

**COMPUTERISATION OF FERTILIZER
DISTRIBUTION IN NIGER STATE**

**A CASE STUDY OF NIGER STATE AGRICULTURAL
DEVELOPMENT PROJECT,
MINNA**

By

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**A PROJECT SUBMITTED TO THE DEPARTMENT OF
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FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE AWARD OF POSTGRADUATE DIPLOMA IN
COMPUTER SCIENCE,**

DEDICATION

This project is dedicated to Allah, for reviving Solomon.

CERTIFICATION

This project has been read and approved as meeting the requirement of the awards of post Graduate Diploma in Computer sciences, Department of Mathematics and Computer Sciences, Federal University of Technology, Minna

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ABSTRACT

Agricultural productivity of the nation depend to a great extent on the amount of input applied. The existing system of fertilizer distribution in Niger State by the Niger State Agric Development project (N.S.A.D.P.) here been analysed. The objective is to find out whether the fertilizer input reach its target (the grassroots farmer) at the right time and at a subsidised rate.

The result shows that the goal of the state government is far from being achieved problems with the manual system used by the N.S.A.D.P. in fertilizer distribution also limit the attainment of the objectives.

Therefore, there is the need to propose a new system that would facilitate the distribution of fertilizer to the grassroots farmers at the right time and at a subsidised rate to achieve the objectives of the state government.

Visual Basic 6.0 Computer Application package was used. The result was its ease in data generation, processing, storage and retrieval and hence, it over come the problems of the manual system current in use by the N.S.A.D.P.

It is in the light of the above recommended that the N.S.A.D.P. should make used of the new system of Visual Basic 6.0 computer package in their fertilizer distribution because of its numerous advantages over the existing system. Staff should be trained in the use and maintenance of the proposed system and the software be subjected to regular modification as changes are wide in the organisation.

TABLE OF CONTENT

	Page
Title page	i.
Dedication	ii
Certification	iii
Acknowledgement	iv
Table of Content	vi
Abstract	ix

CHAPTER ONE

GENERAL INTRODUCTION

1.1	Brief history of Agricultural Development -----	2
1.2	Existing Dept. in ADP-----	5
1.2.1	Commercial Dept.-----	8
1.3	Objective of the study-----	8
1.4	Significance of the study-----	9
1.5	Limitation of the study-----	9

CHAPTER TWO

BRIEF OVERVIEW OF A COMPUTER SYSTEM

2.1	What is a computer-----	10
2.1.1	Brief history of a computer system-----	11
2.2	Functional components of a computer system-----	14
2.3	Types of computer-----	18
2.4	Capability of a computer system-----	21

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN	23
3.1 Analysis of the exiting system-----	23
3.2 Problems associate with the existing system-----	24
3.3 The proposed new system-----	24
3.4 Benefits of the new proposed system-----	25
3.5 The new system design-----	25
3.5.1 Flowcharting and its importance in programming-----	26

CHAPTER FOUR

SYSTEM IMPLEMENTATION	28
4.1 The choice of Programming Language-----	28
4.2 Advantages of Visual Basic language over other language	29
4.3 Hardware Requirement -----	33
4.4 System Verification and Testing-----	
4.5 Staff Training and System Conversion -----	34
4.6 Program Report Generation -----	37

]

CHAPTER FIVE

	SYSTEM SECURITY AND DOCUMENTATION	41
5.1	System security and its importance-----	41
5.2	Documentation and its importance-----	42
5.3	Summary-----	43
5.4	Recommendation-----	44
	Reference-----	45

CHAPTER ONE

1.0 INTRODUCTION

Niger State Agricultural Development Project is one of the State Agricultural Parastatal with Zonal offices at Bida as zone one head office, Kuta as zone two head office and Kontagora as zone three head office with the head quarter in Minna. It is an organisation which is been coordinated by the federal Agricultural coordinating unit (FACU). It is been control and financed by the state government with little support from the federal government.

Niger State Agric. Dev. Project has been designed such that it provides its services to the grass root farmers. It serves as an intermediary (Link) between the farmers and the research institutes, hence it carries the Research findings and vital information to the farmers and farmers problem back to research institutes for solution.

Part of the activities of Niger State Agricultural Development Project include:-Provision of farm inputs (seeds, seedling, fertilizers and extension services) to the farmers in the rural areas at the right Time, in the right form and at a subsidized rate.

Fertilizer is important farm inputs distributed to the grass root farmers through the State Agric. Dev. Project.. Fertilizer which provide plant nutrients for crops and plant growth is very important and needed by farmers to boost their production. The input ("fertilizer") have not been distributed to the farmers at the right time and at the subsidized rate despite the effort of Niger State Agricultural Development project to improve this services. There are also problems associated with the

current method of fertilizer distribution in the state such as adulteration of fertilizer, hoarding of fertilizer by the middle men, diversion of fertilizer by the transporters despite the fact of the existing problems associated with the current method of fertilizer distribution in the state.

1.1 HISTORY OF NIGER STATE AGRICULTURAL DEVELOPMENT PROJECT

In 1970s, While part of the defunct north Western State, attempt was made towards development of rice growing areas of the State and this resulted into the information of (BADP) Bida Agricultural Development project following the Success of the pilot ADP namely Gusau ADP, Funtua ADP and Gombe ADP. BADP ran for approximately 7years from June 1980 to 1987 and cover only four Local Government area of the State namely Agaie, Gbako, Lapai and Lavun the project activities were are not concentrated on the development of only the rice growing areas after all but also the areas of all other major crops namely Guinea cone Maize, Ground Nut, Melon, Millet, Cassava and Yam were carried along. Following the success of BADP, in provision of intensive Agricultural Extension Services, Rural roads, Irrigation Scheme, Farm input Distribution, Staff Training and Other rural infrastructure motivated the Niger State Government to request for it expansion to cover the whole State, and hence Niger State Agricultural Development Project (NSADP) come to being with the Project Year Zero (PYO) commencing in July, 1987.

