

**COMPUTERIZATION OF SUPPLIES AND  
MANAGEMENT FUNCTIONS IN THE  
FEDERAL MINISTRY OF AGRICULTURE**

**BY**

**DOSUMU OLAWALE SEMIU  
PGDCS/008/93/94**

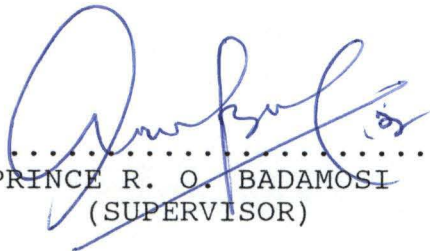
**A PROJECT SUBMITTED TO THE DEPT OF  
MATHS/COMPUTER SCIENCE,  
FEDERAL UNIVERSITY OF TECHNOLOGY,  
MINNA.**

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
FOR THE AWARD OF  
POST GRADUATE DIPLOMA IN COMPUTER SCIENCE.**

**SEPTEMBER, 1996.**

CERTIFICATION

This is to certify that this Project was carried out by **SEMIU OLAWALE DOSUMU** in the Department of Maths and Computer Science, Federal University of Technology, Minna, Niger State Nigeria.

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## ACKNOWLEDGEMENT

I am grateful to God Almighty for keeping and directing life during the course of this study. I am indebted to so many people who have contributed in one way or the other to the completion of this book. To my supervisor, Prince Badmus R. who gave me the sense of direction and corrected some mistakes from the write up to the end of the Project. To the Head of Department, Dr. R. K. Adebeye, I thank you for the care, help and advice.

My sincere thanks goes to all the lecturers in the Department of Mathematics and Computer Sciences, most especially Dr. Iwa Reju, Mr. Yomi Aiyesanmi, Mr. Sadiq, Mr. Kola and Mallam Bello for having the patience to see us through the course.

To the families of Rasheed Hassan, Adebayo R., Lateef Bamidele, and Bernard Oyekan. I am very grateful and may the Grace of Blessings of Allah abounds. To my friends, brothers and colleagues, Olowosulu, Nike, Kehinde, Taiwo - Omomeji, Bisola Ramomi (last bus stop), Odumosu, Amure, Lawal, Mr. Paul and Bummi Osunlana of Federal Ministry of Agriculture, Supplies section.

Finally, thanks to Mallam Ladan Usman of the Federal Ministry of Agriculture, Abuja for processing the words and proper printing.

## ABSTRACT

*For many years there has been a great need for an authoritative and comprehensive project or book on this subject.*

*The study streamlined how supplies and materials management function of the Federal Ministry of Agriculture can be computerised.*

*It first looked into material management as vital resources of any organisation and the procedures of acquiring stores (purchasing technique) and relationship between stores and all other departments in the Ministry and see how the stores can be computerised thus determining the impact of computer to stores management. It tries to look at the old system being used since 1960 and see the limitation and scope of installing "MIND TOOLS"*

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## DEDICATION

The research work is dedicated to the Almighty Allah, who gave me the strength and courage to finish this programme.

It is also dedicated to my late parents **MR. HOSENI TAIWO OYESILE DOSUMU AND MRS. SUWEBATU AJOKE DOSUMU**, for their moral and financial upbringing with educational encouragement given to me during their life time.

Also, dedicated to my beloved wife **MRS. ISIMOT BOLANLE DOSUMU** and my children - **BASIRAT AJOKE, IDRIS OLAREWAJU, AMINAT FOLAKE AND ADIJAT KUBRAT DOSUMU** for their unrelenting supports and matured understanding during this period of keeping away from them in order to achieve greater height.

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*Purposive model program are written based on stores' tools used. The project evaluate the purpose of choosing database system to write the model program and try to analyse the relevant of the system chosen to the stores.*

*Looking at the result or effects of Computerising stores the Ministry would be better off, after installing the programme in the stores. The computer has positive effect on the whole Ministry while the financial implication based on losses using old system of posting ledgers is eliminated.*

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 MATERIAL MANAGEMENT - AN OVERVIEW

Materials of all kinds are a vital resource in any organisation (be it private or public) and particularly so when these materials are required for conversion into a finished product. Materials represent money tied up, it cost money to store, move, pack and effectively manage.

Materials management concerns itself with the management of material resources. It concerns itself with the cost we incur on materials and seek to reduce this cost.

Traditionally, we are used to thinking of the cost of materials in terms of the price we pay to acquire the materials, that is, their basic cost. This is what we show in the statements of a company's annual accounts. This cost by itself is enormously high, as materials account for 50 to 60 per cent of the net price of a product.

Today, however, materials management does not concern itself only with the cost of materials, but also pays equal attention to the cost we incur on materials.

There are, therefore, two distinct and different costs relating to material:

## COST OF MATERIALS AND COST ON MATERIALS

In fact, the cost on material in many cases are hidden cost, since they are not classified under the head "materials" in a company's accounts. Instead, they go under misleading headings, like overheads, scrap, storage costs, indirect labour, and so on. The main thrust of materials management is to attach all these hidden costs on materials wherever or however they may occur.

Some of these costs which get added to the basic cost incurred on buying materials, are:

- \* Cost of purchasing (This can be very high if we have cumbersome and bureaucratic purchasing procedures).
- \* Taxes, (Sales tax, excise, etc).
- \* Packing costs.
- \* Transportation costs, including clearing costs, incurred at railhead, ports airports, etc.
- \* Insurance, premia.
- \* Receiving.
- \* Inspection costs.
- \* Materials handling costs.
- \* Loss caused by scrap and cost of re-work.
- \* Loss suffered on finished goods rejected by Quality Control.
- \* Inventory carrying costs consisting of interest on capital locked up; salaries payable to staff required for store-keeping and stores accounting; amounts

payable towards rents, taxes, insurance premia; loss caused by pilferage, spoilage and deterioration, obsolescence, etc. (In Nigeria) this cost works out to approximately 30 per cent annum of the basic cost of materials stored).

A distinctive feature of these costs (except may be taxes) is that none of them adds any value to the final product, and hence should be suspect, as we said earlier. All these costs are variable and controlable, and Naira saved on them adds to the profits of a manufacturing enterprise, or brings about a reduction in the cost of services rendered by a service organisation.

The most important fact about materials management is that it is a joint corporate responsibility which has to be equally shared by various inter-related functional departments of a manufacturing company, such as sales production, design, accounts, transportation, legal, maintenance, quality control and, of course purchase and stores.

Take finished good, to start with. Their stock limits are usually determined by the sales department. Most sales personnel, however, do not realise the implications of keeping high stocks of finished goods or stocks of obsolete items. Sales personnel are well known for their attitude towards 'the important customer' whom they must satisfy 'at any cost'. So the tendency is to always keep high stocks and also maintain stocks of accessories and parts which have become obsolete

because of subsequent changes made in the design of a product.

Supplies management should embrace the whole range of material management apart from actual production and sales. A wider and more vigorous outlook is needed by many of those engaged in the Supplies field.

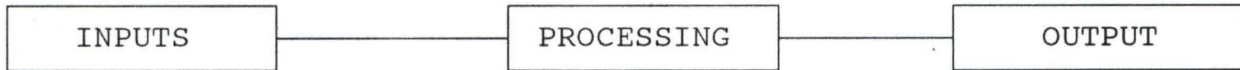
#### 1.2 IMPORTANCE OF COMPUTER TO MATERIAL MANAGEMENT IN PUBLIC SECTOR

"The growing presence of computers not only broadens our reach in the same physical sense that electronic communications do, but also makes the power of infinite intelligence available".

The question then is, will the computer change society more radically than other modern technologies have? There are strong indications that it will, for example, if developments in computers and communications enable people to work and learn at home, erecting office building and schools would not be necessary.

It must however be said that many people have raised questions concerning its value to society. Computers are not meant to usurp human roles but to aid an individual's work. In a hospital, new patients can be interviewed by a Computer to supply possible diagnosis to an examining physician. Although computers can be used for complex human tasks they should not be used to replace human judgement. People must remain responsible for their actions and maintain control over the computer. Essentially, a computer performs three functions:

1. It receives data (Input)
2. It process data by various computerisation (Process)
3. It emits data (Output)



"Mind Tools" has a two- dimensional implication of the utmost significance for the materials or stores executive. First, it means that there is good probability that some of the material activities themselves can be automated. While automation does not change the various materials functions, it does involve substantial modification of the procedures used in performing the routine, respective tasks of the functions. The application of automation concepts to such tasks can produce two significant results: (i) a possible reduction in departmental operating costs, and (ii) the generation of more complete and more timely data with which to make materials decisions.

Even if a material department is unable to apply automated techniques in its own operations, it cannot escape certain effects of factory store automation. As its own production department automates its manufacturing processes for example, purchasing finds that materials specification requirements becomes more stringent. The range of acceptable quality usually becomes narrowed. Automated production process as a rule, cannot accept non-uniform materials to the degree a manually controlled process can. An operator of



machine can compensate for variability in work materials to a significant extent.

An automated production operation also demands an uninterrupted flow of production control departments, automation makes it much more critical. A stock out of a single production material shuts down an entire segment of the production operation. Shut down of automated production lines are tremendously operational inflexibility and the high set up cost associated with automated equipment usually make it impractical to use the equipment for other jobs while waiting for materials to arrive. Supplier reliability, delivery scheduling, and traffic considerations therefore demand increased attention in a firm using automated production facilities.

### 1.3 **OBJECTIVES OF THE STUDY**

Objectives are the desired end-results. The objectives of materials management are:

- i. To ensure continuous and uninterrupted production of operation, by maintaining a steady flow of materials.
- ii. To achieve the above objective in an efficient and economic manner.
- iii. To effect economies in the cost of materials by purchasing materials of the right quality, in the right quantity at the right time, from the right source, and at the right price.

