

BUDGET MECHANIZATION IN THE PUBLIC SECTOR

USING

PLANNING PROGRAMMING BUDGETING SYSTEM (PPBS)

BY

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DECLARATION

I hereby declare that this thesis "Budget Mechanization in the Public Sector Using PPBS " written by me as the result of my research work (except where reference are made to published books and where assistance is acknowledge) and has not been done before by any researcher.



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CERTIFICATION

This is to certify that this project Budget Mechanization in the Public Sector Units (PPBS) by Lt AA ADESOPE PGD/MCS/065 is written in accordance with the regulation governing the preparation of project work and the award of Post Graduate Diploma of FUT Minna.



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DEDICATION

S WORK IS WHOLE HEARTEDLY DEDICATED TO THE ENTIRE FAMILY

OF

ADESOPE OLA

ACKNOWLEDGEMENT

In a work of this nature, it is hardly possible for the writer to single handedly thank all those that helped to make it a success. However, there are some whose contributions and kind gestures can hardly be forgotten. To these people, if I fail to express my gratitude, I shall be doing them the worst of injustice.

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ABSTRACT

Thousands of years ago, devices were used to help man process data. Over the centuries there have been many improvements in these tools which today are computers. In the past, budget formulations was usually done manually with a lot of assumptions concerning some budget indicators. This was probably due to the relatively "unlimited resources". In addition, the budget indicators, data and ability to quantify these requirements either did not exist or were beyond planners capability.

In the recent past, critical factors have evolved that have made the necessity for detailed planning and estimation both imperative and for the first time possible also limited resources have made imperative detailed and precise planning.

The aim therefore of this research work is to critically look into the existing system and suggest a new system of budget formulation in the public sector. The investigative aspect of the work was designed to ensure that the proposed system not only supports but also improve the organization performance, meet all users requirements, easy to use and also provide software specifications.

It is within the scope of this research work to provide a new system of budget formulation in the public sector using PPBS. The need for comprehensive and workable result led to the use of some simulations due to lack of adequate

time for feasibility study and inadequacy of required information.

All available information about the existing system were gathered with a view to retaining the good aspects of it while the short comings are reduced to the barest minimum, interview and direct observation methods were used to gather information.

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CHAPTER ONE

1.0 INTRODUCTION AND LITERATURE REVIEW

Budget can briefly be defined as the estimates of probable future income and expenditure which could be by the government or government establishment, private sector or private individual. Budget is used in assessing if a project was developed within the income, specified time and within the original budget.

Typically, time and budget comparisons are normally made to investigate the difference between the planned time cost estimates and the actual time and cost expended. By this, we determine whether the entire project was over budget or under budget at any point in time.

Budget deficit has been a sour point in the management of public finance in the past years in Nigeria. In 1992, the deficit stood at ₦ 43.8 billion while the 1993 budget had a built in deficit of ₦ 28.6 billion but before the end of the year, the figure had grown to between ₦ 63 - ₦ 90 billion [17]. Budget deficit is the monster tearing apart the economy. This must be checked if the overall objectives of the budget is to be realised.

The government decision to stop the deficit will go a long way to address other serious problems within the economy. The major sources of extra budgetary expenditure are Abuja, Ajaokuta steel plant, ECOMOG etc [17]. Having identified these, sanity

could be brought into the budgeting system by ensuring that the government resources are concentrated on vital projects within a given budget year. By this, only the priority projects can be meaningfully funded within the scope of the avoidable resources. The policy of spreading resources thin among a large number of projects will then be a thing of the past.

In 1994, the Government's total revenue estimates are put at ₦ 143.16 billion made up of ₦ 96.106 billion in oil revenue and ₦ 47.1 billion from non oil sources [17]. The growth in non-oil earnings does not give room for cheers for proponents of aggressive efforts at diversifying the country's earning stream. In 1994, the sector is expected to yield ₦ 47.054 billion against ₦ 30.5 billion projected in 1993 [17]. This shows a growth of 54.3 percent over the 1993 estimates. The anticipated growth is largely due to a rise in domestic source of earnings through the new taxes and fiscal policies newly introduced.

Value Added Tax(VAT), which takes off this fiscal year (1994) is expected to yield ₦ 6 billion for the government [17]. The need to eliminate budget deficit cannot be over-emphasized, which is why the decision of the government to tackle it is a welcome idea. Government's expenditure estimate of ₦ 110.2 billion matches its total receipts [17]. In which case, government will now commit all government expenditure to only available resources. With proper implementation; this will give a boost to our dying economy.

hence, the need for this project.

The discussion on financial management in the Nigeria Public Sector could not have come at a more appropriate time than during this period of difficult economic situations in our country. One way of looking at the magnitude of problem is to look at the decline in export earnings since 1980 as presented in Table 1

TABLE 1

NIGERIAN EXPORT EARNINGS 1980-1986

	IN USA MILLION DOLLARS	1980 AS ABASE = 100
1980	25,741	100
1981	17,961	69.8
1982	12,088	47.0
1983	10,309	40.0
1984	11,827	45.9
1985	12,804	49.7
1986	6,599	25.6

Source: IMF International Financial statistics year Book 1987 [11].

From Table 1, it can be observed that whereas in 1980, the country earned more than 25 billion dollars export, the total export earnings in 1985 and 1986 was less than 20 billion dollars. In particular, the export earning of 1986 was less than 26% of the corresponding 1980 figure. The

diminution of oil wealth should be expected to pose serious challenges to the managers of public funds in the country. This is because during the period of oil boom, the political decisions were made to provide some specific services over many years and for which facilities were built and personnel employed and trained. For the government to turn around and take away some of these services can lead to some problems with different pressure groups in the country. Therefore, a project like this that focuses on Planning Programming Budgeting System (PPBS) with its promise of efficient utilisation of resources must be a welcome development. In order to understand what PPBS is all about, I believe it is necessary at this point to briefly examine budgeting which is just an aspect of PPBS.