The feasibility study of the State wide ADP was carried out by LEMAGRIC and the document therefore was approved by the World Bank Official in 1987 under the second Multi – State ADP loan. Early in 1988 (March/April) The loan was negotiated between the bank federal government of Nigeria and the World Bank in Washington DC. NSADP was established under the Niger State Government Edict No. 10 of 1988, which came in to force on January 1, 1988. The project was designed to be financed by the World Bank Loan under NSADP ii for four (4) years, beginning in 1989. The term review of the project and the re- design were

Under taken in 1992/93 and the Implementation completion review was under taken in 1995 after two extension of one year each. Thus, NSADP was implemented between 1989 and 1995 with a World Bank loan under the multi- state ADP ii. At appraisal and negotiation, the project total cost was estimated at US & 23.235 million (or ₦146, 326 million) 63.7% (i.e. US \$ 18.172 million) being The foreign exchange cost to be borne by the World Bank. 12% (i.e. US \$ 2.04million) was to come from F G N, 72.285% of which was for meeting capital cost and the remainder for current cost. The remaining 23. 9% of the project cost i.e. US \$ 3.022 million) was earmark to be contributed by the NGSG to be used to meet payment of taxes, incremental salaries and allowances as well as general operating expenses including duties. However, following the dictates of the project implementation, the component was revised twice and as June 1995, it stood US \$ 23.630million there by increasing the total finding targets for the counts part funding from FGN and NGSG remaining as at the negotiation (1988) at the close of the bank loan

period on 30th June, 1995, the loan to the project had been fully drawn.

The project area is divided into three (3) zones based on the major cropping patterns found in the state. Zone 1 comprises of Agriculture, Bida, Edati, Gbako, Katcha, Lapai, Lavun and Mokwa L.G.A.S with head quarter at Bida. This zone is suitable for cereal crops and rice. Zone 2 is composed of Bosso, Gurara, Minna, Munya, paikoro, Rafi, Shiroro, Suleja and Tafa LGAS with headquarter at Kufa. Zone iii has Agwara, Bangi, Borgu, Magama, Mashegu, Rijiu and Wushishi LGAS with head quarter at Kontagora. This zone is cereal based while zone ii is yam (tuber) based.

The state – wide ADP edict provides for establishment of the Niger state Agricultural development project Executive Committee (NADPEC) and two (2) technical Sub-committee namely Agricultural Services Sub-committee and the Rural infrastructural Development Sub-Committee to coordinate Project activities and give Feedback to NADPEC. However, after the Inauguration of NADPEC, It was found appropriately constitutional to create two (2) additional sub-committees to enable it give further support and guidance to the project. Thus the Finance and general-purpose sub-committee were established. ⁽¹⁾

1.2

EXISTING DEPARTMENT IN NSADP

The NSADP has eight (8) Department (Sub Program), Four (4) are Core / Operational. Agriculture and Technical Services, Fadama Development, Engineering and Commercial Services.

The remaining are supportive Viz.: -

Management and Administration finance and account, human resources development and planning monitoring and evaluation. In 1996 Fadama development sub- programme has carved out of the engineering sub- programme for the implementation of the national fadama development programme (NAFDP).

The Niger state agricultural development project has a managing director (MD) as its head and all the project sub- programme head and zonal managers are members.

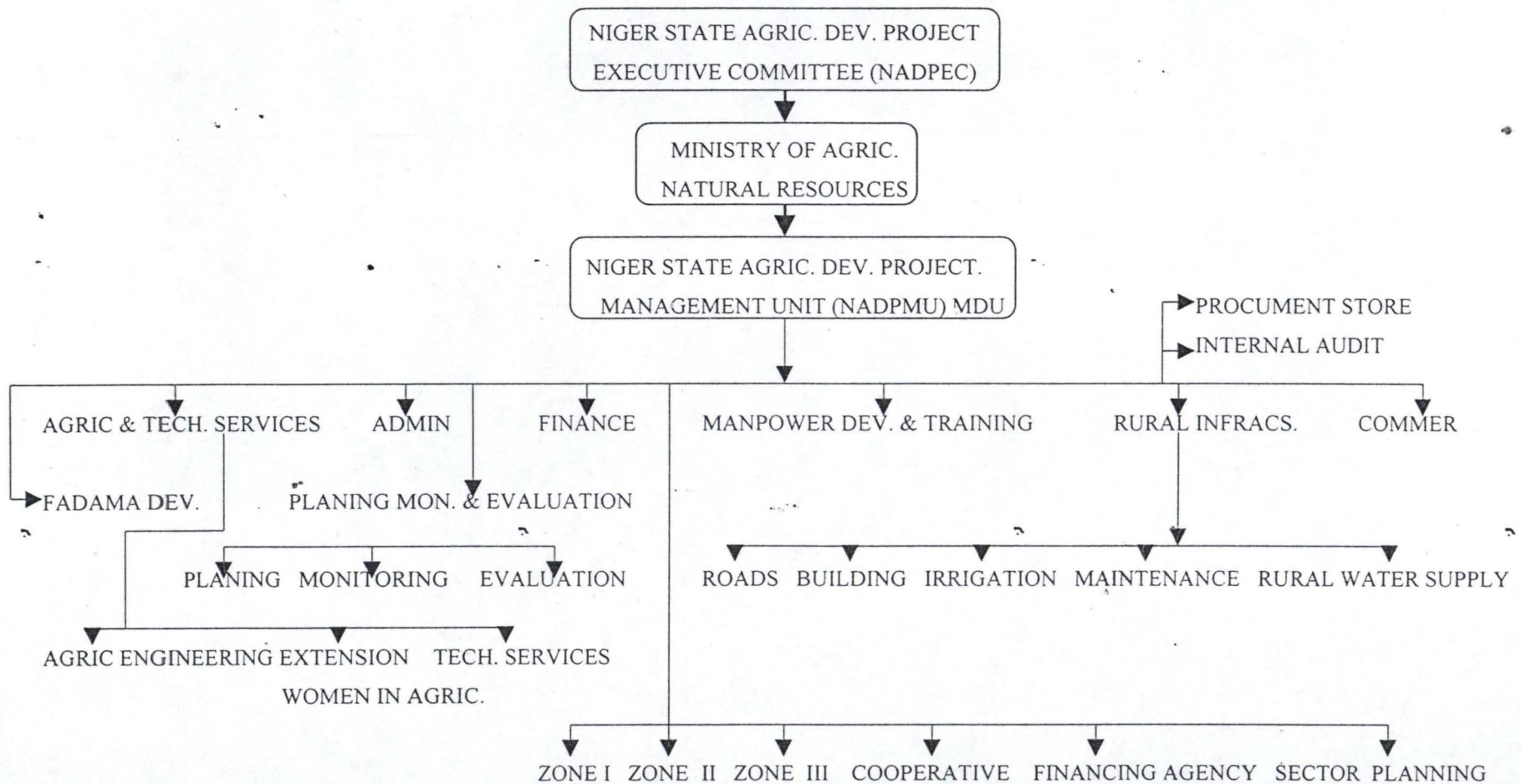
Some of the project programmes include:-

Construction of feeder roads irrigation of feeder roads and irrigation schemes associated with agricultural development, Development and management of seed multiplication, farms, provision of extension services, conduction of on farm- adaptive research, woman development activities, provision of appropriate training for project staff, Establishment of an Agro – forestry and erosion control unit to deal with the serious risks of environmental degradation, improvement of animal health services through rehabilitation and procurement of essential equipment for veterinary clinics, collection and analysis of Agro – related data for use in planing and evaluation as well as monitoring the effectiveness of project activities strengthening the capacity of the state MANR for sector policy formation, planing and expenditure programming, carrying out any

other things necessary for the attainment of the objectives of the project or incidental to the functions and power given to it under the state-wide ADP edict.

