "
   End If
   Exit Sub
  End If
  rs_record.MoveNext
 Loop
End If
End Sub
Private Sub cmdNew_Click()
cmdNew.Enabled = False
cmdAdd.Enabled = True
cmdRemove.Enabled = False
cmdUpdate.Enabled = False
cmdCancel.Enabled = True
cmdFirst.Enabled = False
cmdPrevious.Enabled = False
```

```vb
cmdNext.Enabled = False
cmdLast.Enabled = False
Text1.Text = ""
'Text2.Text = ""
'Text3.Text = ""
'Text4.Text = ""
'Text5.Text = ""
'Text6.Text = ""
End Sub
Private Sub cmdAdd_Click()
On Error Resume Next
Dim sqlstr1 As String

If Combo1.Text = "Select a group name" Then
  MsgBox ("Select a group name")
ElseIf Trim(Text1.Text) = "" Then
  MsgBox ("Enter a item name")
'ElseIf IsNumeric(Text1.Text) <> "1" Then
  'MsgBox "Enter a valid number for Manpower Employed During Execution "
'ElseIf IsNumeric(Text2.Text) <> "1" Then
  'MsgBox "Enter a valid number for Manpower Recruitment for O && M as per PP "
'ElseIf IsNumeric(Text3.Text) <> "1" Then
  'MsgBox "Enter a valid number for Existing Manpower for O && M ( as per PBS
Instruction)"
'ElseIf IsNumeric(Text4.Text) <> "1" Then
  'MsgBox "Enter a valid number for Others"
'ElseIf IsNumeric(Text5.Text) <> "1" Then
  'MsgBox "Enter a valid number for Manpower Employed (Male)"
'ElseIf IsNumeric(Text6.Text) <> "1" Then
  'MsgBox "Enter a valid number for Manpower Employed (Female) "
Else

  sqlstr1 = "insert into item_information(group_id,item_name) values ('" & txtGroupId1 &
"','" & Text1.Text & "')"
  db1.Execute (sqlstr1)

  MsgBox ("Data inserted successfully!!!!!!!!!!")
  cmdNew.Enabled = True
  cmdAdd.Enabled = False
  cmdRemove.Enabled = True
  cmdUpdate.Enabled = True
  cmdCancel.Enabled = False
  cmdFirst.Enabled = True
  cmdPrevious.Enabled = True
  cmdNext.Enabled = True
  cmdLast.Enabled = True
```

```
  rs_record1.Requery
  rs_record1.MoveFirst
  Set DataGrid1.DataSource = rs_record1
  DataGrid1.Refresh

  Text1.Text = rs_record1.Fields(2)
  Text2.Text = rs_record1.Fields(4)
  Text3.Text = rs_record1.Fields(5)
  Text4.Text = rs_record1.Fields(5)
  Text5.Text = rs_record1.Fields(6)
  Text6.Text = rs_record1.Fields(7)
End If

End Sub
Private Sub cmdRemove_Click()
'caseDirection = 1
'Call MoveToRecord
If MsgBox("Are you sure you wish to delete this record?", vbQuestion + vbYesNo, "Delete
Record") = vbYes Then
Dim sqlstr1 As String
rs_record1.Delete
rs_record1.Requery

If rs_record1.RecordCount > 0 Then
rs_record1.MoveFirst
Text1.Text = rs_record1.Fields(2)
Else
Text1.Text = ""
End If
MsgBox ("Data updated successfully removed")

'Text2.Text = rs_record1.Fields(4)
'Text3.Text = rs_record1.Fields(5)
'Text4.Text = rs_record1.Fields(5)
'Text5.Text = rs_record1.Fields(6)
'Text6.Text = rs_record1.Fields(7)
End If

End Sub
Private Sub cmdUpdate_Click()
Dim upId As String
Dim sqlstr1 As String
upId = rs_record1.Fields(0)
MsgBox upId
```

```
If MsgBox("Are you sure you wish to update this record?", vbQuestion + vbYesNo, "Delete
Record") = vbYes Then
sqlstr1 = " update item_information set item_name='" & Text1.Text & "' where item_id='" &
upId & "' "
db1.Execute (sqlstr1)
rs_record1.Requery
rs_record1.MoveFirst
MsgBox ("Data updated successfully")
Text1.Text = rs_record1.Fields(2)
Text2.Text = rs_record1.Fields(4)
'Text3.Text = rs_record1.Fields(5)
'Text4.Text = rs_record1.Fields(5)
'Text5.Text = rs_record1.Fields(6)
'Text6.Text = rs_record1.Fields(7)
End If

End Sub
Private Sub cmdCancel_Click()
caseDirection = 1
Call MoveToRecord
End Sub
Private Sub cmdFirst_Click()
caseDirection = 2
Call MoveToRecord
End Sub
Private Sub cmdPrevious_Click()
caseDirection = 3
Call MoveToRecord
End Sub
Private Sub cmdNext_Click()
caseDirection = 4
Call MoveToRecord
End Sub
Private Sub cmdLast_Click()
caseDirection = 5
Call MoveToRecord
End Sub
Private Sub MoveToRecord()
On Error GoTo MoveToRecord_Err
'MsgBox caseDirection
Select Case caseDirection


    Case 1 ' Cancel
        cmdNew.Enabled = True
```

```vbnet
        cmdAdd.Enabled = False
        cmdRemove.Enabled = True
        cmdUpdate.Enabled = True
        cmdCancel.Enabled = False
        cmdFirst.Enabled = True
        cmdPrevious.Enabled = True
        cmdNext.Enabled = True
        cmdLast.Enabled = True
        rs_record1.MoveFirst
    Case 2 'MoveFirst
        rs_record1.MoveFirst

    Case 3 'MovePrevious
        rs_record1.MovePrevious
        If rs_record1.BOF Then
        rs_record1.MoveNext
        End If
    Case 4 'MoveNext
        rs_record1.MoveNext
        If rs_record1.EOF Then
        rs_record1.MovePrevious
        End If
    Case 5 'MoveLast
        rs_record1.MoveLast

    Case Else
        'do nothing
    End Select


    Text1.Text = rs_record1.Fields(2)
    'Text2.Text = rs_record1.Fields(4)
    'Text3.Text = rs_record1.Fields(5)
    'Text4.Text = rs_record1.Fields(5)
    'Text5.Text = rs_record1.Fields(6)
    'Text6.Text = rs_record1.Fields(7)

    'Set DataGrid1.DataSource = rs_record1
    'DataGrid1.Refresh

MoveToRecord_Exit:
Exit Sub

MoveToRecord_Err:
    Select Case Err.Number
    Case UPDATE_CANCELLED, ERRORS_OCCURRED
```

```
    'do nothing
    Case Else
    'Err.Raise , Err.Number, Err.Source, Err.Description
 End Select
 Resume Move ToRecord_Exit

End Sub
```