1.1 PURPOSE OF BUDGETING.

According to Shillinglaw, some of the potential tasks of budgeting are:

1. To force managers to analyse the organization activities critically.
2. To direct some of management attention from the present to the future.
3. To enable management to anticipate problems or opportunities in time to deal with them effectively.
4. To give managers a continuing reminder of the actions they have decided upon.
5. To provide a reference point for control purposes [1].

However, there is no agreement in the budgeting literature on how to carry out government budgeting. There is a camp that wants rational budgeting with emphasis on cost-benefit ways of spending money.

1.2 INCREMENTAL BUDGETING

This camp led by Aaron Wildavsky does not believe in any comprehensive budgeting that requires budget participants to look beyond one year or ask them to state what they intend to do with the money approved for them. In this case, the previous years budget is used as foundation and maginal additions or subtractions are made depending upon availability of funds. The arguement of this school of thought is that a process which concentrates on the increment is preferable to the one that attempts to review, the whole budget because it moderates conflicts, reduces search costs, stablises budgeting roles and expectations, reduces the amount of time that busy officials must invest in budgeting and increases the likelihood that important political values will be taken into account [2].

Incremental budgeting is the basis for traditional budgeting that lays emphasis on costs of input like salaries and equipments with no attempt at indicating what the government intends to accomplish from spending a given amount. As a result of this, the government accounting practice that evolved focussed on cash receipts and disbursements on the basis of budgeting headings to reveal the balance available at a given time under various Heads

and Subheads of votes and to facilitate auditings.

1.3 DISSATISFACTION WITH INCREMENTAL BUDGETING

From the British point of view, dissatisfaction with the traditional budgeting as reflected in the Plowden Report of 1961 [3] with the tendency of expenditure decisions to be taken piecemeal, and concentrating on only one financial year without looking into future years despite the fact that many government expenditures involves commitments, contractual or moral expending several years ahead. This was the origin of public expenditure survey in Britian where public expenditures were planned formerly for five years ahead before the planning duration was reduced to three years.

In the United States, dissatisfaction with the traditional budgeting was not just because of its limitations to one year but because it was difficult to decide whether requests for more staff and equipment are justified without knowing what they are used for and whether expenditure would lead to the achievement of fundamental objectives. This concern gave birth to PPBS in USA which is subsequently discussed.

1.4 SUMMARY OF THE CRITICISMS OF INCREMENTAL BUDGETING

Criticism against Incremental or Traditional Budgeting can be summarised as follows:

1. It focuses on one year alone without looking at the future cost implications of current decisions.
2. Starting the budgeting process for each year with the funding level of the current year it assumes that the activities performed are effective and cost efficient. As a result, any insufficiencies of the past are consequently enshrined as standards for the future.
3. Incremental budgeting presents little information on the nature and level of services or programmes provided, the reason for providing the services, the beneficiaries of the services or the resources needed to maintain a specific level of services.
4. The incremental budgeting does not provide a meaningful way to evaluate alternative to a program, alternative methods of providing services or trade offs between different services or level of services.
5. Finally, incremental budgeting with emphasis on line-item budgeting does not permit the use of technique or flexible budgeting where we can relate cost with level of activity achieved. In the absence of such technique, there is no way that the impact can be known on crime rate of increases or decreases in police funding. It is in response to these criticisms that rational budgeting techniques like PPBS and Zero-Base Budgeting (ZBB) emerge in the literature.

1.5 DEFINITION OF PPBS

PPBS can be defined as a financial control technique designed to assist an organization to arrive at reasonable answers to questions such as:

1. What are the main purpose of this organization ?.
2. When do we want to achieve those purposes ?
3. Which routes do we have to take to get their efficiently ?
4. What do we have to do to get there and when do we have to do them ?.

For analytical purposes, PPBS can be reviewed as consisting of four distinct cycles, though they are somewhat overlapping cycles [5]. They are:

1. Planning
2. Programming
3. Budgeting
4. reporting and Evaluation

The four cycles are hierarchical integrative in nature so that the decisions arrived at in the planning cycle become problems to be solved in the programming cycle. The resulting decisions agreed upon at the programming cycle become in turn the problems to be solved in budgeting cycle. This is tied to the fact that decisions reached at the earlier cycles may have to be modified if there are difficulties and inconsistencies in later cycle.

1.5.1 PLANNING

This cycle involves the process of identifying the social mission and goals of an organization in order to justify its continuing existence. In other words, planning is concerned with the decision on where an organization is heading to. To arrive at this decision, the organization must take into consideration all the anticipated external and internal charges that are crucial to the running of the organization. All the major assumptions and goal statements of planning should be organized in the form of formal guidelines for initiating the programming phase.

1.5.2 PROGRAMMING

This is the process of deciding on the specific objectives that are consistent with the organisation's mission goals and developing an effective integrated program of activities that are designed to achieve those specific objectives with due regard to all external and internal constraints. There are at least two aspects to programming. One is the structural aspect which involves the development of programs and subprograms. For example our educational programme can be broken into primary, secondary and post secondary subprograms. The other aspect of course is analytical. This involves the costs and benefits of the alternative ways of carrying out each sub-programme.

The following questions can guide program preparation:

- (a) What actually are we trying to achieve with a

given program in terms of the objectives of the organization ?

- (b) How effective does the existing programmes accomplish the goals and objectives of our organization ?
- (c) Can we identify useful indices of performance in each of our programmes ?
- (d) If not, are there indirect measures which can be used as indicators of performance ?
- (e) Are there alternative techniques of achieving the same goal ?
- (f) What are the aggregate resource implications of the proposed changes particularly in the areas of personnel, facilities and finance ?
- (g) What are the implications for the budgets of the coming years of the decisions we are operating now ?