NIGER STATE AGRICULTURAL DEVELOPMENT PROJECT

ORGINISATIONAL CHART



1.2.1 COMMERCIAL DEPARTMENT

The commercial service sub- program of the project operates two main components VIZ, Agricultural input procurement and distribution, and co operative and credit promotion. In addition the sub –program operates a small vehicle hiring unit comprising of fleet of 4Nas 7-ton trucks on cost recovery basis.

Input procurement and distribution by the project continued to be unpressive. Government task force committees at state, local government and ward levels handled fertilizer procurement and distribution. The project however, continued to take delivery as well as storage of fertilizers in her primary distribution points and farm services centres. Sales and distribution of other inputs like agrochemical, improved seeds and farm equipment's were handled by the project at low primary distribution points only. While fertilizers were sold at government approved prices, for Nitrogenous and single fertilizers respectively, prices of agrochemical, improved seeds, agricultural equipment's and fishing materials were fixed and continuously reviewed by the NADMU. The fertilizer procurement and distribution was handle by the task – force committees. The ADPS role was limited to receiving and storing of the commodity and collection of proceeds from sales. ⁽²⁾

1.3 OBJECTIVE OF THE STUDY

The objective of this study is to analyses the existing system of fertilizer distribution by N.S.A.D.P. in Niger State and to propose a computerise program that would facilitate the distribution of fertilizer by the N.S.A.D.P. in Niger State.

1.4 **SIGNIFICANCE OF THE STUDY**

Fertilizer distributions in Niger State have been done using the manual system of record keeping in ledgers and other files. Problems are often encountered as a result of this manual methods ranging from accumulation of files, ledgers and forms, bias or manipulation of and loss data, slow rate of data keeping. The overall effect is that the fertilizer distributions do not reach the grassroots farmers at the right time and at the subsidised rate and more so, large quantity of the fertilizer is diverted to some areas by the transports.

Therefore, there is the need to propose a new method or technique that would facilitate the distribution of fertilizer to the grassroots farmers at the right place at the right time and at subsidised rate. This system is in the form of a computerised application package known as visual Basic 6.0 the significance of this package is to ease in data processing storage and retrieval by the computation of fertilizer distribution by N.S.A.D.P. in Niger State.

1.5 **LIMITATION OF THE STUDY**

This research is only set to analyse the existing system of fertilizer distribution by N.S.A.D.P. in Niger State and to propose a computerised program package that would ease and facilitate the distribution of the fertilizer by the N.S.A.D.P.

CHAPTER TWO

BRIEF OVERVIEW OF A COMPUTER SYSTEM

2.1 *WHAT IS A COMPUTER?*

The term “computer” gets its name from the ability of a machine to process information fast and accurately.

A computer can be described as an electronic device, which is capable of taking in data, process or manipulate it by following sets of giving instruction (known as program) in efficiently without human intervention.

The computer is made up of different units which together performs the task of computing, this units together are grouped under the following:

Hardware and software computer

HARDWARE

The physical component or all the electronic and mechanical element of a computer that is the system unit, machine, monitor and control devices.

SOFTWARE

Computer programs are commonly refereed to as software.

A computer program is a set of coded instructions for the computer to obey. ⁽³⁾

2.1.1 HISTORY OF A COMPUTER SYSTEM.

In ancient times herdsmen devised rudimentary methods of counting in which the number of pebbles, sticks or scratches on stone corresponded to the number of animals in their care. At a later date the use of those simple scratches led to the idea of using stylized pictures or symbols to represent objects, numbers and ultimately language. Such representations provided a means of storing information for subsequent retrieval and use.

Modern computers provide sophisticated ways of providing these long established facilities

A simple calculation device was created by ABACUS which were already in use over two thousand years ago. In the seventeenth century was the time for many significant developments:

- a. In 1614 John Napier, a Scottish mathematician, invented logarithms, logarithms aid manual multiplication and division. The device called Nippers Bones, was used for many years
- b. In 1620 William Oughtred, an English person, invented the slide rule, an analog calculating device which uses the principle of logarithms.
- c. In 1623 Francis Bacon made the first known use of binary codes for number representation
- d. In 1642 the French mathematician Blaise Pascal devised the first true calculating machine. Addition and subtraction were straightforward but multiplication and divisions were slow and laborious.
- e. In 1671 the German mathematician Gottfried Von Leibniz invented a calculating machine capable of true multiplication and division. The machine was a development of Pascal's idea.

The first machine to perform basic arithmetic operations well enough for commercial use was the ARITHMOMETER, BUILT BY Charles Xavier Thomas in 1820. In 1833, Charles Babbage a professor of mathematics at Cambridge university designed the ANALYTICAL engine which incorporated many features present in modern computers:-

- A. Data and program instructions fed in a Via a device using a suitable medium (Punched Card).
- B. Storage Facilities for data and instructions.
- C. A mechanised unit for calculation – a “mill”.
- D. A suitable out put device.

Lady Ada Lovelace, amateur mathematician and friend of Babbage produced supporting material for the analytical in the form of programs and explanatory documentation. It may be argued that Lady Lovelace was the first programmer. The programming Language “Ada” has been named after her.

Computer Logic. An important the critical development occurred between 1847 and 1854 as George Boole, an English Logician, devised an algebraic system, now called “Boolean Algebra” for representing and manipulating logical expressions. The full significance of the development was not realised at the time.

In 1887, Herman Hollerith, a census statistician at the US census bureau, used Punched Card equipment to process the 1890 census.

In 1907, James Powers developed a punched card system to process the 1910 census. These machines were fore runners of electromechanical data processing systems.