- iv. To effect economies in the costs incurred on materials after they have been purchased, through storage, processing and warehousing, till the finished goods ultimately reach the customer.
- v. To reduce working capital requirements through proper and scientific inventory control.
- vi. To be alive to the changes in the market in respect of new products.
- vii. To improve the quality of manufactured goods by use of better raw materials or components and thereby increase the competitiveness of such goods put on sale.
- viii. To increase the competitiveness of manufactured goods by reducing their prices through cost reduction and value analysis.
- ix. To save foreign exchange through import substitution and economizing on foreign purchases.
- x. To ensure cooperation among all departments of the Ministry to meet materials management objectives, both at the corporate and functional levels, and to ensure proper coordination in respect of such activities.

The purpose of physical stock holding of any kind must be to provide stock of the right type of the right quantity at the right time in the right condition and at the right cost. Looking at the above purpose it must be noted that every Ministry that automates its stores and materials activities utilizes the computer in a slightly different manner. The

data input vary from Ministry to Ministry as do desired data outputs. The form and timing of various reports depend to a great extent upon the operating needs of each particular Ministry. Generally speaking, however, the basic objectives of this study is to write a programme that can support automated system with the below listed materials activities in any organisation both for public and private organisation; They are:

1. Posting of inventory records;
2. Computerisation of order quantities;
3. preparation of purchase requisition;
4. Preparation of purchase orders;
5. Distribution of accounting charges;
6. Automatic preparation of follow-up memos;
7. Posting of delivery and quantity records, by part and by supplier;
8. Auditing of invoices for payment of invoices.

In an automated system all the inventory and part records are filed in the computer memory either one record or several different records can be maintained and access made possible at any time required.

#### 1.4 **JUSTIFICATION FOR STUDY**

Store and material executive who wish to utilize a computer in the operation of their department do not have to understand its electronic intricacies any more than they have to understand the mechanical intricacies of their automobiles.

They should however, understand the fundamentals of computer operation. They should know, generally what a computer can do, what it cannot do and how their departmental procedures must be designed so as to be compatible with computer operation.

By installing computer in the supplies and materials section of the Federal Ministry of Agriculture, it should be able to justify the below mentioned points.

- a. computer was thought and developed to reduce the complex calculation into smaller forms;
- b. to help in making an easier accurate and reliable logical comparison between i.e stock level, and re-order level, store received and store issue;
- c. to ease the cumbersome inflow and outflow of data and information respectively that is needed in the Ministry for further implementation of the future rolling plan;
- d. to further help in efficiency storing, filling and processing of data and information in relation to stored materials.

## 1.5 **METHODOLOGY OF STUDY**

### **A. REVIEW OF THE RESEARCH EFFORTS ON MATERIALS MANAGEMENT**

Various authors have contributed immensely to the materials management resources development. The Doyen of modern management Peter Drucker says "That management is an organ of society specifically charged with making resources productive that is, with the responsibility of organised

economic advance" the saying that, "the basic objective of materials management is to optimize the productive four basic resources-man, money, machines and materials. In other words, management seeks to maximize outputs from a given quantum of inputs. To achieve these, management uses various processes of management broadly classified under six headings planning, organising, staffing, co-ordinating and controlling. According to PER Baily and Davide Farmer, they described materials management as materials planning and control, purchasing storage inventory, planning and control, external transport and material planning, also our own Dr. R. K. Adeboye described material management as a usable but idle resources. The resources may be any type e.g men materials money machines and when the resources involved in materials or goods in any stage of completion is usually refer to as stock. Above all the international federation of purchasing and materials management of Great Britain after carrying out a research concluded that "materials management is a total concept involving an organisation structure unifying into a single responsibility the systematic flow and control of materials from identification of the need through customer delivery. These definitions one will note, emphasizes the concept that all authority and responsibility for the acquisition and control of materials should be well co-ordinated through one executive authority - "the materials manager".

B. CURRENT SYSTEM OF MATERIAL MANAGEMENT IN THE MINISTRY:

In the Ministry the use of Federal Government Financial Regulations for store Action and materials management has not improve the modern material management principles. The officer controlling the vote would direct the store officer to look for the need of the Ministry and report back to the officer with the current market prices of the items in question. The question is called for from three or more contractor and the contractor with the least prices is asked to supply the items after 40% profit margin has been add to the current market prices of the product. But any amount above ₦200,000.00 (two hundred thousand Naira) has to go to ministerial tender boards and get approval from the store. After choosing the right contractor, the job order is issued and the contractor supplies the items.

It is now the work of stores to call the stock verifier before stocking the products and before issuing store recieved voucher. These items are then classified under the following headings:

1. Hardware;
2. Stationeries;
3. Spare parts;
4. Consumable items.

The stores officer posts the item into the bin cards before any issuance is made.

No issuance can be made without the authority of the store officer upon requisition of the need of the departments.

1.6 **PROBLEMS WITH CURRENT SYSTEM OF MATERIAL MANAGEMENT  
IN THE MINISTRY AND ALTERNATIVE METHODS.**

Looking at the current system of materials management in the Ministry it is not done in conventional ways. Various reframe techniques used to eliminate because of Nigerian factors.

Instead of purchasing items in large quantity to save cost i.e Economic Batch quantity or Economic order quantity we tend to give the contract to our next of kin.

Also all officers in the Ministry wanted to be purchasing officer so also act as store officer.

Posting of items in the Ministry store has continued to be done manually. i.e the use of:

1. Bin cards;
2. Ledger sheets;
3. Invoice control registers;
4. General ledgers;
5. Store requisition books;
6. Store receive vouchers;
7. Store issue vouchers.

By posting the items manually, all above mentioned are prone to irregularities, with the experience acquired. It is noticeable that error are usually detected by the Auditors at

the end of the accounting year. Errors may be committed by an act of omission or compensating errors or intentional act in order to defraud the Ministry.

Computer will help in enhancing the performance of the job accurately, save time, make posting very easy, and the job is done in more convenient way.



## CHAPTER TWO

### 2.0 LITERATURE REVIEW

### 2.1 THE ROLE OF SUPPLIES AND MATERIAL MANAGEMENT IN PUBLIC SECTOR.

From the concluding discussion in the first chapter, there is the need for coordinating and perhaps integration of material activities. In most Ministries a need for such action does not exist during the past five years. Many parastatals and Ministries have made considerable progress toward the accomplishment of these objectives but much work still remains to be done. The Concepts of "material management", "physical distribution management" and logistics management are the primary material organisational tools which have been used in the past and will be used increasingly in the future to achieve closer coordination and control of various materials activities.

### 2.2 A PHYSICAL DISTRIBUTION MANAGEMENT

Physical distribution management has some relationship with marketing just the same way as materials management is related to productions. Those who advocate for physical distribution type of organisation generally referred to as the other half of marketing. With the above, according to Lamar Lee & Donald Dobler, marketing can be categorised into two parts namely: Conventional marketing (market research, production development), and physical distribution (sales

order processing, transportation, production control, inventory control, materials handling and sales planning). In some cases, it may include such other functions as customer service and technical service.

#### 2.1b LOGISTIC MANAGEMENT

Dempsey and Peat defined Logistic Management as "the synchronous management of a continuous flow of materials, products and information from source to customer at the right place, quality, quantity, time and cost". Furthermore, logistic management was defined as "the total management of the key operational functions in the supply chain-procurement, production and distribution".

Logistics as originally used was a military term referring to the techniques of moving and quartering armies (i.e quarter master work). Later the expression was widened to mean "the organisation of supplies". Some definitions of both materials management (MM) and logistics management (LM) make it difficult to distinguish the activities that may be assigned to each field.

In summary, it could be said that Logistics Management is a combination of both materials management. From the foregoing, it is clear that both concepts (MM and LM) involve similar concepts, similar skills required in performing their respective operating activities as well as in materials planning, traffic and materials handling. Although physical distribution is the last stage in the marketing process, the

training and orientation of physical distribution management personnel is much very similar to that of materials management. These factors, therefore, have combined to produce the logistics management concept.

Although, most experts currently do not agree on all the functional and operating details associated with each of the systems, there is the general consensus as regards the fundamental concepts themselves. The diagram below depicts these concepts and generally reflects the main areas of the consensus. (Fig. 1)

**MATERIALS MANAGEMENT**

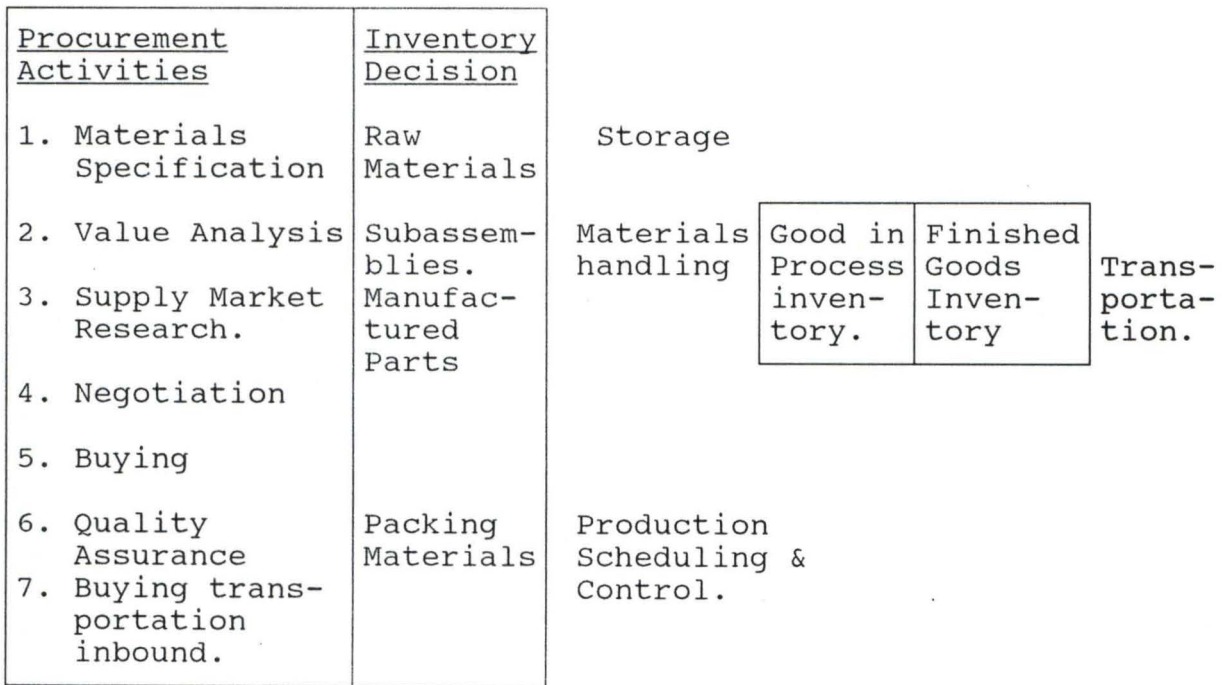


Fig. 1

## 2.2 GENERAL CLASSIFICATION OF STORES:

Stores include movable property purchased from public funds of otherwise acquired by Government. For accounting purpose store are of two classes, namely:

1. Allocated Stores
2. Un-allocated Stores

These are further divided into three categories:

- i. Non-expandable Stores - plant and machinery, motor vehicles, typewriter, scales and tractors.
- ii. Expandable stores e.g shovels, materials, paint brushes.
- iii. Consumable stores e.g. paint, soap and food stuff

ALLOCATED STORES: are stores that the cost of which is in chargeble direct to, and remains a charge to the subhead of expenditure in which funds for their purchase are provided in the estimates. The store can be put into use immediately. They may be purchased direct or obtained from the un-allocated store.

UN-ALLOCATED STORES: are those purchase for general stock rather than for a particular work or service, for which the final vote of charge cannot be stated at the time of purchase. Their cost is debited to an un-allocated stores subhead in the Expenditure estimates.

## 2.3 SUPERVISION AND CUSTODY OF STORES

Every government official is personally and particularly responsible for government property at his custody and control. Every Head of Division acting under his Accounting

Officer and every Head of Department, is responsible for the general supervision and control of stores and stores accounts of his Division or Department and for the due performance by his staff of their duties.

The Storekeeper or store officer in-charge of a store or a section there of, will in each case be specifically nominated in writing. He will personally be responsible for:

- i. Checking, handling and storage of items received
- ii. Care of stores, including proper stocking and storage according to the nature of the stores with due observations of safety precautions.
- iii. Issue of items supported by authorising vouchers and ensuring such issue are checked and properly packed.
- iv. Progression of items issues so that items of old stock are issued before new stock.
- v. Maintenance of stocks within the prescribed maximum and minimum limits.
- vi. Avoidance of waste of store items and irregular issue
- vii. Periodic verification of stock balances with tally cards (old methods) and ledger balances and for reporting of discrepancies revealed, including damaged or deteriorated stores, excess or obsolescent.

## 2.4 RECEIPT OF GOOD INTO THE STORES

Receipt entries in allocated and un-allocated stores ledger will be supported by the prescribed voucher according to the sources of receipt as follows:

### METHODS OF RECEIVING ITEMS INTO THE STORES.

### ENTRY SUPPORTED BY

(A) Job Order	Copy of payment voucher triplicate copy of Job order.
(B) Transfer from other store	Copy of issue voucher from transferring stores
(C) Conversion and Manufacturing	Copy of conversion voucher (stores form 5)
(D) Returned Stores	Stores Review Vouchers
(E) Excess taken on charge	Store Form 3
(F) Any other source	" " "

With the introduction of computer some common form and system or stock records are eliminated such as:

- i. Bin Card System
- ii. Stock Record System
- iii. Stock Review Card System.

### AUTOMATION

The three methods of change over known are:

- i. Immediate change over
- ii. Parralled replacement
- iii. Phased replacement

**IMMEDIATE REPLACEMENT** - This means that the new system is put into operation on a specific date dumping the old system entirely. This is the most risky change over method, because problems always occur during change over unless there is alternative or a system to fall back on.

**PARALLEL OPERATION:** This means that data are processed at the same time by both the old and the new systems. The advantages of parallel change over are the opportunity to compare the output of both systems and availability of the old systems as back up.

**PHASE REPLACEMENT:** This is gradual approach in which complete change over to the new system takes place incrementally over a period of time. Gradual change over can be achieved by operating the new system with increasingly large volumes of data or introducing parts of the new system and replacing the corresponding parts in the old one. Often, a new system will retain many of the elements of an old system many of the procedures for their use may have to be modified.

## 2.5 **ISSUANCE OF ITEM FROM STORES**

- i. Issues will be made only on the authority of a numbered stores requisition, a numbered cabinet requisition issue of stock from un-allocated stores, the requisition, etc must be signed by the officer authorised to incur expenditure who must ensure that funds are available.
- ii. Requisition will be prepared in duplicate, the original of which should be sent to the issuing department.

Quantities will be written both in words and figures and each type article required will be given an item number. To prevent un-authorized additions a line will be drawn immediately below the last entry. The requisition forms will be clearly marked original and duplicate.

- iii. When a combined requisition/issue voucher is used, three copies will be sent to the stores issuing department and the original will be maintained by the store. After issue of the items, the original and one copy of the voucher should be sent to the Requisition Officer who will sign and return the original to the issuing officer as acknowledgement.
- iv. A requisition will not be accepted and passed to the storekeeper until it has been examined by the responsible officer, to ensure that it is signed by the authorised requisitioning officer, the correct rate is quoted, the quantity required is not excessive, and the voucher is otherwise correct. Head of Ministries/Departments should furnish specimen signature of authorised requisitioning officers to the stores issuing department.

#### 1.6 IDENTIFICATION OF MATERIALS IN THE STORE

Stores activities involve primarily the physical aspects of materials handling and storage. Management personnel are concerned not only with the physical operations, but more importantly with the design and control of the systems utilized in conducting these activities. Developing systems



for effective identification of materials is the first responsibility confronting a stores manager.

A firm's stock catalog, prepared by the inventory management group, lists and describes every item normally carried in inventory. These descriptions, however, are somewhat lengthy and imprecise for use in identifying materials during daily operations. For this reason, most suppliers ascribing part numbers to their products. Because different suppliers use vastly different numbering systems, however, it is virtually impossible for a purchaser to develop a satisfactory material identification system based on suppliers' part number. Therefore, a firm with a sizeable production and MRO inventory is compelled to materials. The inventory catalog should be arranged and indexed by the purchaser's own part numbers. It should also include the supplier's part number along with a concise verbal description of each item. The catalog can be cross-indexed in alternative ways; certainly it should be cross-indexed by generic name of the items and perhaps also by suppliers and their part numbers.

The objective is to develop an unambiguous identification system that facilitate clear internal communication. Ideally, this system should be designed so that it can be used effectively by all departments in the Ministry. Clearly, the purchasing, inventory control, and stores departments are critical areas where the system must provide consistent and

unambiguous identification of materials. If the system can also be integrated with the operations of design engineering, production, and cost accounting, improved communication and simplified clerical activities are almost certain to result.

## CHAPTER THREE

### RESEARCH PROCEDURE & METHODOLOGY - SYSTEM

#### ANALYSIS AND DESIGN

##### SYSTEM ANALYSIS - A PREAMBLE

System Analysis and Design is synonymous with System Development Cycle (SDC)/(System Life Cycle). It is the formal process by which organisations build Computer Based Information Systems (CBIS). SDC is used as a guideline in directing and administering the activities involved in establishing business systems requirements, developing the systems, acquiring hardware and software and controlling development costs. System Analysis - main stages include problem definition (Survey) - whose purpose is to establish whether there is a need for new system and its objectives (define problem to be solved), feasibility study - investigate the problems and look at all the possible alternative solutions, do a cost benefit analysis and recommend the "best", Investigation and fact Recording - further evaluates the Existing System - to identify its basic information requirements - such as data types and volume to be processed; Analysis - gives the full description of the existing system and the objectives of the proposed system resulting in a full specification of the users requirements, at this stage it would be obvious if proceeding with computerization will be feasible; at the System Design Stage, the purpose is to work

from the requirements specification to produce a system specification - that will provide details of all feature of the system. Acquisition of necessary hardware and software or programming comes next and then System Implementation - here the software would be designed, written and tested, user's trained, plaster files creation, documentation, production and cut-over to the new system are accomplished; Maintenance and Review of the new system follows and concludes the cycle from where System Analysis can be initiated all over again as required.

### 3.2 FEASIBILITY STUDY

From the problem to definition follow the feasibility study which aims to determine whether or not the proposed project - "Computerization of Supplies and Materials Stores" is desirable or not. In achieving this, the project is tested and valuated using three Important Criteria - Operational, Technical and Financial/Economical.

**FINANCIAL/ECONOMICAL** - a combination of payback period that determine how long it will take a new computer project to 'pay-back' its development costs in terms of profits and/or benefit; Net present value and Internal Rate of return approaches that use interest rate calculations are employed. Candidate/options with the shortest payback period, highest net present value or internal rate of return are given priority.