Thus the primary distinctive characteristics of programming can be summarised as follows:

1. Identification of the specific objective consistent with the organisation's mission and goal.
2. Identification and development of integrated programme of activities to achieve these objectives taken into consideration both internal and external constraints.
3. A detailed analysis of the output of each

programme.

4. Identification of alternative ways of carrying out each programme.
5. Estimation of the total cost implications of each alternative including capital costs for many years ahead.
6. Estimation of the expected results of each alternative.
7. Selection of the best alternative in terms of achievement of organisation's objective at the least cost.

1.5.3 BUDGETING

Budgeting within the context of PPBS can be defined as "the process of translating planning and programming decisions into specific projected financial plans for relatively short periods of time. Budgets are short range segments of adopted action programme which set out planned accomplishments and estimate the resources to be applied for the budget periods in order to attain those accomplishments" [6]

1.6 REPORTING AND EVALUATION

The aim of reporting and evaluation is to monitor and report on the actual performance at appropriate intervals in order to reveal any deviations from the set objectives, goal and output and to account for the sources of such deviations. The analysis of deviations should help in taking

corrective actions such as stretching out target dates, better choice of resources or even revising the plans and budgets when necessary.

1.7 INTRODUCTION OF PPBS IN USA

Planning Programming Budgeting System (PPBS) was introduced into USA Department of Defence by Robert McNamara in 1961 and later was extended to all USA Federal Agencies by President Johnson. The President hoped to achieve the following from PPBS:

1. Identify USA national goals with precision and on a continuing basis.
2. Choose among those goals the ones that are most urgent.
3. Search for the alternative means of reaching those goals most effectively at the least cost.
4. Inform themselves of not merely next year costs, but on the second and third and subsequent years' costs of their projects.
5. Measure the performance of the programmes to insure a dollars worth of services for each dollar spent. [4]

1.8 ZERO BASE BUDGETING (ZBB) AND PPBS

Before going further in the discussion of PPBS, it is necessary to compare it with Zero-Base Budgeting (ZBB) the other popular rational technique designed for resources allocation. Zero-Base Budgeting is a system where by each

governmental program must be fully justified each time a new budget is formulated as no base in expenditure is assured. The Zero indicates that the past is cut-off and the present is regarded as a clean state on which the departments can set up decision packages.

Both ZBB and PPBS require that budgeting decisions be made on the basis of programmes or activities rather than the old traditional line budgeting approach or object classifications. They both emphasize incremental changes in cost and benefits that will result from budgeting decision and both demand that benefits be quantified. There are significant distinctions between the two. ZBB requires that each activity be separated into discrete decision packages that the Chief Budget Officer is able to rank in order of priority and to accept or reject them according to the available funds. Though such ranking deals directly with such sector proportion question as the relative emphasis placed upon health vs education, transport vs communications or military vs civilian expenditure. PPBS has no formal methodology for such exercise.

1.9 REVIEW OF PPBS EXPERIENCE IN USA AND NIGERIA EXPERIENCE

Earlier, it was indicated in this project that PPBS was tried in the USA and had limited success because of the following:

1. The problem of determining output of a given program.
2. The manner in which they were introduced across

the board and without much preparation. There was inadequate time to educate the agency heads about the advantages of PPBS let alone the technique involved in it.

3. The insensitivity of new men in power to budgeting traditions, institutional loyalties and personal relations.
4. Inadequate support of leadership especially the knowledgeable leadership provided by McMamara in Defence.
5. Inadequate supply of good analyst and data [13]

1.9.1 NIGERIAN EXPERIENCE

PPBS was first introduced in Western Nigeria by Akinyele, the director of Fiscal Research Division, Ministry of Finance of the region in 1972.

He also champion the cause of PPBS at the Federal level as the Adviser on budget matters to former President Shagari. When PPBS was introduced in 1980, it was hoped that by 1983, it was envisaged that PPBS would be fully utilised in all government ministries and department.

At the initial stage of the implementation of PPBS, two ministries were chosen. They were:-

- (a) Ministry of Agriculture
- (b) Ministry of Housing and Environment.

No re-organisation exercise was carried out in the two ministries as a result of the PPBS because the programme was tailored to follow the existing structures in the ministries. The two ministries were required to indicate their performance targets. In 1982 financial year, the requirement for performance targets was extended to more ministries. The indicators required included kilometer of roads, housing units, hospital beds, students intake, number of birth, number of deaths etc all of which are being done manually. While some ministries attempted to provide some "targets" the information given was not accurate and educative enough.

For example, under Housing loans, the Federal Mortgage Bank anticipated "target" for the ₦ 50 million approved for it that year was "Housing Loan". There was no information on number of loans to be given or even the categories of loan applicants to be dealt with. Similarly under Federal Government Housing Schemes, a sum of ₦ 40 million for National Housing Program Phase 1 and 11 was provided. The "anticipated target" from the allocation was given as "provision of housing units and infrastructure facilities in Festac and Ipaja". Again the anticipated "target" was silent on the number of houses to be provided and the extent of completion expected during the year. While the anticipated target in National Housing Programme direct scheme (of which ₦ 300 million was voted) was given as "40,000 housing units", there was no indication of how many of them were

expected to start during the year let alone the number to be completed.