In 1937-1944, Howard Aiken of Howard University, led a group of engineers in the design of the ASCC (Automatic Controlled

Calculator) or Mark 1. This used a program to guide it through a long series of Calculations.

By 1941 Konrad Zuse had computed three relay calculators that incorporated many of the ideas of automatic computing.

In 1942, John V. Atanasoff and his assistant, Clifford Berry devised the first digital computer to work by electronic means, hence the ABC (Atanasoff-Berry Computer) called COLOSUS, Strated.

In 1946, John Mauchly and J. Proper Eckert at the university of Pennsylvania (U.S.A.) put into operation the first large scale, ENIAC (Electronic Numerical Intergrator and Computer) used to compute firing and ballistic tables for Army. Artillery guns.

John Von Neumann devised the stored program concept by which a read instruction from computer storage to switeh to a new program. The first stored program computers were completed in 1949: EDSAC in England and BINAC in the US.

The EDSAC Electronic Delay storage Automatic Calculator was designed and constructed at the canbridge University in England by Maurice V. Wilkes and his associate while BINAC (Binary Automatic Computer) was built by ECKERT and Mauchly.

In 1951, an improved model of EDVAC (Electronic Discrete Variable Automatic Computer) which was smaller, more versatile, and more flexible machine than ENIAC was designed and became a true stored instructions and data.

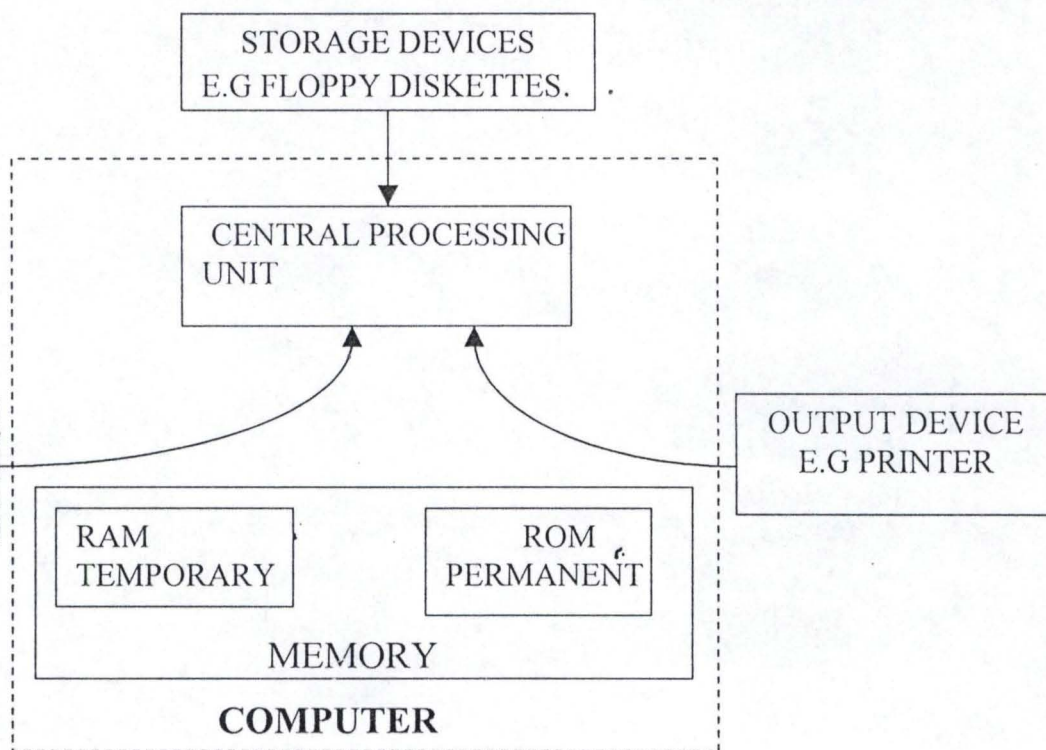
The first computer designed with eventual real-time applications in mind was developed by the Massa chutsetts, Institute of Technology in 1945 and called in the development of magnetic core memory, the primary internal storage used in all computers until 1964.

The first business data processing system, UNIVAC I developed by Eckert and Mauchly which could read, compute, and write information simultaneously was delivered to the United States Bureau of Census in 1951.

Not long after UNIVAC I was in operation, automatic-programming techniques were developed to help people use these machines. These techniques have since become programming languages that are used extensively in solving programs on modern computers.

“The Computing Tabulating Recording Company” which later became the International Business Machine Corporation (IBM) which today is by far the largest computer manufacturing in the world.⁽⁴⁾

2.2 FUNCTIONAL COMPONENTS OF A COMPUTER SYSTEM



A microcomputer system consists of a number of components each performing a specific function.

The three basic components include Input device (used to send information to the computer), a central processing unit and Output device (that communicate result to human)

THE CENTRAL PROCESSING UNIT (CPU)

The central processing unit is most complex and powerful part of a computer system. It can store data temporarily; can also perform operation on these data. The CPU can be thought of as the “brain” of the computer. It comprises of three major units. The control unit, the arithmetic/logical unit and the primary storage unit.

The control unit (CU) is in charge of the activities of the CPU. It does not process or store data, but it instructs various part of the computer in performing these tasks, instructions given to the computer by the user are interpreted by the control unit which then signals out signal to the circuit within the CPU to execute these instruction. The appropriate input devices are directed to send the user – supplied data to the computer. The control unit also keeps track of which part of the program have been executed and which one remain to be executed.

Finally, it control output and sends it to the designated output device, such as terminal screen or printer.

THE ARITHMETIC / LOGICAL UNIT (ALU)

The arithmetic and logic unit (ALU) is the reasoning centre of the CPU. The ALU is the centre of thought and reasoning to the CPU. It controls all operation of Arithmetic and logic As directed by the CU, it also performs all computation (addition subtraction, multiplication and division) and all logic operation (Comparisons). The ALU of most computers perform all arithmetic functions using binary numbers (0,1)

PRIMARY STORAGE UNIT

The primary storage unit is referred to as the main memory or internal storage is the component of the CPU that temporarily stores program, data and results. It holds program instructions, data and the intermediate and final results of processing. It consists of many storage locations each of which can hold a small amount of information. Each of these storage locations has a unique address associated with it.

This address allows the computer to locate items that have been stored in its memory.

STORAGE DEVICES

Computer storage is also called memory which is an electronic file in which instructions and data are placed untill needed. When data is entered into a computer through an input unit such as keyboard, it is first converted to binary then placed in storage. The data remains there untill called for by the computers control unit.