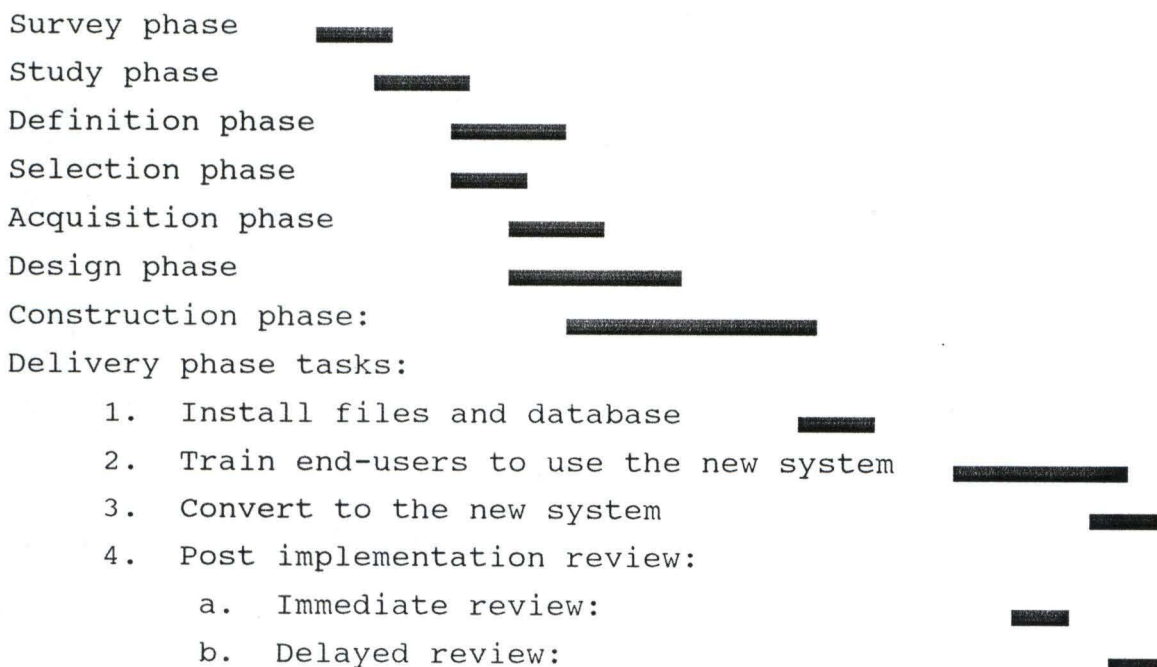
**TECHNICAL** - reveals that the proposed project - of

computerization of stores cannot be accomplished/realised with the current equipment (facilities) and software - infact none exists currently but the personnel are trainable and can be upgraded to the required status through training.

**OPERATIONAL** - reveals that the proposed project is workable when developed and installed. It will eliminate most of the problems inherent in the existing system and smoother operation.

3.3 **EVALUATE THE PROJECT AND SYSTEM** - at the end of the delivery phase, the analyst should grade the system. How should it be graded? A number of criteria are possible. Did the system costs more or less than its budgeted development costs? Did the system come in on schedule?. This is good for a pat on the back, but if you didn't meet the deadline, you cannot get schedule over runs back. The best criteria was, and still it does the system fulfill the business mission?

See fig bellow:



**Note:** Time to be spent on phases is not to scale. The purpose of this chart is to illustrate the potential for overlap between phases.

Feasibility reveals that over a period of 5 - 7 years, Computerization of supplies and stores' will cover its cost while the benefits remains. Comprehensively the feasibility study favours "computerization of supplies and material stores". (Fig. 3)

PRINCIPLES OF PROCEDURES	INPUT (TRANSACTIONS)	OUTPUT	FILES	METHOD & PROCEDURES	DATA STORAGE	CONTROLS	EXISTING HARDWARE AND SOFTWARE	USER INTER-FACE	
PURPOSE	NS	NS	NS	NS	NS	F	-	-	
ECONOMICAL	NS	NS	NS	S	NS	F	-	-	
WORKFLOW	S	NS	NS	NS	NS	NS	-		KEY
SPECIALIZATION SIMPLIFICATION STANDARDISATION	F	F	F	F	NS	NS	-		S = SATISFACTORY
FLEXIBILITY	F	NS	NS	NS	NS	NS	NS		F = FAIR
EXCEPTION PRINCIPLE	NS	NS	NS	NS	NS	NS	NS		NS = NOT SATISFACTORY
RELIABILITY	NS	NS	NS	NS	NS	NS	-		
FORM	F	NS	NS	NS	NS	NS	-		
EXISTING SYSTEM	F	NS	NS	F	NS	F	-		
CONTINUOUS CONTROL	F	F	F	F	NS	F	-		
TIME	NS	NS	NS	NS	-	NS	-		

(Fig. 3)

## **ANALYSIS**

Analysis involves gaining a clear understanding of the current system and its shortcomings, and to determine where improvement can be made. Aspects of the current system studied are inputs (transactions), outputs, files, method and procedures, data storage, controls and existing hardware and software. Study and data gathering are achieved through conducting interviews, collecting sample forms, documents, memo, reports, etc and observing operations. Data Analysis is achieved through criticism against the principles of procedure (see appendix) thereby revealing its awareness and problems. Table 3.1 - principles of procedure - GRID refers.

### **3.4 ELEMENTS OF DESIGN**

**INPUTS:** - The main input into the current system are the Bin card (sample 1) Store requisition form (sample 2) and Store issue voucher (sample 3) Ledger sheet (sample 4). The purpose, economy, exception principles, reliability and timely production of information in terms of input procedures are lacking and bad. Through the work flow, flexibility, from existing system, continuous control and specialization, simplification and standardization are far. Mistakes/errors are often committed in putting data into the current system.

**OUTPUTS:** The main output of the current system are the stock balances available weekly, daily issuance, monthly balance, and discrepancies report, daily balance. The purpose, cost work flow, flexibility, exception principles reliability, form, existing



system timely output are lacking. Specialization, standardization and simplification and continuous control are fair. In the current system, however, retrieval of information/processing of data are not easily accomplished.

**FILES AND DATA STORAGE:**

The filing system and data storage as criticised against the principle of procedure are particularly lacking and not satisfactory within the content of the current system. Updating files are particularly difficult to accomplish due to the large volume of transactions and the number of files to be updated.

**METHODS AND PROCEDURES (PROCESSING)**

For economy, continuous control and specialization, simplifications and standardization that are far, the current methods and procedures lack operational efficiency.

**CONTROLS:**

The purpose and economy of the control mechanism are fair, otherwise much needs to be done to ensure proper control.

**EXISTING HARDWARE AND SOFTWARE:**

These are non-existent as computer based information system is concerned. The software needs to be developed and hardware acquired.

**INTERFACE:**

Not satisfactory and efficient as criticised against the principle of procedure.

### 3.5 REQUIREMENTS (DETERMINATION)

Requirements - define the business requirement (software) for the new system. It entails defining what the new system is going to do and how the system is going to do it - in effect to solving problems identified in the analysis phase. Business requirements to be defined include input, storage, processing and output. Output requirements fall into three general categories: Hardcopy output (Reports, special forms and other printed documents), softcopy output (displayed on video screen) and computer usable output to another system). Hardware requirements will be finalized during and after the design phase.

#### A. REQUIREMENT DETERMINATION

A through investigation and review of the system under study is mandatory for analysis and to assemble recommendation for system design. Requirement determination consists of three activities namely requirements anticipation, investigation and specialization. Requirement Anticipation - entails foreseeing problems (features and requirements) the new system may have as a result of the analyst past experience.

Requirement Specification - is a description of features for a new system and based on the analysis of data produced during the fact finding investigation.

#### B SYSTEM ACTIVITIES - REQUIREMENT

Basically there are two levels - User Transaction Requirements (UTR) and User Decision Requirement (UDR), the former - typically

database (FNF) would produce, the balance brought forward, daily inventory report, daily posting and monthly stock holding, discrepancies report and Arithmetic and logic calculations are required in producing the store inventory for the Ministry Store Inventory Control System.

### **STORE INVENTORY CONTROL SYSTEM**

#### **General Requirement**

The following constitute the general requirement of the new Management Information System in the store inventory control.

- to significantly reduce time required for searching and retrieving information from database (files).
- to automatically update the inventory control file balances information from the operator report in producing proper stock balances.
- to automatically calculate, serial/Nos of item receipt identification of items, store issue voucher No., the store receipt voucher.
- to automatically generate daily, month to and year to date (as demanded) figures during processing.
- to automatically produce reports (on line), hardcopy and in computer - usable form (stored internally as computer files).

#### **3.2 Specific Requirement**

The specific requirement for the Management Information System in the Inventory Control System are as follows:

- a. **Inputs:** It should be easier to input data into the system (On-line System) with in built Controls (i.e validity checks) to

reduce and or eliminate data entry errors.

b. **Processing:** On-line processing is required as certain information needed time - sensitive (Real - Time applications).

<u>OPERATIONS</u>	<u>ENTITY/TASK</u>	<u>DATA/ELEMENT/FIELDS</u>
REPORT OPERATIONS	ALPHABETICAL NAMES OF ITEMS IN STOCK	ITEMS NAME, CATEGORY, DESCRIPTION, DATE PURCHASE, DATE ISSUE, IDENTIFICATION NO.
LOGICAL OPERATIONS	SECTIONAL STORE REPORT, DISCREPANCIES REPORT IF ANY.	HARDWARE, MATERIALS, SPARE PARTS, STATIONERIES.
ARITHMETIC/LOGIC OPERATIONS	STORE OFFICER DAILY SUMMARY REPORT.	RECEIPTS AND ISSUANCE STATISTICS ANALYSIS OF ISSUANCE - TO WHOM. RE-ORDER LEVEL AND BALANCES AS AT CLOSE OF THE DAY.
INDEX/SORT OPERATION	DAILY SUMMARY REPORT	SERIAL NO. (OPERATIONAL), ITEM NAME, IDENTIFICATION NO., CATEGORY.

**Output:** Outputs are based/generated from data elements contained in the database, from Bin Card, Ledger Sheet, Store Receipt Voucher and Store Issue Voucher.

**Output Description**

**Requirement: As Listed Above**

ALPHABETICAL STOCK LIST	Produce Information on items alphabetical listing of Names (the key field).
ITEMS LIST BY CATEGORY	Conveys the confirm status of each items in the store.
DISCREPANCIES REPORT	Determines the stock level items in the store.
STORE CLERK DAILY SUMMARY	S u m m a r i z e s t h e activities/business of the day in factual terms figures. Produce the daily balance to the officer in charge.

sequence that data entry staff can follow easily - left to right and top bottom of the page/screen. Grouping the data elements to be entered separately from those that are not to be entered ensure that data entry staff do not have to hesitate while skipping over fields that are not to be stored or processed. Video Display Unit (cathode ray tube, CRT) input design must take into account the dimension of the screen - typical being 24 rows by 80 columns with a total display potential of 1920 characters (at a time). The principal source for computer output error is not faulty processing but faulty. Input techniques (including CRT input prompting format) that minimise the need for human operations are employed.