In spite of the need for "coordination" that the President stressed at the time of announcement of PPBS, the way the Federal Housing Programme was implemented did not reflect this concern. Of the ₦ 340 million budgeted for housing in 1982 Financial year, only ₦ 40 million was directly, under the Ministry of Housing and Environment through the Federal Housing Authority. The remaining ₦ 30 million was under the Presidential Liaison Officers in the then 19 states of the Federation. The liaison officers were not civil servants but political appointees of the president who were consequently accountable to him rather than the Ministry of Housing and Environment. Thus, about 88% of the budgetary allocation for Housing was outside the control of the Ministry principally charged with housing responsibility. [8]

1.9.2 PROBLEM WITH PPBS

Apart from documentary reform (that is improvement in classification of expenditure categories in the budget document) which later led to relatively prompt preparation of government accounts, not much can be said to have been achieved with PPBS at both Federal and state levels. In addition to the general difficulties encountered with PPBS in other places, the effectiveness of PPBS was circumscribed

by a variety of institutional, economic political factors and non-mechanization of the budgeting processes. Before government budgeting can be reliably applied to determine the effectiveness of government service, it should first of all accurately account for expenditure of funds promptly. This condition was not met in Nigeria before the PPBS exercise began. The country, did not only lack timely and accurate records on government expenditure but also lack reliable data on its people and other contributing factors to budget formulation because most of these information are manually kept. In spite of the importance of information as a significant resource input into PPBS, there have not been remarkable attempt to improve the data base of the government.

Another problem was that no sooner had the PPBS been introduced than the country moved from a period of oil wealth to the period of dimunition of oil wealth. A contribution of programme expansion of the oil wealth period might have encourage multi-year budgetary on the government departments as a way of looking ahead to where the increased resources could be utilised. However, after introduction of PPBS at the Federal level, budgeting become pre-occupied with limitations rather than opportunities for growth. Thus the positive messages of PPBS had not been internalised as part of the budgeting norms before the dimunition of oil wealth set in [14].

Apart from the constraints already discussed above, the manual filling system still in use is not only outdated it is also very tedious, time wasting, the ability to go into every detail required manually is minimal above all the error rate is relatively high. Some other problems that plagued our normal budgetary system is in-adequate of information on budget indicators like kilometre of roads, housing units, hospital beds, student intake, number of birth number of deaths etc all of which are manually done. It is time, some of these are computerised in some cases but these are not actually computerised for overall useage by government for budget formulation. Given the constraints discussed above, about PPBS should Nigeria forget about it.

My answer is no. We only need to go into our financial and economic history and computerised all the budget indicators for an efficient and practicable budget.

I believe that some of the short comings of the past enumerated below should have been avoided if PPBS aspect of the budget had been computerised .

(1) The Problem of high upward revision of costs as reflected in the slected few cases in Table 2.

TABLE 2

SOME SELECTED PROJECT SHOWING COST REVISION

	ORIGINAL ESTIMATES FOR 1975 - 80 PLAN PERIOD ₦	REVISED ESTIMATE COST BY 1975 ₦
National Theatre Building complex	5,500,000	39,202,000
Communication Satellite station	5,970,000	14,000,000
Kano-Kari Road (Reconstruction)	2,500,000	16,900,000
Airport Consultancy fees	1,600,000	22,000,000

Sources:- Federal Government of Nigeria

Budget Estimates 1975/76 PP. 410 - 444 [18]

If PPBS had been computerised, and other ground work properly done, there could have been no rational justification for the increase in Airport Consultancy fees from ₦ 1.6 million to ₦ 32 million especially as the increase came in the first year of the plan period. Computerization would have helped determine the level of completion to be estimated at any specific time in relation to money already spent and this would have also helped to know if the construction firm of Kano-Kari road intentionally delayed the reconstruction work for inflation to catch up.

The argument here therefore is that finance was not the constraint in the implementation of capital projects especially during the oil boom period. The problem was that the government departments did not do their home work properly on what they intend to do with the money approved

for them, it was a case of money first then project later [13].

In my opinion, the most elegant way to demonstrate the inadequacies of the budgeting system is by comparing the per capita income of Nigeria in 1973 (just before oil boom of 1974 onwards) and that of 1982 (immediately after the oil boom) as reflected in Table 3

TABLE 3

PER CAPITA INCOME OF NIGERIA IN COMPARISON WITH OPEC COUNTRIES FOR 1973 AND 1982 (AT 1980 MARKET PRICES IN USA DOLLARS)

YEAR	NIGERIA	OPEC COUNTRIES
1973	875	1,044
1982	824	1,466

Source: IMF International Financial Statistics, Supplement on output statistics 1984 pp.18-19.[19]

Inspite of the fact that between 1974 and 1981, Nigeria earned more than \$111 billion from export, the per capita income in 1982 of \$824 was less than that of \$875 in 1973. This differs from the observed pattern of combined OPEC countries where 1982 per capita income of \$1466 was an increase of 40% on the 1973 figure. It is therefore not a surprise that the explosion in education in the country without correlation with the agents of production has produced school leavers and graduates without work.

CHAPTER TWO

2.0 FEASIBILITY STUDY

The major emphasis of my analysis is an investigation into the existing problems and situation while major emphasis of my design is to develop a workable and acceptable procedures necessary to over-come the shortcomings and limitations of the existing system. The first stage is the feasibility study otherwise referred to as the preliminary investigation which revealed the inherent problems and limitations of the existing system as follows: manual filling system, time wasting, high error rate not up to date records, lack of coordination, inadequate information on budget indicators, these and many more are mainly the causes of deficit or unbalanced budgeting.

The study in other words determines the technical feasibility, operational feasibility and economic feasibility of the proposed solution. All these are favourable.

2.1 METHOD OF INVESTIGATION

It is not only important but also necessary to collate all the facts about the existing manual system to ensure that all the strength and of course the shortcomings are discovered before a new system is designed so as to reduce to the barest minimum the weaknesses and retain the strength.

There are a number of methods that could be used to

carry out this type of investigation. Some of which are Interviews, Questionnaires, Direct observation, Telephone calls, Statistical sampling and testing, simulation etc. Interview method, being the best source of qualitative information is combined with direct observation. Also, bearing in mind the desired result from the proposed system, the respondents are generally the current users of the existing system and at the same time potential users of the proposed system. It was revealed that most of the required information for accurate and balanced budget formulation are all based on assumptions and where available, are haphazardly kept. The sections hardly share data and where they do, the required cooperation was not in existence.