The main memory comprises random access memory (RAM) and read only memory (ROM).

RANDOM ACCESS MEMORY (RAM)

The random access memory can be written into and read from at random. Its contents can be used and replaced with new programmes as may be required for performing a new set of operation. It is indeed a read – write memory. RAM IS RELATIVELY LARGE.

READ ONLY MEMORY (ROM)

The Read Only Memory (ROM) is the section of memory that is placed in the computer during the manufacturing process and remains there even after the computer is turned off. The content of the ROM is not volatile, and cannot be changed or lost when the power is turned off. The contents of ROM are designed into the logic of the memory chip at the time of manufacturer and can be “read only”.

There are two variants of ROM one form is programmable and called PROGRAMMABLE READ ONLY MEMORY. PROM is ROM into which the user can load “read only” program and data. Once a program is loaded to PROM it is seldom, if ever changed.

However, should there be need for revision of the contents of ROM by programmers, there is another form that is erasable, hence the name ERASABLE PROGRAMMABLE READ ONLY MEMORY (EPROM).

INPUT DEVICE

Input devices are used to enter data into the computer, this unit facilitates flow of information into the computer. The information is translated into binary numbers so as to be acceptable to the computer.

Some common input devices are the keyboard, disk drives, tape drives and light pens. Keyboard and light pen can only be used for input. Where as disk and tape drives can be used for both input and output.

Some of the output devices are visual display unit (VDU) printer; other devices are video screen or monitor. The monitor is very important for any computer system for two reasons.

First it shows the user the data or instruction input from input device.

Secondly, the monitor is almost in stannous outlet for the result.

2.3 TYPES OF COMPUTERS

Computers* come in a variety of sizes, ranging from tiny handle devices to several feet in height and diameter. Now computers have become increasingly powerful and also smaller.

We can classify computers by size, type of logic they use and by purpose.

CLASSIFICATION OF COMPUTERS IN TERM OF SIZE

Computers can be divided into four categories: Super, Mainframes, Mini and Microcomputers.

SUPER COMPUTER

They are the faster and the most expensive computers and can perform at least 10 million arithmetic operations per second. They have the capability to the result of explosion of nuclear weapons and also meteorologists employ them to study the formation of tornadoes.

MAINFRAMES

They are large computers commonly used in business and industry. They are also very expensive and are used to solve highly sophisticated problems. Mainframes have large memory capacity and are the most powerful and can operate at very high speeds. Banks, large commercial and industrial companies and government agencies all use main frame computers because they can support multiple users and multiple functions

MINI COMPUTER

Minicomputer are computers with many of the capability of the mainframes, but lower-priced and with smaller primary storage unit. They process data more slowly than the mainframes, generally easier to install and can support a network of user terminal but not as mainframe. Mini computers are often used in business which do not require the capability of the mainframe.

MICRO COMPUTERS

They are the lowest and least expensive computers currently available. These types of computers are found in small business and in home and classrooms. They have smaller storage unit and are generally less complex and execute programs at slower.

CLASSIFICATION OF COMPUTER IN TERMS OF LOGIC

In term of logic used, computers can be classified into two main types depending on the way they process and represent information and the third, which combine the capability of the two. The types are:- Analog, Digital and hybrid computers.

ANALOG COMPUTER

This type of computer performs its operation by measuring and comparing or relating physical quantities or changes and variables in the form of mathematical equation. They process data that vary continuously such as variation in pressure, speed, chemical compositions or the amount flowing through an electric conductor. Analog computers does not contain memory since they measures or compares data / value.

DIGITAL COMPUTERS

Digital computers perform arithmetic operation and access logical decision according to instructions coded to them in advance. As the name implies numbers and letters are represented as digits e.g. personal and mainframes are digital computers.

HYBRID COMPUTER

As the name implies, they combine the capability of the analog and digital computers. Hybrid computers are powerful computing devices and are mostly used to solve sophisticated problems such as those from the studies of process control and optimization.

CLASSIFICATION OF COMPUTER IN TERMS OF PURPOSE

Computers can be classified into two types in terms of their purpose. They are general purpose and special purpose computers.

A general-purpose computer can be used for many purposes. They are designed not for a specific purpose or jobs. For example it may be used for handling payroll computations, or to solve complex mathematical problems.

A special purpose computer is designed for only one purpose, that is to specific tasks. For example the computers used for guiding NASA's space shuttles are special purpose computers.

2.4 CAPABILITY OF A COMPUTER

Computer is capable of laboring 24 hours a day, and can do thousand task exactly the way it did the first one.

Computer is capable of carrying out its task as the regards to the following: -

Special computers are capable of carryout their tasks with a great speed which is measured in microseconds. This has made it ideal in providing efficient services in the handling of bank balances, examination grades, pay checks. The speed also makes it ideal for

processing large amount of data, in scientific applications and accounting system.

Reliability: Computer are extremely reliable. Any error in the out put is as a result of human error in input. As the saying "Garbage in Garbage out".

Storage capability, storage capability is very informant especially in an information age. Computer systems are able to store tremendous amount of data, which can be retrieved quickly and efficiently.

Decision-making: Due to technological expansion, communication and inter dependency of people on computers to solve their problems especially business and Governmental decisions, managers need to take into account a variety of financial geographical factors. The computer helps the manger's sort and make a better choice.

Productivity: Computers are very productive, hence are able to perform dangerous, boring and even sensitive jobs that people in some cases cannot perform.

Reduction in cost: Computer increase productivity and also reduce the costs of good and services. Finally, computers helps reduce waste and hold down the cost of labour, energy and paper work. ⁽⁵⁾

CHAPTER THREE

3.0 SYSTEM ANALYSIS AND DESIGN

INTRODUCTION

The system analysis and design stage involves full detailed study of the existing system, which includes the procedures, information gathered and method of work organisation and control.

This chapter begin with the analysis of the existing method as well as the problems associated with it, so that the proposed system to be design will be able to meet the expected benefits, in regards to fertilizer distribution in Niger State Agricultural Development Project.

3.1 ANALYSIS OF THE EXISTING SYSTEM

Analysis of the existing of fertilizer distribution in Niger State Agricultural Development Project.

This is the finding as regard the existing procedure in NSADP. It is based on the analysis made that a design will be carried out such that it will suit the present and future needs of the organisation.

However, the method use in fertilizer distribution is characterised by filling of forms and ledger book (manual method of processing).