B. **Master Files:**

Are permanent files containing records vital to the needs/and running of the organisation stored on computer media. Because of its importance in the organisation - the currency and accuracy of the operational data is achieved by continuous maintenance called updating the master file concerned. These are the Rooms, Rates and Reservation Master files.

C. **Transaction Files:**

Are temporary files containing data about business transaction taking place within a period of time (specified) and that affects the Master file. At the end of a specified period of time data contained in the transaction file are used to update the Master file - which then becomes empty and is then used over again for another period before it is used for

C. Development Cost

System analysis & Design for 3 weeks at =N=4,000/week	=N=12,000
Software development Implimentation for 4 weeks at =N=3,900	=N=15,600
Personnel Training and development for 3 weeks at =N=4,500 3 Personnel required.	=N=27,000
	-----
	=N=54,600
	=====

D. System Operating Cost

Supplies (Stationeries) per month for 6 month	=N=1,500
Equipment maintainance	=N=9,000
Program maintainance	=N=6,000
	=N=5,000
	-----
	=N=20,000
	=====

a. 2 Operator at	=N=2,500/month
------------------	----------------

b. 1 Store officer at (per year).	=N=6,000/month
=N=72,000	

Other expenses (Light etc)	=N=4,000
----------------------------	----------

Miscellenous	=N=14,000
	-----
	=N=164,000
	=====

Overall Cost	=N=993,000
--------------	------------

2. System Benefit

Saving from employee (Reducing in personnel per year) 7 in number.	=N=330,000
---	------------

Operating savings	=N=240,000
-------------------	------------

Reduction in printing of Bin cards, ledgers, calamazzo binder.	=N=350,000
---	------------

Recovery from over time	=N=38,000
-------------------------	-----------

Total Benefit	=N=948,000
	-----
	=====

It will be noticed that the benefit accrued in the first year is highly appreciable, hence it is necessary to install information system for a long term benefit.

## CHAPTER FOUR

### SOFTWARE DEVELOPMENT, IMPLEMENTATION AND DOCUMENTATION

**INTRODUCTION:** The implementation of the "Federal Ministry of Agriculture and Natural Resources Computerized Stores Inventory Control is expected to be achieved in this chapter. The actual software development - "Programming" Testing, Training and Documentation will be covered.

**IMPLEMENTATION LANGUAGE:** The Dbase IV, a relational database management system has been used to accomplish the project. Amongst many other standard features, the Dbase IV is easy to learn and use, it has the ability to construct, expand and maintain the database; it provides interface between the user and the data in the database; it can process a complete file at required records, retrieve individual records, protect data against unauthorised access, safe guarding data against corruption and able to provide recovery and resistant facilities after a hardware or software failure.

#### 4.1. WORKSTATION REQUIREMENTS

This comprises of the hardware and software requirements for the proposed system development.

##### HARDWARE REQUIREMENTS

- (Personal Computer) PC/XT - An IBM/AT or XT or HS Compatible. Microcomputer with the following configuration 80286, 80386, 80486, or Pentium Main



Processor (CPU).

- \* At least 1024K of RAM (Preferably 1MB)
- \* At least one 3.5" and or 5.25" floppy disk drive
- \* A VGA colour monitor
- \* Printer (Possible an Epson - 24pm - Matrix dot printer (NLQ)
- \* Stabilizer - 250V.A
- \* UPS (UNINTERRUPTED POWER SUPPLY - 500V.A

#### **SOFTWARE REQUIREMENTS**

- \* Micro-soft - Disk Operating System MS-DOS version 6.0
- \* DBMS - Dbase IV
- \* TEXT EDITOR - MS-DOS
- \* PROPRIETARY SOFTWARE INTERFACE (KITS/PROGRAMS)

### 4.2. **SOFTWARE DEVELOPMENT AND TESTING**

#### A. **SYSTEM IMPLEMENTATION:**

System implementation places the new system into operation - that is place solution into effect. Its stages include software development (Programming) Personnel Hiring and training, site preparation, installation, testing, start up and operation. The "new system - Computerized stores inventory control" should be up and running after implementation.

- B. **SITE PREPARATION:** It involves planning space for equipment and creating a favourable environment for effective operations/workings of these equipments; factors such as temperature, humidity and noise control are often given

An adequate training program should be conducted for the employees who will be using or dealing with the computer system. Employees are to be acquainted with the systems capabilities and limitations and should know how to use the new system to help perform their jobs.

- F. **START-UP:** Start up begins with the final tested information system. When start up is finished - the system will be fully operational. A preferred approach (method) is to slowly phase in the new system while slowly phase out the old one.

#### 4.3. **SYSTEM CONVERSION**

Conversion to the new system from the old (manual system) is a significant milestone. After conversion, the ownership of the system officially transfers from the analysts/programmers to the end-users. In broad terms, 4 conversion/installation strategies are commonly used. These are Abrupt Cutover , Location conversion, staged conversion and parallel conversion. Parallel conversion is characterised as when the two systems old and new systems are operated commonly for some periods of time. The old system is then stopped when the new system has proved satisfactorily. It minimizes the risk of major flaws but carries transitional costs as two systems have to be ran concurrently together. Parallel conversion is preferred for the new system "Computerized Stores" because of its relevance to the present civil service ethics/code and norms. Majority of the staff are used to the present manual system and would need to be able to compare the obvious

advantages offered by computerization before they fully accept it.

Given the above four methods of change over, parallel running is chosen for this system. This implies processing the current data by both the old and new system. Its main attraction is that the old system is kept alive and operational until the new system has been approved for at least one system cycle using life data in the real operational environment. While parallel change over is cheaper and advantageous, no data will be lost if the system fails. It also gives the user the chance to compare and reconcile output, thereby providing users confidence.

#### 4.4 STARTING THE SYSTEM

##### CREATING THE DATA BASE STRUCTURE

The heart of any computer information system is the file. The file has two distinct parts; structure and data. When a file is created there are certain key questions that need to be answered.

1. What fields do we want to have?
2. What are the names of the field?
3. What kind of information will these fields contain?

We need to further classify the data supplied in order to create the Inventory Control Data Base. The classification include; structure, information, field type and the maximum length expected of the field. DBF Store.

Field	Field Name	Type	Width	Dec	Index
1	DATE IN	DATE	8		N
2	DATE OUT	DATE	8		N
3	SIV NO	CHARACTER	8		N
4	SRV NO	CHARACTER	8		N
5	SOURCE	CHARACTER	30		N
6	BAL B FORW	NUMERIC	6		N
7	CITY RECEIVED	NUMERIC	6		N
8	CITY ISSUED	NUMERIC	6		N
9	STOCK CODE	CHARACTER	9		N
10	LOCATION	CHARACTER	8		N
11	ITEM DESCRP.	CHARACTER	30		N
12	CATEGORIES	CHARACTER	16		N

\*\* TOTAL \*\*

174

With the creation of the structure we then leave database IV either we select quit option as provision is made in the program.

#### STARTING THE SYSTEM

After the installation of both hard disk and the software, the software can be invoked by the following process:

- a. Change to STO Subdirectory of the root directory.
- b. At C:\STO Type STO and press ENTER KEY.

Thus lead to the appearance of "COMPUTERISATION OF STORE MANAGEMENT FUNCTION OF THE FEDERAL MINISTRY OF AGRICULTURE PROGRAM BY DOSUMU OLAWALE SEMIU. SUPERVISED BY PRINCE R. O BADAMOSI FEDERAL UNIVERSITY OF TECHNOLOGY MINNA. NO COPY RIGHT MODEL 1995/96 fig 3.

Fig 3

COMPUTERISATION OF STORE MANAGEMENT AND FUNCTIONS OF THE FEDERAL MINISTRY OF AGRICULTURE
DEVELOPED BY DOSUMU OLAWALE SEMIU PGD/MCS/008
SUPERVISED BY PRINCE R. O. BADAMOSI FED. UNIVERSITY OF TECH. MINNA
NO COPY RIGHT 1995/96

After some minutes the inscription will disappear from the screen thus allowing the user to use the password fig.4

Fig 4

ACCESS GATE	
USERS NAME	<input type="text"/>
PASS WORD	<input type="text"/>

After the password has been entered the system loading in progress will appear (fig 5) welcoming the users to the environment.

**WELCOME TO  
FEDERAL MINISTRY OF AGRICULTURE  
SUPPLIES SECTION  
SYSTEM LOADING IN PROGRESS.....  
PLEASE DO NOT TOUCH**

Fig. 5

#### 4.5 MAIN MENU STRUCTURE

There are two major structures, the main menu and sub menu.

a. The main menu consists of seven (7) options.

- Namely:
1. DATA ENTRY
  2. AMEND DATA
  3. DELETE DATA
  4. PRINT RECORD
  5. ENQUIRY BY STOCK CODES
  6. LOCATION
  7. QUIT/EXIT ARRANGE VERTICALLY AT THE CENTRE OF THE SCREEN.

Each of the main menu has options arranged horizontally below it. The sub menu is displayed one at a time depend on the options selected.

When the screen comes to view, the arrow key display and the number to choice appears.

MAIN MENU

1.	DATA ENTRY	
2.	AMEND DATA	
3.	DELETE DATA	
4.	PRINT RECORD	
5.	ENQUIRY BY STOCK	
6.	LOCATION	
7.	QUIT/EXIT TO DOS	
CHOICE		
F1 - HELP	<input type="text" value="/"/>	

Fig. 6

In order to work with choice number 1 above, press 1 THEN ENTER. The below structure appears.

DATE IN	01/12/97
DATE OUT	
SIV NO	
SRV NO	
SOURCE	
BAL. BROUGHT FOR	
QTY RECEIVED	
QTY ISSUED	
STOCK CODE	
LOCATION	
ITEM DESCRIPTION	
CATEGORIES	

After the new data has been entered, one can now press or type Browse to see the already entered data as per below fig. 7.