2.2 SYSTEM DESIGN

The design of the proposed system involves the automation of the manual operations of the existing system .

This includes the development of the structure of the data base files required in otherwords the input specifications and the design of the output screen which is also the output specifications and the logical operation program for the new system that provides security and back-up for the system.

2.2.1 INPUT SPECIFICATION

Two data base files were used in the system namely: oil revenue and non-oil revenue.

OIL REV. DBF

FIELD	FIELD NAME	FIELD TYPE	FIELD WIDTH	DEC
1	OIL	C	20	-
2	QUANTITY	C	20	2
3	AMOUNT	N	15	2
4	DATE	D	08	-

NOIL REV. DBF

FIELD	FIELD NAME	FIELD TYPE	FIELD WIDTH	DEC
1	TAXATION	N	15	2
2	CUSTOM and EXCISE	N	15	2
3	AGRICULTURAL EXPORT	N	15	2
4	V A T	N	15	2
5	DATE	D	08	-

2.2.2 OUTPUT SPECIFICATION

The proposed program consists of four major modules namely: Records, system, Report and Exit.

2.2.2.1 RECORDS

This handles the information/data records of the sources of revenue oil and non-oil sources.

2.2.2.2 SYSTEM

This part is made up of two parts. System security which assigns authorised access levels to users. But in this case there is no need for any security all budget operators should have access to all facts and figures of the department because whatever result they arrive at will still be made public during introduction of budget policy. While the set-up ensures safe storage of data and setting of the system time and data.

2.2.2.3 REPORT

This part generate report in condensed form as dictated by the user so that at a glance, the summary of the budget and other required reports can be seen.

2.2.2.4 EXIT

It terminates the execution of the application system to return to DOS prompt or DBMS environment.

2.3 HARDWARE AND SOFTWARE REQUIREMENTS

The proposed budget mechanization is a computerization process that will be operated in a Data Base Management System (DBMS) application system. The system will be run on Local Area Network (LAN) using microcomputer.

Local Area Network (LAN) involves the hardware computerization process. It is the physical connection of all the computer terminals and peripherals in a number of offices all within the same area.

The LAN in the proposed system will act as a postmaster that has two file servers that manages the network and its disk system that contains the shared program and data.

The users will have separate terminals that are physically wired together and to the central processing unit (CPU) so as to be able to carry out an independent work and also share data with other users.

2 models of TANDON 80486 with the underlisted qualities are suggested

Model	Processor	FDD (DOS Compact)	ADD	RAM	19" Mono 11
SPC 5000/200	SPARC-33 MHz	3.5"	200Mb	8 Mb	
SPC 5100/200	SPARC-36 MHz W/256kb CACHE	3.5	200Mb	8 Mb	

In addition to these, the PC's have the options of HDD 500 Mb, RAM expansion to 104 Mb, 16" colour while 19" colour is also available. Apart from the outstanding

qualities enumerated above, after sale service is available with systematic and effective periodic training for all users and potential users.

CHAPTER THREE

3.0 CHOICE OF PROGRAMMING LANGUAGE

There are a number of programming languages which are acceptable to the computer but definitely not all of them can be used in the same operation. These languages have a number of different attributes used for classification purposes.

Out of the numerous programming languages, a choice has to be made of the one that will best serve the purpose for which we want it.

Some of the important characteristics to be considered include:

1. The difficulty of the problem
2. The technical skill required of the computer programmer.
3. The availability of programmer for various languages
4. The type of processing mode to be used.
5. The efficiency of the computer or language translator.
6. The effectiveness of after sales service of the computer vendor in maintaining the program.
7. The availability of sub-routine that could be needed in the program.
8. The ease with which the program can be changed at a later date.

Data is one of the most important resources of any organization. Without data and the ability to process it, an organization would not be able to survive. Data could be stored in different structure viz. hierarchical, network and relational structure.

For effective management of data, a Data Base Management System (DBMS) is required. A DBMS is a software package that manages and maintains data to facilitate the processing of multiple applications.

Since the research work is based on DBMS, I will recommend the use of dbase 111 plus which is one of the query languages. It allows users to make queries such as list all revenue accruable to government under non-oil revenue sector. In general, the commands that uses or manipulate data base are part of Data Manipulation Language (DML). This is a specific language normally provided with the Data Base Management System (DBMS). Generally, it allows users to have single and immediate access to data contained on the data base. Thus it is of great help to users with little or no computer experience. It saves time and money of tasking a programmer to develop a high-level program in a language as COBOL.

3.1 SYSTEM IMPLEMENTATION

Now that Data Base Management System have been chosen, a number of tasks still need to be completed before the system is installed and ready for use. This preparation is

termed systems implementation. In summary, it includes the acquisition of software, hiring and training of personnel, site preparation, data preparation, installation, final testing, start up and maintenance and post implementation review.

3.2 SOFTWARE ACQUISITION AND DEVELOPMENT

The key to unlocking the potential of any computer system is software. This can either be developed or an existing one is used.

3.3 PERSONNEL HIRING AND TRAINING

Since the eventual success of any data processing system depends on how the system is used by the people within the organization and coupled with the fact that budget department is just going mechanized, thus training of personnel is a necessity. A training program need to be drawn for the proposed users which could be in-house or in-service all in conjunction with the vendors. The size of the new data processing will determine the number of personnels to be trained. At the initial stage, some technical personnels could be hired to beef up the team.

3.4 SITE PREPARATION

The actual locations of the new data processing system will need to be prepared. Since the system is on Local Area Network (LAN) all the offices that will have a PC need to be

rearranged to give room for the computer.

New sets of furnitures might have to be procured, flooring and additional security for the safety of the computer equipments. Power supply must be adequately taken care of to ensure un-interrupted power supply (UPS), the wiring system must not interfere with the computer. Also, stabilizers should be purchased for use while the required capacity air-conditioners are installed in all the offices that have computer equipment.