In NSADP, the commercial department is designated for the fertilizer distribution in the state. The state government will channel its request to the producing company through Niger State Agricultural Development Project, with the type and Quantity of fertilizer specified.

The state government now pays the fertilizer producing company where the request is made and the fertilizer producing company sends or deliver the requested fertilizer to the state ADP through the registered transporters. And the distribution to local government council through ADP.

3.2 PROBLEMS ASSOCIATED WITH THE EXISTING SYSTEM

Problems associated with the existing system the method of fertilizer distribution in Niger State Agricultural Development Project has been analysis and found to be associated with some problems specifically, the problems induces:

- (i) Accumulation of files, ledger and forms
- (ii) Loss of Data or Records
- (iii) Bias manipulation of records
- (iv) Slow rate of record / Data processing
- (v) In adequate and inaccurate of record keeping
- (vi) Lack of security compare to proposed system (computerised).

3.3 THE PROPOSED NEW SYSTEM

The proposed new system is to computerised fertilizer distribution in Niger State. A program is design such that it accept or input Data, process this Data and to emit or out put information. Also the program to be able to keep the total number of fertilizer allocated to Niger State Government.

However, the proposed new system can also be able to keep track, record and be able to tell how many bags of fertilizer are loss or kept in store.

3.4 BENEFIT OF THE NEW PROPOSED SYSTEM.

The benefit of the proposed new system can not be over emphasized.

- It reduces the work load
- Access to stored information wherever needed.
- The cost of record
- Maintain fast processing of data
- It ensures maximum security of data through the use of password.

However, the proposed system can be used for any other distribution of farming materials not limited to fertilizer distribution alone.

3.5 NEW SYSTEM DESIGN

The new system has designed in order to overcome the problems associated with the fertilizer distribution in the state. The developed program takes care of the specimen i.e. fertilizer indicating the type, and the state is where the fertilizer distribution takes place. The unit measures the weight and the annual target is the quantity the state government wants to procured from the manufacturing company.

In every year there is usually a certain amount of stock in the store called the opening stock which is the carried over of the previous year. The Receipt is the quantity of fertilizer received from the manufacturing company at that particular season. The fertilizer is distributed to various part of the state after assessing the total number, that has been transported down by the state government registered transporters.

The state government determines the price, while the damage stocks are still valuable for their purpose. The distribution date and period are also put into consideration.

3.5.1 FLOWCHARTING AND ITS IMPORTANCE

Flowchart is certainly the best known of all program design methods. A flowchart can simply be defined as a diagrammatic representation of algorithms. Programming textbooks describe how programmer first write complete flowcharts and then start writing the actual program.

ADVANTAGE OF FLOWCHART

The basic advantage of the flowchart is that it is a pictorial representation. People find it more meaningful than written descriptions. The designer can visualize the whole system and see the relationships of the various parts.

Logical errors and inconsistencies often stand out instead of being hidden in a printed page. At its best, the flowchart is a pictorial of the entire system.

Some specific advantages of flowcharts are:

- i. Standard symbols exist so that flowcharting forms are widely recognised.
- ii. Flowcharts can be understood by someone without a programming background.
- iii. Flowcharts can be used to divide the entire project into sub – tasks, which can then be examined to measure overall progress.
- iv. Flowcharts show the sequence of operations, and can therefore aid in locating source of errors.

- v. Flowchart is widely used in other areas besides programming
- vi. There are many tools available to aid in flowcharting including programmer's template and automated drawing packages. ⁽⁶⁾

CHAPTER FOUR

SYSTEM IMPLEMENTATION

4.1 THE CHOICE OF PROGRAMMING LANGUAGE

A program is a set of instructions given to a computer to execute in an attempt to solve a given problem.

The act of writing program is known as programming. In this project, we will define programming as the ability to solve problems and not to write code.

The word programming has been widely used by many but has not been exploited to the maximum capacity. For example C,C++ programmers ,generally have written programs, what we will called ordinary problems, programs that calculate simple interest, to find the products of two arrays, or quadratic equation, but how many of them have really exploit what Object Oriented Program (O O P) is, the attribute of O O P which are encapsulation, polymorphism and inheritance, and how many of them have actually touched any design their own libraries, active X control and probably work or have an idea of what pointer is or does.

C,C++ and its Co-object Oriented Program Languages can be used to design many programs but are not suitable to design many programs, program that run on the browser (INTERNET), database management system, games and so on because of their non flexibility Visual basic is more flexible as it has succeeded in supporting many applications, and ability to run on the net and support any collection of database ranging from DOS (Dbase iv, FoxPro e.t.c) to windows application like (Access, Visual FOXPRO, SQL, Oracle e.t.c.). So we

now define programming as the ability to solve problems and not to write code.

4.2 VISUAL BASIC AS A PROGRAMMING LANGUAGE

Several years ago, when Visual Basic was a small language a mastering book would have covered every aspect of it since its first release, visual basic involved into a major development environment that application to databases and from financial application to Internet components. Writing a book that would even introduce all these topics was out of question especially a mastering book.

Can we imagine "One language, three editions? Yes Visual Basic Comes in Three flavours

1. THE VISUAL BASIC PROFESSIONAL EDITION

This is for the Computer Professional and includes advanced feature such as tools to develop Active X and internet controls. Many programs designed with visual Basic on the WEB require the professional edition

2. THE VISUAL BASIC LEARNING EDITION

This is the introductory edition that lets us easily create windows application. It comes with all the tools we need to build main stream windows application, most of the program around written visual basic will work with the learning edition

3. **THE VISUAL BASIC ENTERPRISE EDITION**

This is the most advance and is aimed at programmers who build distributed applications in a team environment. It includes all the features of the professional edition, plus tools such as visual sources safe (aversion control system) and the automation and component manager.

Moreover, visual Basic is not just a language, but its an integrated Development Environment in which we can developed, run, test and debug our applications. With Visual Basic, we can create the following types of applications.

1. **STANDARD EXE:** This is a typical application and these are the types of applications we develop with previous versions of Visual Basic.
2. **ACTIVEX DLL:** Activex component are OLE(object Linking and Embedding) automation servers and they are basic interface and that can add special functionality to our applications. The two types of project are alike in functionality, but are package differently as executable files or Dynamic link libraries).
3. **ACTIVEX CONTROL:** This is used to develop our own activex controls such as a Textbox, command button control.
4. **ACTIVEX DOCUMENT EXE, ACTIVEX DOCUMENT DLL:** This types of project runs in the environment of a container that supports hyper linking (such as Internet Explorer)

5. **VISUAL BASIC APPLICATION WIZARD; VISUAL BASIC WIZARD MANAGER:** Application Projects takes us through the steps of setting up the Skeleton of a new application. If we are not a good Visual Basic programmer, we don't use this type of project to build because it takes a professional to modify the code given by the Wizard. The Visual Basic Wizard manager helps us build our wizard where every user of our application can easily install our program.