**FEDERAL MINISRY OF AGRICULTURE AND NATURAL RESOURCES**  
**STORE INVENTORY CONTROL**

DATE RECEIVED	DATE ISSUED	SRV NO.	SIV NO.	SOURCE OF ITEM	DESTINATION OF ITEM	QTY RECEIVED	QTY ISSUED	B/BROUGHT FORWARD	BALANCE
-	09/12/94		992/18/9		CPO	0	3	46	43
-	09/05/94		994/18/9		Arable Crop	0	1	42	41
-	09/05/94		995/18/9		ACPO/PC&Eva.	0	3	41	38
-	09/05/94		1002/199		Director Agric.	0	2	38	36
-	09/09/94		1015/199		PM Stores	0	2	30	28
-	09/09/94		1016/199		CAO	0	2	28	26
08/12/94	-	St/79/94		JAMACO COMM. CO.		80	0	26	106
-	08/16/94		931/17/9		DD(CP)	0	2	106	104
-	08/23/94		949/17/9		ALD(PD)	0	2	119	117
-	08/26/94		947/18/9		Arable Crop	0	1	117	116
-	08/26/94		960/18/9		CPO FDA	0	4	116	112
10/20/89	08/26/94					0	0	0	0

**FILE MAINTENANCE**

The file maintenance sub-menu has two options namely the QUANTITY RECEIVED AND QUANTITY ISSUED and each of the functions have options which are Inserts, Delete, Modify, and Amend (Fig 8).

**THE INSERT OPTION** The insert option allows for input into the data base which is done from the screen directly, and after such entry is made you you can save it to the data base file or abandon saving it.

**MODIFY OPTION:** It allows for modification of any data entered into the data base, the user only call for such information, the modification can be affected or abandon depending on choice.

**DELETE OPTION:** It opens opportunity to delete any unwanted records while amend option as it is synonymous to modify have the same functions.

## THE TRANSACTION

The option consists of two sub-menu

1. Quantity Received
2. Quantity Issued

The quantity received sub-menu is designed to allow for the input of new purchase or new items receives into the store by the store keeper and adequately recorded in data base file while the quantity issue menu is puted when an item is issued out from the store (fig 9).

File maintenance	Transaction	Report	Utilities	Out
------------------	-------------	--------	-----------	-----

Fig. 9

### 4.7 QUIT MENU

The quit menu has two options that is "Yes" or "No".

If Yes is selected and Enter key is pressed then the user will quit to dot or DOS prompt.

If no option is selected then one remains in the program. Since the quit menu is number seven in the program the user goes to number seven and press and the quit screen appears.

After implementation, there is room for review and if any problem crops up then changes can be affected. The management need the expert advise of the system analyst to either improve on the system or adjust the existing system.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 SUMMARY

Major findings during the analysis of the current manual system of the computerization of stores reveals that timely, accurate and reliable information are not available to management, users (stores personnel) as at when required. Serious time lag exists thereby not making the information usable a times, - procedures and methods of operation most especially in gathering information are overtly inefficient and cumbersome.

The cost, wastages and poliferation of stores associated with manual store keeping are not making it economical.

The users/personnel interface of the current manual system are over worked and have lost values in the job factor from Bin cards to ledgers are aften prone to mistakes and errors thereby not being able to give their best.

The production of sample, relevant and appropriate information for management decisions making out of these current systems present a problem.

No re-order level attained, No economic order quantity obtained, No specific time for the supply of items based on the local purchase order.

All these problems and short comings of the current system are addressed in the new computer based information system with a view of finding a long lasting solutions to them.

With the new method, the timely, accurate, and reliable

information are now available at the finger tips of whoever wants the management information produced are economical and reduces wastages especially in papers and other stationaries items are reduced.

The new trained personnel if well motivated are better and able to face and meet the challenges of the future.

The ease and speed of obtaining necessary information from present computer based information system in the stores is assured.

#### 5.1.2 CONCLUSION

In conclusion, the project study "Computerization of store management and functions analysed the possible problems and other short coming that are associated with manual stores information system.

The problems are throughly analysed and computer based information solutions were profered culminating in a well designed and developed information system. As the system is designed, developed and tested it will make the Ministry achieve the listed following:-

- a. Provision of relevant information for management decision making;
- b. Operate in efficient and economic manner;
- c. Ensure accurate and accessible information;
- d. Maintain data are sufficient flexible, versatile, adaptive and stable with respect to changing needs and conditions.

### 5.1.3 RECOMMENDATIONS

The benefit of computer based information system in the Ministry of Agriculture stores can not be over emphasised. Effective information system can have a major impact on public and Government properties based on good accountability.

The project will lead to availability of data on various aspects of store as at when needed and this will help to improve the present capacity for stock planning with positive effects on both the Ministry and agricultural development and production in Nigeria.

Based on the above reasons and benefits, it is recommended to all the stores in the Ministry (FDA Stores, Finance & Supplies Stores, Livestock and Pest Control Stores, Planning Store, Personnel and Management Stores and Fisheries Stores) to seriously consider the proposal to implement computer based information system in their Stores.

It is recommended also that a policy should be formulated to see that all the supplies section in the Ministries should be computerized.

Policy also should be made to see that store personnels are trained on computer.

## REFERENCES

1. Adeboye R. K. (1995) Course material on "Operation Research"  
Fed. University of Technolgy Minna, (Unpublished).
2. Badmus R. (Prince) a. A course material on "Introduction to computer"  
Fed. University of Technology Minna, (Unpublished).
3. Badmus R (Prince) (1995) b. A course material on "System Analysis and Design"  
Fed. University of Technology Minna, (Unpublished).
4. David Farmer (1976) Principles and Practice of Purchasing.  
MCRAW Hill Book Company New York 3rd Edition.
5. Gore Marvin R. (1982) "Computer & Information System"  
MCRAW HILL BOOK Company New York 2nd Edition.
6. Hamza Yussuf & Ige Olowo Method of writing porgrams using DBase IV Mall Printing Press Kano, (3rd Edition).
7. Raheem Kola Course materials Data Base Management System" General press 1995 series.
8. Manual DBase IV Published by DBase corporation England 1994 version.

## JOURNAL/MANUAL

1. Journal International Federation of purchasing and materialmanagement of Great Britain.
2. Financial Regulation Federal Government financial regulation 1974revised Edition
3. A manual book on wordperfect 5.2  
A manual Window version published by software international USA











```

* STOCK.PRG
* This is a program designed to record information
* set some system defaults to desired one
SET ESCA OFF
SET SAFE OFF
SET TALK OFF
SET SCOR OFF
SET STAT OFF
SET CONF OFF
USE STORE
STORE .T. TO K
*set screen color to a specified one
SET COLOR TO R/BG
*clear the screen and initialise variables
CLEAR
STORE CTOD(" / / ") TO DATEIN
STORE CTOD(" / / ") TO DATEOUT
STORE SPACE(8) TO SIVNO
STORE SPACE(8) TO SRVNO
STORE SPACE(30) TO SOURCE
STORE SPACE(30) TO TARGET
STORE SPACE(6) TO BBFORWARD
STORE SPACE(6) TO QTYRECEIVE
STORE SPACE(6) TO QTYISSUED
STORE SPACE(4) TO ITEMCODE
STORE SPACE(8) TO LOCATION
STORE SPACE(30) TO ITEMDESC
STORE SPACE(16) TO CATEGORIES
*begin entry and set a condition to get out of loop
@ 2,18 SAY "Enter (01/01/20) as Date received to exit"
IF .NOT. EOF()
SKIP
ELSE
ENDIF
APPEND BLANK
DO WHILE K
@ 0,25 SAY "DATA ENTRY MODULE"
@ 3,3 SAY "Enter Date Received:" Get datein
READ
IF datein = CTOD("01/01/20")
GO BOTTOM
DELETE RECORD RECNO()
PACK
USE
K = .F.
SET STATUS ON
SET CONFIRM ON
SET SCOREBOARD ON
RETURN
ENDIF
@ 4,3 SAY "Enter date issued : "GET dateout
@ 5,3 SAY "Enter Store Received voucher No.:" GET srvno
@ 6,3 SAY "Enter Store issued voucher No.:" GET sivno
@ 7,3 SAY "From whom : " GET source

```

```
@ 8,3 SAY "To whom :" GET target
@ 9,3 SAY "Balance b/forward :" GET bbforward
@ 10,3 SAY "Enter quantity received:" GET qtyreceive
@ 11,3 SAY "Enter qantity issued :" GET qtyissued
@ 12,3 SAY "Enter item code :" GET itemcode
@ 13,3 SAY "Enter location:" GET location
@ 14,3 SAY "Enter item description :" GET itemdesc
@ 15,3 SAY "Enter store category :" GET categories
READ
APPEND BLANK
REPLACE datein WITH datein
REPLACE dateout WITH dateout
REPLACE srvno WITH srvno
REPLACE sivno WITH sivno
REPLACE source WITH source
REPLACE target WITH target
REPLACE bbforward WITH bbforward
REPLACE qtyreceive WITH qtyreceive
REPLACE qtyissued WITH qtyissued
REPLACE location WITH location
REPLACE itemdesc WITH itemdesc
REPLACE categories WITH categories
*loop back
LOOP
EXIT
ENDDO
```

```
* DELETE.PRG
* This is a program to delete a particular record
SET ESCAPE OFF
SET TALK OFF
SET SCOREBOARD OFF
SET STATUS OFF
CLOSE DATABASES
Public stockcodex
USE store
STORE .T. TO K
DO WHILE K
    CLEAR
    @ 1,25 Say "DELETE  MODULE"
    ?
    ?
    Accept "    Enter stock code " TO stockcodex
    stockcodex=UPPER(STOCKCODEX)
    GO TOP
    LOCATE FOR stockcode = stockcodex
    IF FOUND()
    DO SUBDEL
    ELSE
    IF EOF() .AND. stockcodex <> stockcode
    clear
    @ 12,20 SAY "Record stock code match not found"
    WAIT "    "
    ENDIF
    ENDIF
EXIT
RETURN
ENDDO
```

\* SUBDEL.PRG

CLEAR

@ 4,1 TO 23,79

@ 12,25 SAY " DELETING RECORD ..."