3.5 DATA PREPARATION

Since budget department is about to be computerized, all it's manual files will now be converted into computer files. This is termed data preparation or conversion.

The bulk of this work will be done by data entry operators or a service company to convert the manual data into data on the computer system and this terminates the services of service company or part-time data entry operators. The computer programmes will maintain and update the computer files.

3.6 INSTALLATION

This is physically placing the computer equipments on the site and making it operational. After installations, several tests are performed by the manufacturer or their representatives (vendors) to ensure the equipment is operating as it should.

3.7 FINAL TESTING AND START-UP

This involves the entire data processing system. It requires testing each of the individual programs, the entire system of program and for entire system with a large volume of data. Start-up begins with the final testing of data processing system. There are a number of methods that could be used but I will suggest Parallel approach method in which case the old system and the new system works together to make sure the new system is working as expected before phasing out the old system.

3.8 MAINTENANCE AND POST IMPLEMENTATION REVIEW

This process includes checking to make sure everything is operating as intended and taking corrective action when necessary. In addition to hardware, software too must be maintained. Software maintenance could be one of the most expensive aspects of software development and use.

The post-implementation review stage determines whether the new system has achieved its original designed goals and also to see if the system now developed is within specified time and within the original budget. Typically, time and budget comparisons are made. These comparisons investigate the difference between the planned time and cost estimates and the actual time and costs expended. This is used to determine whether the project was over budget or under budget at any point in time.

CHAPTER FOUR

4.0

CONCLUSION

This work will not be complete if some of the advantages the public sectors stand to gain are not briefly enumerated with a view to convincing the people in power to giving it a trial.

Computerization of the budgeting system will help the government to have a realistic estimate of the expected revenue from both oil and non-oil sectors of the economy. Also, it will allow formulation of budget based on the estimate with a view to eliminating budget deficit. All these are clearly shown in the appendix to this write up.

The computerization of all records will allow budget operators to manipulate these information and see the immediate and future effects of these on the economy, this will prevent them from putting into operation a faulty policy that could adversely affect the economy as we have experienced in the past. Computerization will also speed up the processes of budget formulation, allow for a detailed work to be done with the error rate on statistical data being used reduced to the barest minimum and all within a short time frame in relation to the old manual system.

If all precautionary methods as prescribed in earlier chapters are adopted, it would help the policy makers have a reasonable estimate of fund accruable to government in any year and also help to allocate fund to departments/capital

projects all within available resources in a year. This was clearly demonstrated in the programs in the appendix. Without any shadow of doubt this would be a welcome idea in the budget department of public sector.

4.1 PRELUDE TO RECOMMENDATION

After all that have been discussed in the previous chapters, I want to recommend that Nigeria should have a critical look at PPBS and think about which aspects of it the country should adapt to cope with the turbulence that has plagued the economy for so long. The type of adaptation I have in mind is the one that allows the budget department greater autonomy to learn how to switch on and off approved programs in response to flow of financial resources.

4.2 RECOMMENDATION

To this end therefore, the budget documents (data base) in each year should contain allocation in principle to the departments/ministries for three years ahead including the current financial year.

Such approved figures should not be regarded as approval to commit public funds but of intentions of what may be spent if there is a significant materialization of planning assumptions. While on the part of the government ministries and departments, at budget implementation stage, the emphasis should be on how to adjust budget in the light of available resources so as to eliminate budget deficit and cause have a workable but balanced budget.

Another important point is the need to transfer the

existing government data base from its old and outdated manual operations to a mechanized one. This transformation should include computer based management information system to assist in reasonable system of forecasting to anticipate changes in the economy that are critical to budget implementation.

Another aspect of PPBS that I believe should be of help to us in this period of dwindling economy is its call for us to look at alternative ways of achieving a given objective. As Anthony and Dearden [12] have argued even if the benefit of government expenditure cannot be quantified, a cost benefit analysis is still useful in situations in which there are two or more ways of achieving a given objective.

* PROGRAM TO ADD OIL REVENUE RECORDS

```
SET TALK OFF
SET ECHO OFF
SET STATUS OFF
SET SCOREBOARD OFF
SET DATE BRITISH
USE OILREV INDEX OILREV
NUM=0
DO WHILE .T.
MCODE=0
MOIL = SPACE(20)
QUANTY =SPACE(20)
MAMOUNT = 0
MDATE = CTOD(" / / ")
  DO WHILE .T.
    ENTR=" "
    use oilrev INDEX OILREV
    DO ADDFMT
    READ
    @ 20,29 SAY "ENTRY CONFIRMED?(Y/N)" GET ENTR
    READ
    IF UPPER(ENTR) = "N"
      LOOP
    ELSE
      IF UPPER(ENTR)="Y"
        EXIT
      ENDIF
    ENDIF
  ENDDO
  ENDDO
  APPEND BLANK
  REPLACE OIL WITH MOIL
  REPLACE QUANTITY WITH QUANTY
  REPLACE AMOUNT WITH MAMOUNT
  REPLACE DATE WITH MDATE
  REPLACE CODE WITH MCODE
  NUM=NUM+1
  MORE =" "
  @ 20, 0 CLEAR
  @ 20,30 SAY "ANY MORE ENTRY?(Y/N)" GET MORE
  READ
  if upper(more)="Y"
  loop
  else
  if upper(more)="N"
  exit
  endif
  endif
  ENDDO
  CLEAR
  @12,27 SAY "YOU HAVE ADDED " + LTRIM(STR(NUM)) + " RECORD(S)"
  @ 14,20 SAY "YOU NOW HAVE A TOTAL OF " + STR(RECNO(),3)+" RECORD(S)"
  @ 16,28 SAY "ANY KEY TO EXIT PROGRAM"
  WAIT " "
  CLOSE DATABASES
  SET TALK ON
  SET STATUS ON
```