4.3 **ADVANTAGE OF VISUAL BASIC LANGUAGES OVER OTHER LANGUAGE**

In the time past, "C Language" is used to write operating system, it took 30 thousand programmers from Microsoft a good number of years to design windows '95 and a piles of paper / codes before the operating system was then released which of course its good but it has many restriction on the net.

Over to Visual Basic now compare to windows 98 to '95; '98 provides more of the internet functionality, also see office 2000, and windows2000 they have powerful tools, these are what Visual Basic does without piles of codes / papers and less years was used in presenting the product to the world.

So what is all the hype about? Exactly what's Visual Basic and what can it do for you? Well Bill Gate described Visual Basic as an "easy yet powerful tool for developing windows applications in Basic". Until you realize that Microsoft windows application formally required an expert MC programmer supplier with about 20 pounds worth of documentation for the needed C compiler and the essential add-on.

As Charles Petzold (author of one of the standard books on window's programming in C) put it in the New York Times "For those of us who make our living explaining the complexities of windows programming to programmers, Visual Basic poses a real threat to our livelihood".

DATA PROJECT: - This type of projects automatically adds controls that are used in accessing data bases to the tool box. It also adds the databases active x designers to the project explorer windows. The active x designers are visual tools for accessing and manipulating data bases and generating reports

DHTML APPLICATION: - it allows you to build dynamic DHTML pages that can be displayed on the browsers window on a client computer.

ITS APPLICATION It allows you to build applications that run on the web server and interact with client over the Internet with the Internet Information services.

ADD IN: Add-Ins is special command as you add to visual Basics menu.

VISUAL ENTERPRISE EDITION CONTROLS: This simply creates a new standard EXE project and loads all the tools of the Enterprises Edition of visual Basic.

HARD WARE REQUIREMENT

The hardware specification gives the target type of hardware that could be used to implement the system. It is categorized as minimum hardware and recommended hardware requirement the system. The minimum requirement specifies the least hardware configuration that can be used to implement the system irrespective of speed of data processing, while the recommended system specification gives the configuration of a system that can optionally perform all the processing of the designed system.

Minimum Hardware Requirement	Recommended Hardware Requirement
Intel Pentium 11233MMX	Intel Pentium 111800
32 MB Synchronous DRAM	128 MB Synchronous DRAM (128MB recommended)
4 GB Hard Disk Drive	20 GB Hard Disk Drive
52x CD-ROM	52x CD-ROM
SVGA VGA Adaptor	8MB AGP Set
1.4 MB 3.5" Floppy Disk Drive	1.4 MB 3.5" Floppy Disk Derive
14" Super VGA Monitor	15" Super VGA Monitor
Minitower ATX Casing	Minitower ATX Casing
IOMEGA 100 MB Zip Disk (for system Backup)	IOMEGA 250MB Zip Disk (for system Backup)
Microsoft PS/2 Mouse	Microsoft PS/2 Mouse
Windows PS/2 Keyboard	Windows PS/2 Keyboard

- Other Accessories are:
- Laser Printer • (HP 1100C recommended) or DeskJet 1200C recommended).
- HP 5230C Scanner
- APC 650 Smart UPS. ⁽⁷⁾

4.4 PROGRAM VERIFICATION AND TESTING

Whenever, a program is written it is normally verify and tested. Testing is also referred to as program validation that is ensuring that the program performs the overall system tasks correctly. The designer uses simulators, exercisers, and statistical techniques to measure the program's performance. This stage is like quality control for hardware. The program for this research project has been verified and tested and found okay.

4.5 STAFF TRAINING AND SYSTEM CONVERSION

Staff Training

Since the organization concern have existing computer room / office and computer operators. Three of the staffs, that is the officer in charge of the fertilizer distribution and two computer operators are recommended to be trained in order to enhance their efficiency. The source code to be given to the head of the fertilizer distribution officer. The recommended period of training is one week.

SYSTEM CONVERSION

System conversion is an essential activity and it requires careful handling of data, one of the means of system conversion is change over. It involves the conversion of old data files into the form required by the new system. The change over from the old to the new system may take place when:

1. The system has been proved to the satisfaction of the system analyst and other implementation activities have been completed.
2. Manager, user are satisfied with the result of the system test, staff training and reference manuals.
3. The target date for changeover is due.

The changeover may be in a number of ways. The most common methods are:-

Direct, Parallel, running, pilot running and staged changeover.

1. **DIRECT CHANGEOVER:** This is total replacement of an old system by the new, in one move.
2. **PARALLEL OPERATION METHOD:** Here the new system is used along with the old one, which is gradually phased out.
3. **PILOT APPROACH:** A working version of the system is implemented in one part of the organisation, changes are made based on feedback and the new system is then installed in the rest part of the organisation.

4. **STAGE CHANGEOVER:** - This is a gradual process of changing from old new. The new system is used in a section of the organisation in parallel with the old until it becomes effective on its own. Then the same thing is done in another section this is repeated in all the sections until the entire organisation is covered.

The parallel running method is most appropriate for the system developed.

PARALLEL RUNNING

This means processing current data by both the old and the new system to check the results. The main advantage is that the old system is kept alive and co operational until the new system has been proved for at least one system cycle, using full live data in the real operational environment of place, people, equipment and time.

Now the results of the new system to be compared with the old system. For the acceptance by the user, they're by promoting user

The disadvantage of extra cost, the difficulty and unacceptability, of user/staff having to carry out the operations for two systems (old and new) on the time

parallel running (changeover) procedure is recommended for the system.