DELETE RECORD RECNO()

PACK

clea

@ 12,20 say " One record with stock code "

@ 12,48 SAY stockcodex

@ 12,56 say "Deleted"

WAIT "

"

close all

RETURN TO MASTER

```

* MENU.PRG
* This is Main Menu; it simplifies the execution of modules by
coordination
SET STAT OFF
SET TALK OFF
SET SCOR OFF
SET CONFIRM OFF
STORE .T. TO W
DO WHILE W
CLEAR
@ 3,32 TO 5,42
@ 4,33 SAY 'MAIN MENU'
@ 5,15 TO 21,60 DOUBLE
@ 8,17 SAY '1 ... DATA ENTERY'
@ 10,17 SAY '2 ... AMEND RECORD '
@ 12,17 SAY '3 ... DELETE RECORD '
@ 14,17 SAY '4 ... PRINT RECORD '
@ 16,17 SAY '5 ... ENQUIRY BY STOCK CODE/ITEM DESC.'
@ 18,17 SAY '6 ... EXIT'
STORE ' ' TO OPT
DO WHILE .NOT. OPT$ '123456'
OPT = ' '
@ 20,25 SAY 'Enter your choice'
@ 20,44 SAY '[ ]'
@ 20,45 GET OPT
READ
ENDDO
DO CASE
CASE OPT = '1'
DO STOCK
LOOP
CASE OPT = '2'
DO MODIFY
LOOP
CASE OPT = '3'
DO DELETE
LOOP
CASE OPT = '4'
DO PRTREC
LOOP
CASE OPT = '5'
DO SCRREPRT
LOOP
CASE OPT = '6'
W = .F.
EXIT
ENDCASE
ENDDO

```

```
* SUBMODI.PRG
SET ESCAPE OFF
SET TALK OFF
SET SCOREBOARD OFF
SET STATUS OFF
@ 4,0 TO 20,79
@ 7,1 SAY "Date in:   "
@ 8,1 SAY "Date out:  "
@ 9,1 SAY "SIVNO:   "
@ 10,1 SAY "SRVNO:"
@ 11,1 SAY "SOURCE:"
@ 12,1 SAY "TARGET:"
@ 13,1 SAY "Balance B/Forward:"
@ 14,1 SAY "Qty received:"
@ 15,1 SAY "Qty Issue:"
@ 16,1 SAY "Stock code:"
@ 17,1 SAY "location:"
@ 18,1 SAY "Item code:"
@ 19,1 SAY "Category:"
@ 7,9 GET datein
@ 8,9 GET dateout
@ 9,9 GET sivno
@ 10,10 GET srvno
@ 11,10 GET source
@ 12,10 GET target
@ 13,19 GET bbforward
@ 14,15 GET qtyreceive
@ 15,11 GET qtyissued
@ 16,12 GET stockcode
@ 17,12 GET location
@ 18,12 GET itemdesc
@ 19,12 GET categories
READ
REPLACE datein WITH datein
REPLACE dateout WITH dateout
REPLACE sivno WITH sivno
REPLACE srvno WITH srvno
REPLACE source WITH source
REPLACE target WITH target
REPLACE bbforward WITH bbforward
REPLACE qtyreceive WITH qtyreceive
REPLACE qtyissued WITH qtyissued
REPLACE stockcode WITH stockcode
REPLACE location WITH location
REPLACE itemdesc WITH itemdesc
REPLACE categories WITH categories
close data
clea
RETURN
```



```

* PRTREC1.PRG
SET ESCAPE OFF
SET TALK OFF
CLOSE DATABASES
CLEAR
ACCEPT "                Type store category " TO strec
CLEAR
ON KEY LABEL F7 RETURN
@ 1,20 SAY 'Press F7 to cancel printing'
@ 11,19 TO 13,44
@ 12,20 SAY 'Printing in progress ...'
SET DEVICE TO PRINT
srec = 1
USE store
DO WHILE .NOT. EOF()
DO WHILE .NOT. EOF() .AND. srec >= VAL(strec)
y = 12
balance = 0
*EJECT
@ 5,20 SAY 'FEDERAL MINISTRY OF AGRIC. & NAT. RES.'
@ 6,20 SAY REPLICATE('-',38)
*@ 6,60 SAY 'ITEM DESCRIPTION : '
*@ 6,79 SAY itemdesc
@ 7,25 SAY 'STORE INVENTORY CONTROL : '
@ 7,60 SAY 'STOCK CODE : '
@ 7,73 SAY strec
@ 8,25 SAY REPLICATE('-',32)
@ 9,1 SAY REPLICATE('-',136)
@ 10,1 SAY '|'
@ 10,3 SAY 'S/NO.'
@ 10,9 SAY '|'
@ 10,10 SAY 'DATE'
@ 10,18 SAY '|'
@ 10,19 SAY 'DATE'
@ 10,27 SAY '|'
@ 10,28 SAY 'SIV NO.'
@ 10,37 SAY '|'
@ 10,38 SAY 'SRV NO.'
@ 10,47 SAY '|'
@ 10,48 SAY 'SOURCE OF ITEM'
@ 10,79 SAY '|'
@ 10,81 SAY 'DESTINATION OF ITEM'
@ 10,110 SAY '|'
@ 10,111 SAY 'QUANTITY'
@ 10,119 SAY '|'
@ 10,120 SAY 'QUANTITY'
@ 10,128 SAY '|'
@ 10,129 SAY 'BALANCE'
@ 10,136 SAY '|'
@ 11,1 SAY '|'
@ 11,9 SAY '|'
@ 11,10 SAY 'ISSUED'
@ 11,18 SAY '|'
@ 11,19 SAY 'RECEIVED'
@ 11,27 SAY '|'
@ 11,37 SAY '|'
@ 11,47 SAY '|'
@ 11,79 SAY '|'
@ 11,110 SAY '|'
@ 11,111 SAY 'RECEIVED'
@ 11,119 SAY '|'
@ 11,120 SAY 'ISSUED'
@ 11,128 SAY '|'
@ 11,136 SAY '|'

```

```

@ 12,1 SAY REPLICATE('-',136)
rec = 0
DO WHILE rec < 22 .AND. (.NOT. EOF())
y = y + 1
l = y + 1
balance = qtyreceive - qtyissued
IF strech <> categories .AND. (.NOT. EOF())
SKIP
balance = qtyreceive - qtyissued
@ y,1 SAY '|'
@ y,2 SAY srec picture '9999'
@ y,9 SAY '|'
@ y,10 SAY datein
@ y,18 SAY '|'
@ y,19 SAY dateout
@ y,27 SAY '|'
@ y,28 SAY srvno
@ y,37 SAY '|'
@ y,38 SAY sivno
@ y,47 SAY '|'
@ y,48 SAY source
@ y,79 SAY '|'
@ y,80 SAY target
@ y,110 SAY '|'
@ y,111 SAY qtyreceive
@ y,119 SAY '|'
@ y,120 SAY qtyissued
@ y,128 SAY '|'
@ y,122 SAY balance
@ y,136 SAY '|'
rec = rec + 1
IF rec = 22 .OR. EOF()
l = l + 1
@ 1,1 SAY REPLICATE('-',136)
ELSE
ENDIF
ENDIF
srec = srec + 1
SKIP
ENDDO
ENDDO
srec = srec + 1
IF .NOT. EOF()
SKIP
ELSE
CLOSE DATABASES
ENDIF
SET DEVICE TO SCREEN
RETURN
ENDDO

```

```

* SCRREPRT.PRG
* This is a program to display records on screen, using stock
* stock and item description as key
SET ESCAPE OFF
SET TALK OFF
set stat off
set safety off
CLOSE DATABASES
CLEAR
use store
* Input stock code
ACCEPT "      Type stock code (e.g. A4, QUATO, FULSCAP etc.) : " TO
strec
?
* Accept Item description
ACCEPT "      Type Item Description (e.g. Xerox paper, Typing Sheet
etc.):" TO item
CLEAR
strec=UPPER(STREC)
item=UPPER(ITEM)
COPY TO TEMP FOR stockcode = strec .AND. itemdesc = item
close databases
srec = 1
USE temp
DO WHILE .NOT. EOF()
DO WHILE .NOT. EOF() .AND. srec >= VAL(strec)
y = 8
balance = 0
* Display headers and afterall records
clear
@ 1,5 SAY 'FEDERAL MINISTRY OF AGRIC. & NAT. RES.'
@ 2,5 SAY REPLICATE('-',38)
@ 2,45 SAY 'ITEM DESCRIPTION : '
@ 2,63 SAY itemdesc
@ 3,10 SAY 'STORE INVENTORY CONTROL : '
@ 3,45 SAY 'STOCK CODE : '
@ 3,58 SAY strec
@ 4,10 SAY REPLICATE('-',25)
@ 5,1 SAY REPLICATE('-',79)
@ 6,1 SAY '|'
@ 6,3 SAY 'S/NO.'
@ 6,9 SAY '|'
@ 6,10 SAY 'DATE'
@ 6,18 SAY '|'
@ 6,19 SAY 'DATE'
@ 6,27 SAY '|'
@ 6,28 SAY 'SIV NO.'
@ 6,37 SAY '|'
@ 6,38 SAY 'SRV NO.'
@ 6,47 SAY '|'
@ 6,48 SAY 'SOURCE OF ITEM'
@ 6,70 SAY '|'
@ 6,71 SAY 'STOCK '
@ 6,79 SAY '|'