SET SCOREBOARD ON
RETURN

* PROGRAM TO ADD NON OIL REVENUE RECORDS

```
SET TALK OFF
SET ECHO OFF
SET STATUS OFF
SET SCOREBOARD OFF
USE NOILREV INDEX NOILREV
NUM=0
DO WHILE .T.
  MDATE = CTOD(" / / ")
  MCODE = 0000
  TAX = 0
  CUSTOM = 0
  AGRIC = 0
  MVAT=0
  DO WHILE .T.
    ENTR=" "
    DO ADDNFMT
    READ
    @ 19,29 SAY "ENTRY CONFIRMED?(Y/N)" GET ENTR
    READ
    IF UPPER(ENTR) = "N"
      LOOP
    ELSE
      IF UPPER(ENTR)="Y"
        EXIT
      ENDIF
    ENDIF
  ENDDO
  APPEND BLANK
  REPLACE TAXATION WITH TAX
  REPLACE CUSTOMEX WITH CUSTOM
  REPLACE AGRICEXP WITH AGRIC
  REPLACE VAT WITH MVAT
  REPLACE DATE WITH MDATE
  REPLACE CODE WITH MCODE
  NUM=NUM+1
  MORE =" "
  @ 19, 0 CLEAR
  @ 19,30 SAY "ANY MORE ENTRY?(Y/N)" GET MORE
  READ
  if upper(more)="Y"
    loop
  else
    if upper(more)="N"
      exit
    endif
  endif
ENDDO
CLEAR
@12,27 SAY "YOU HAVE ADDED " + LTRIM(STR(NUM)) + " RECORD(S)"
@ 14,20 SAY "YOU NOW HAVE A TOTAL OF " + STR(RECNO(),3)+" RECORD(S)"
@ 16,28 SAY "ANY KEY TO RETURN TO MENU"
WAIT " "
CLOSE DATABASES
SET TALK ON
SET STATUS ON
```

SET SCOREBOARD ON
RETURN

* PROGRAM TO DELETE OIL REVENUE RECORDS

```
SET TALK OFF
SET ECHO OFF
SET SCOREBOARD OFF
SET STATUS OFF
SET COLOR TO W/B+
YN = .T.
MCODE=0
USE OILREV INDEX OILREV
ENT = .F.
DO WHILE YN
  MCODE=0
  CLEA
  @ 12,20 TO 17,60
  @ 13,22 SAY "OIL REVENUE"
  @ 15,22 SAY "ENTER CODE OF OIL OR (0) TO QUIT:" GET MCODE PICT "9999"
  READ
  IF MCODE =0
EXIT
ENDIF
SEEK MCODE
IF .NOT. FOUND()
  SET COLOR TO R+
  @ 16,22 SAY "NO SUCH TYPE OR WRONG SPELLING"
  SET COLOR TO W/B
  @18,25 SAY "ANY KEY TO CONTINUE"
  WAIT " "
  LOOP
ENDIF
CLEAR
@ 06,20 TO 18,60 double
SET COLOR TO G+
@ 06,28 SAY "OIL REVENUE"
SET COLOR TO W/B+
@ 8,22 SAY "TYPE OF OIL:" + OIL
@ 10,22 SAY "QUANTITY: " + QUANTITY
@12,22 SAY "CODE:" + LTRIM(STR(CODE))
@ 16,42 SAY "DATE: "
@16,48 SAY DATE
ENT = " "
@ 19,20 SAY "DO YOU WANT TO DELETE THIS RECORD?(Y/N)" GET ENT
READ
IF upper(ENT) ="N"
  LOOP
ENDIF
SURE = " "
@ 19,0 CLEAR
@ 19,29 SAY "ARE YOU SURE?(Y/N)" GET SURE
READ
IF UPPER(SURE) = "N"
  LOOP
ELSE
IF UPPER(SURE) = "Y"
DELET
PACK
ENDIF
```

```
ENDIF
CLEA
@12,25 SAY "RECORD DELETED"
@14,25 SAY "ANY MORE RECORD TO DELETE?[Y/N]" GET YN
READ
ENDDO
SET TALK ON
SET STATUS ON
SET SCOREBOARD ON
RETURN
```

```

* PROGRAM TO DELETE NON OIL REVENUE RECORDS
SET TALK OFF
SET ECHO OFF
SET SCOREBOARD OFF
SET STATUS OFF
SET COLOR TO W/B+
YN = .T.
MCODE=0
USE NOILREV INDEX NOILREV
ENT = .F.
DO WHILE YN
  MCODE=0
  CLEA
  @ 12,20 TO 17,65
  @ 13,22 SAY " NON-OIL REVENUE"
  @ 15,22 SAY "ENTER CODE OF ENTRY OR (0) TO QIUT:" GET MCODE PICT "9999"
  READ
  IF MCODE =0
  EXIT
ENDIF
SEEK MCODE
IF.NOT.FOUND()
  SET COLOR TO R+
  @ 16,22 SAY "NO SUCH TYPE OR WRONG SPELLING"
  SET COLOR TO W/B
@18,25 SAY "ANY KEY TO CONTINUE"
  WAIT " "
  LOOP
ENDIF
CLEAR
@6,20 TO 18,65 double
SET COLOR TO G+
@6,28 SAY "NON_OIL REVENUE"
SET COLOR TO W/B+
@8,22 SAY "TAXATION: " + LTRIM(STR(TAXATION))
@ 10,22 SAY "CUSTOM & EXCISE:" + LTRIM(STR(CUSTOMEX))
@ 12,22 SAY "AGRIC EXPORTS:" + LTRIM(STR(AGRICEXP))
@ 14,22 SAY "V A T:" + LTRIM(STR(VAT))
@14,42 SAY "CODE:" + LTRIM(STR(CODE))
@ 16,30 SAY "DATE: "
@16,48 SAY DATE
ENT = " "
@ 19,20 SAY "DO YOU WANT TO DELETE THIS RECORD?(Y/N)" GET ENT
READ
IF(ENT) ="N"
  LOOP
ENDIF
SURE = " "
@ 19,0 CLEAR
@ 19,29 SAY "ARE YOU SURE?(Y/N)" GET SURE
READ
IF UPPER(SURE) = "N"
  LOOP
ELSE
IF UPPER(SURE) = "Y"
DELET