Input/Edit/View Record

Show /Print Report

Exit

Date	▲
12/12/11	
12/34/3	▼

Speci	Sate	Unit	AnuTag	OPSTK	Rece	DistTo	▲
Uraea	Kaduna	mg	44	54	76	54	
fat	Kann	mk	233	54	56	33	▼

MC

Type/Name of Agro

Variety: Specimen Sate: Unit: Annual Tag.
Agro Bsp Niger kg 100

Open Stock Receipt Distributed To Trans Other/Issue
34 30 12 56

Price: Damage Stock: Date:
12 45 1/1/1

TOTAL Tot Price Tot. ActStock Bal. Tot DgStock:
25 -68 78

Tot. BkBalance Tal. Receipt Tot Val Of Sale Tot. Open Stock
10 53 443 45

Tot. D. To Farmers
35

Variety: Specimen Sate: Unit: Annual Tag.
Agro Bsp Niger kg 100

Open Stock Receipt Distributed To Trans Other/Issue
34 30 12 56

Price: Damage Stock: Date:
12 45 1/1/1

TOTAL Tot Price Tot. ActStock Bal. Tot DgStock:
25 -68 78

Tot. BkBalance Tal. Receipt Tot Val Of Sale Tot. Open Stock
10 53 443 45

Tot. D. To Farmers
35

Distribution Of Farming Materials For Niger State

Type/Name of Fert

Variety:	Specimen	State:	Unit:	Annual Tag.
Fert	Uraea	Kaduna	mg	44

Open Stock	Receipt	Distributed To	Trans Other/Issue
54	76	54	56

Price:	Damage Stock:	Date:
66	44	1/23/3

TOTAL	Tot Price	Tot. ActStock Bal.	Tot DgStock:
	78	-89	110

Tot. BkBalance	Tal. Receipt	Tot Val Of Sale	Tot. Open Stock
21	132	3960	108

Tot. D. To Farmers
87

Variety:	Specimen	State:	Unit:	Annual Tag.
Fert	Uraea	Kaduna	mg	44

Open Stock	Receipt	Distributed To	Trans Other/Issue
54	76	54	56

Price:	Damage Stock:	Date:
66	44	1/23/3

TOTAL	Tot Price	Tot. ActStock Bal.	Tot DgStock:
	78	-89	110

Tot. BkBalance	Tal. Receipt	Tot Val Of Sale	Tot. Open Stock
21	132	3960	108

Tot. D. To Farmers
87

CHAPTER FIVE

5.1 SYSTEMS SECURITY AND ITS IMPORTANCE

Computer system security encompasses the security of all the information assets that constitute the system. Most managers should see security measures beyond just the physical access and pass words. It should be noted that if hardware fails then the information system has failed. Their adequate measures should be taken regarding both the software and hardware sub-systems. Security involves physical safe guards, procedural controls, recovery plan, and insurance.

The physical safe guards includes solid construction of computer centre with secured windows using burglary proof and fire resisted materials should be used, and fire extinguishers made available. Strict access to computer centre enforcing using key, access code and a guard.

The procedural control involves clearly laid down personnel policies and procedures by the computer management. These policies are such that should prevent operational error that may lead to data / program files destruction. These policies include external file label, magnetic tape file protection ring, and library procedures.

IMPORTANCE OF FILE SECURITY

- Protection of the system software: This does not allow unauthorized program modification as a result of password mechanism or access control.
- Computer based programming languages : This type of programming language permit adequate security.

5.2 DOCUMENTATION AND ITS IMPORTANCE.

Documentation can be defined as the process of describing how a program works and there are two types of documentation namely: Internal and External documentation.

INTERNAL DOCUMENTATION is the way of adding comments into the program and it is good to note that all the programming languages have facilities for adding comments into the program writing such that the comments are not access by the compiler.

EXTERNAL DOCUMENTATION: It serves as reference manual which describe the ways or methods of interacting with the program as well as the methods requires to solve any anticipated problems.

IMPORTANCE OF DOCUMENTATION

The importance of documentation in program writing can not be over emphasized, this is because documentation help in trying to describe how best the program can work in order to solve the intended problems.

It also serves as a reference manual for other programmers, which can be of help in their own programs in a particular program, which a is required to solve an anticipated problem.

5.3

SUMMARY

This project computerization of fertilizer distribution in Niger State is brought about to take care of the problems associated with the manual method of fertilizer distribution in the state.

The manual system of fertilizer distribution was studied and problems associated with it were highlighted. Based on the analysis, the new system (computerised) was designed, test – run and have been satisfy okay.

The chapter one is about the introduction of computer, what it means. Brief history about N.S.A.D.P. Minna, the existing department, the department controlling the distribution of fertilizer, the purpose of the study, the significant and limitation of the study.

The chapter two is about the history, types, capability and limitation of a computer system.

In chapter three the existing system (manual), the problems associated with it were analyses. The proposed systems, the benefit over the existing system were all discussed, and the design of the new system carried out.

In chapter four the programming language used in the design were chosen, the hardware requirement for the proposed system were recommend. The new design tested and the staff training recommended.

In chapter five, the system's security and documentation including their importance were also discussed, the summary and recommendation are also included love.

RECOMMENDATION

Since man is the determining factor in effective management of any system as highlighted in this project work. It is imperative that the following recommendations are made into the management system of this organisation. The recommendations are as follows:

- a. Mechanisms should be established to ensure that all equipment's (hardware) and software are in good operating conditions.
- b. Maintenance of the hardware system should be institutionalized in order to guard against system failure.
- c. The software should from time to time be subjected to modification as changes are made in the organisation.
- d. Training of operational staff should be done adequately as will dictate the success or failure of the system.

REFERENCE

- Akin F. (1996): Introductory Computer Science Computer and Publishing Services Company Abuja
- French C.S. (1984), Computer Science. 2nd edition, DP Publication Lid. Hants.
- James E.B. and M. Mathins (1984): The Potable Computer Book. Arrays Inc. U.S.A.
- Lance, A.L. (1986): 68000 Assembly Language Programming. 2nd Edition, Mc Graw Hill Inc. California.
- N.S.A.P (1989): Report on the Village Listing Exercise. Vol1. A report Publication. By N.S.A.D.P. Minna.
- Adeboye K.R. (1989): Computer and Data security, conference on Data Management and Security, Minna.
- Adeboye K.R. (2001): Effect of Information Technology, Workshop on Leadership Monitoring Strategies, Minna.
- Badmos R.O.(2001): Systems Analysis And Design (lecture note) Unpublished, Minna.

Source Code

```
Private Sub CommandButton1_Click()  
End  
End Sub
```

```
Private Sub CommandButton2_Click()  
Me.Hide  
Load DataReport2  
DataReport2.Show  
End Sub
```

```
Private Sub CommandButton3_Click()  
Me.Hide  
Load frmDataEnv  
frmDataEnv.Show  
  
End Sub
```