```

```

@ 7,1 SAY '| '|
@ 7,9 SAY '| '|
@ 7,10 SAY 'ISSUED'
@ 7,18 SAY '| '|
@ 7,19 SAY 'RECEIVED'
@ 7,27 SAY '| '|
@ 7,37 SAY '| '|
@ 7,47 SAY '| '|
@ 7,70 SAY '| '|
@ 7,71 SAY 'CODE'
@ 7,79 SAY '| '|
@ 8,1 SAY REPLICATE('-',79)
rec = 0
DO WHILE rec < 12 .AND. (.NOT. EOF())
y = y + 1
l = y + 1
balance = qtyreceive - qtyissued
@ y,1 SAY '| '|
@ y,2 SAY srec picture '9999'
@ y,9 SAY '| '|
@ y,10 SAY datein
@ y,18 SAY '| '|
@ y,19 SAY dateout
@ y,27 SAY '| '|
@ y,28 SAY srvno
@ y,37 SAY '| '|
@ y,38 SAY sivno
@ y,47 SAY '| '|
@ y,48 SAY source
@ y,70 say '| '|
@ y,71 SAY stockcode
@ y,79 SAY '| '|
rec = rec + 1
* Test if record is 12 on a page and eject to next page if so
IF rec = 12 .OR. EOF()
  l = l + 0
wait
@ l,1 SAY REPLICATE('-',79)
ELSE
ENDIF
srec = srec + 1
SKIP
ENDDO
ENDDO
srec = srec + 1
IF .NOT. EOF()
SKIP
ELSE
CLOSE DATABASES
ENDIF
SET DEVICE TO SCREEN
WAIT " "
RETURN
ENDDO

```

```

* PRSUB.PRG
* This module sends record to printer by stock code/item description
SET ESCAPE OFF
SET TALK OFF
SET SAFETY OFF
CLOSE ALL
clea
USE store
ACCEPT "      Type stock code (e.g A4, Quato, fulscap etc.)" TO code
?
ACCEPT "      Type item description (e.g. xerox paper, typing sheet etc.)" TO item
code = UPPER(CODE)
item = UPPER(ITEM)
COPY TO TEMP FOR stockcode = code .AND. itemdesc = item
close databases
CLEAR
ACCEPT "                Press Enter key to print <--| " TO strec
CLEAR
ON ERROR RETURN
ON KEY LABEL F7 DO MENU
@ 1,20 SAY 'Press F7 to cancel printing'
@ 11,19 TO 13,44
@ 12,20 SAY 'Printing in progress ...'
SET DEVICE TO PRINT
srec = 1
USE temp
DO WHILE .NOT. EOF()
DO WHILE .NOT. EOF() .AND. srec >= VAL(strec)
y = 12
balance = 0
@ 5,45 SAY 'FEDERAL MINISTRY OF AGRIC. & NAT. RES.'
@ 5,84 SAY 'ITEM DESCRIPTION:'
@ 5,102 SAY item
@ 6,45 SAY REPLICATE('-',38)
@ 6,70 SAY REPLICATE('-',18)
@ 7,50 SAY 'STORE INVENTORY CONTROL'
@ 7,84 SAY 'STOCK CODE:'
@ 7,97 SAY code
@ 8,50 SAY REPLICATE('-',23)
@ 8,74 SAY REPLICATE('-',9)
@ 9,1 SAY REPLICATE('-',149)
@ 10,1 SAY '|'
@ 10,3 SAY 'S/NO.'
@ 10,9 SAY '|'
@ 10,10 SAY 'DATE'
@ 10,18 SAY '|'
@ 10,19 SAY 'DATE'
@ 10,27 SAY '|'
@ 10,28 SAY 'SRV NO.'
@ 10,37 SAY '|'
@ 10,38 SAY 'SIV NO.'
@ 10,47 SAY '|'
@ 10,48 SAY 'SOURCE OF ITEM'
@ 10,79 SAY '|'
@ 10,81 SAY 'DESTINATION OF ITEM'
@ 10,110 SAY '|'
@ 10,111 SAY 'QUANTITY'
@ 10,119 SAY '|'
@ 10,120 SAY 'QUANTITY'
@ 10,128 SAY '|'
@ 10,129 SAY 'B/BROUGHT'
@ 10,138 SAY '|'
@ 10,139 SAY 'BALANCE'
@ 10,149 SAY '|'

```

```

@ 11,1 SAY '|'
@ 11,9 SAY '|'
@ 11,10 SAY 'RECEIVED'
@ 11,18 SAY '|'
@ 11,19 SAY 'ISSUED'
@ 11,27 SAY '|'
@ 11,37 SAY '|'
@ 11,47 SAY '|'
@ 11,79 SAY '|'
@ 11,110 SAY '|'
@ 11,111 SAY 'RECEIVED'
@ 11,119 SAY '|'
@ 11,120 SAY 'ISSUED'
@ 11,128 SAY '|'
@ 11,129 SAY 'FORWARD'
@ 11,138 SAY '|'
@ 11,149 SAY '|'
@ 12,1 SAY REPLICATE('-',149)
rec = 0
DO WHILE rec < 22 .AND. (.NOT. EOF())
y = y + 1
l = y + 1
balance = bbforward+qtyreceive - qtyissued
@ y,1 SAY '|'
@ y,2 SAY srec picture '9999'
@ y,9 SAY '|'
@ y,10 SAY datein
@ y,18 SAY '|'
@ y,19 SAY dateout
@ y,27 SAY '|'
@ y,28 SAY srvno
@ y,37 SAY '|'
@ y,38 SAY sivno
@ y,47 SAY '|'
@ y,48 SAY source
@ y,79 SAY '|'
@ y,80 SAY target
@ y,110 SAY '|'
@ y,111 SAY qtyreceive
@ y,119 SAY '|'
@ y,120 SAY qtyissued
@ y,128 SAY '|'
@ y,129 SAY bbforward
@ y,138 SAY '|'
@ y,139 SAY balance
@ y,149 SAY '|'
rec = rec + 1
IF rec = 22 .OR. EOF()
@ 1,1 SAY REPLICATE('-',149)
ENDIF
srec = srec + 1
SKIP
ENDDO
ENDDO
srec = srec + 1
IF .NOT. EOF()
SKIP
ELSE
CLOSE DATABASES
ENDIF
SET DEVICE TO SCREEN
RETURN
ENDDO

```

```

* PRTREC.PRG
* This module sends entire record to printer
SET ESCAPE OFF
SET TALK OFF
CLOSE ALL
CLEAR
ACCEPT "          Press Enter key to print <--| " TO strec
CLEAR
ON ERROR RETURN
ON KEY LABEL F7 DO MENU
@ 1,20 SAY 'Press F7 to cancel printing'
@ 11,19 TO 13,44
@ 12,20 SAY 'Printing in progress ...'
SET DEVICE TO PRINT
srec = 1
USE store
DO WHILE .NOT. EOF()
DO WHILE .NOT. EOF() .AND. srec >= VAL(strec)
y = 12
balance = 0
@ 5,45 SAY 'FEDERAL MINISTRY OF AGRIC. & NAT. RES.'
@ 6,45 SAY REPLICATE('-',38)
@ 7,50 SAY 'STORE INVENTORY CONTROL'
@ 8,50 SAY REPLICATE('-',23)
@ 9,1 SAY REPLICATE('-',149)
@ 10,1 SAY '|'
@ 10,3 SAY 'S/NO.'
@ 10,9 SAY '|'
@ 10,10 SAY 'DATE'
@ 10,18 SAY '|'
@ 10,19 SAY 'DATE'
@ 10,27 SAY '|'
@ 10,28 SAY 'SRV NO.'
@ 10,37 SAY '|'
@ 10,38 SAY 'SIV NO.'
@ 10,47 SAY '|'
@ 10,48 SAY 'SOURCE OF ITEM'
@ 10,79 SAY '|'
@ 10,81 SAY 'DESTINATION OF ITEM'
@ 10,110 SAY '|'
@ 10,111 SAY 'QUANTITY'
@ 10,119 SAY '|'
@ 10,120 SAY 'QUANTITY'
@ 10,128 SAY '|'
@ 10,129 SAY 'B/BROUGHT'
@ 10,138 SAY '|'
@ 10,139 SAY 'BALANCE'
@ 10,149 SAY '|'
@ 11,1 SAY '|'
@ 11,9 SAY '|'
@ 11,10 SAY 'RECEIVED'
@ 11,18 SAY '|'
@ 11,19 SAY 'ISSUED'
@ 11,27 SAY '|'
@ 11,37 SAY '|'
@ 11,47 SAY '|'
@ 11,79 SAY '|'
@ 11,110 SAY '|'
@ 11,111 SAY 'RECEIVED'
@ 11,119 SAY '|'
@ 11,120 SAY 'ISSUED'
@ 11,128 SAY '|'
@ 11,129 SAY 'FORWARD'
@ 11,138 SAY '|'

```

```
@ 11,149 SAY '|'
@ 12,1 SAY REPLICATE('-',149)
rec = 0
DO WHILE rec < 22 .AND. (.NOT. EOF())
y = y + 1
l = y + 1
balance = bbforward+qtyreceive - qtyissued
@ y,1 SAY '|'
@ y,2 SAY srec picture '9999'
@ y,9 SAY '|'
@ y,10 SAY datein
@ y,18 SAY '|'
@ y,19 SAY dateout
@ y,27 SAY '|'
@ y,28 SAY srvno
@ y,37 SAY '|'
@ y,38 SAY sivno
@ y,47 SAY '|'
@ y,48 SAY source
@ y,79 SAY '|'
@ y,80 SAY target
@ y,110 SAY '|'
@ y,111 SAY qtyreceive
@ y,119 SAY '|'
@ y,120 SAY qtyissued
@ y,128 SAY '|'
@ y,129 SAY bbforward
@ y,138 SAY '|'
@ y,139 SAY balance
@ y,149 SAY '|'
rec = rec + 1
IF rec = 22 .OR. EOF()
@ 1,1 SAY REPLICATE('-',149)
ENDIF
srec = srec + 1
SKIP
ENDDO
ENDDO
srec = srec + 1
IF .NOT. EOF()
SKIP
ELSE
CLOSE DATABASES
ENDIF
SET DEVICE TO SCREEN
RETURN
ENDDO
```



\* MENUSUB.PRG  
SET STAT OFF  
SET SCOR OFF  
SET DEVICE TO SCREEN  
CLOSE ALL  
DO MENU