```

PACK
ENDIF
ENDIF
CLEA
@12,25 SAY "RECORD DELETED"
@14,25 SAY "ANY MORE RECORD TO DELETE?[Y/N]" GET YN
READ
ENDDO
SET TALK ON
SET STATUS ON
SET SCOREBOARD ON
RETURN

```

* PROGRAM TO UP DATE OIL REVENUE RECORDS
SET TALK OFF
SET ECHO OFF
SET SCOREBOARD OFF
SET STATUS OFF
SET COLOR TO W/B+
YN = .T.
USE OILREV INDEX OILREV
ENT = " "
DO WHILE YN
MCODE = 0
CLEAR
  @ 12,20 TO 17,60 DOUBLE
  @ 13,22 SAY "OIL REVENUE"
  @ 15,22 SAY "ENTER CODE OF OIL:" GET MCODE PICT "9999"
  READ
  SEEK MCODE
  IF .NOT.FOUND()
    SET COLOR TO R+
    @ 16,22 SAY "NO SUCH TYPE OR WRONG SPELLING"
    SET COLOR TO W/B
    @ 18,25 SAY "ANY KEY TO CONTINUE"
    WAIT " "
    LOOP
  ENDIF
  CLEAR
  @ 06,20 TO 18,60 DOUBLE
  SET COLOR TO G+
  @ 5,32 SAY "OIL REVENUE"
  SET COLOR TO W/B+
  DO WHILE .T.
    @ 10,22 SAY "TYPE OF OIL:" GET OIL
    @ 12,22 SAY "QUANTITY" GET QUANTITY
    @ 14,22 SAY "DATE:" GET DATE
    READ
    ENT = " "
    @ 19,29 SAY "ENTRY CONFIRMED?(Y/N)" GET ENT
    READ
    IF UPPER(ENT) = "N"
      LOOP
    ELSE
      IF UPPER(ENT) = "Y"
        EXIT
      ENDIF
    ENDIF
  ENDDO
  @ 19,0 CLEAR
  @ 19,27 SAY "ANY MORE RECORD TO EDIT?(Y/N)" GET YN
  READ
  ENDDO
  SET TALK ON
  SET STATUS ON
  SET SCOREBOARD ON
  RETURN

```

```

* PROGRAM TO UP DATE NON OIL REVENUE RECORDS
SET TALK OFF
SET ECHO OFF
SET SCOREBOARD OFF
SET STATUS OFF
SET COLOR TO W/B+
YN = .T.
USE NOILREV INDEX NOILREV
ENT = " "
DO WHILE YN
MCODE = 0
CLEAR
  @ 12,20 TO 17,60 DOUBLE
  @ 13,22 SAY "NON-OIL REVENUE"
  @ 15,22 SAY "ENTER CODE OF ENTRY:" GET MCODE PICT "9999"
  READ
SEEK MCODE
IF .NOT.FOUND()
  SET COLOR TO R+
  @ 16,22 SAY "NO SUCH TYPE OR WRONG SPELLING"
  SET COLOR TO W/B
  @ 18,25 SAY "ANY KEY TO CONTINUE"
  WAIT " "
  LOOP
ENDIF
CLEAR
@ 06,20 TO 20,60 DOUBLE
SET COLOR TO G+
@5,32 SAY "NON-OIL REVENUE"
SET COLOR TO W/B+
DO WHILE .T.
  @ 10,22 SAY "CUSTOM AND EXERCISE DUTY:" GET CUSTOMEX
  @ 12,22 SAY "AGRICULTURAL EXPORT:" GET AGRICEXP
  @ 14,22 SAY "TAXATION:" GET TAXATION
  @ 16,22 SAY "V A T:" GET VAT
  @ 18,22 SAY "DATE:" GET DATE
  @18,42 SAY "CODE:" GET CODE
  READ
  ENT = " "
  @ 21,29 SAY "ENTRY CONFIRMED?(Y/N)" GET ENT
  READ
  IF UPPER(ENT) = "N"
  LOOP
  ELSE
  IF UPPER(ENT)="Y"
  EXIT
  ENDIF
  ENDDO
  @ 21,0 CLEAR
  @ 21,27 SAY "ANY MORE RECORD TO EDIT?(Y/N)" GET YN
  READ
  ENDDO
SET TALK ON
SET STATUS ON
SET SCOREBOARD ON
RETURN

```

* PROGRAM TO ALLOCATE REVENUE TO MINISTRIES

```
set TALK OFF
SET ECHO OFF
SET STATUS OFF
MORE = .T.
DO WHILE MORE
RIGHT= " "
EDUCATE=0
FINANCE =0
AGRIC =0
TRANSP =0
YOUTH =0
WORK =0
HEALTHY =0
CAPRO =0
MISCELL =0
SAVEMERG =0
TOTALS =0
YEA =0
SELE 1
USE OILREV
SELE 2
USE NOILREV
DO WHILE .T.
SELE 2
YEA=0
RIGHT= " "
CLEA
@ 4,10 TO 19,70 DOUBLE
@ 4,31 SAY "REVENUE ALLOCATION"
@ 6,12 SAY "EDUCATION:" GET EDUCATE PICT "99.99"
@ 8,12 SAY "FINANCE:" GET FINANCE PICT "99.99"
@10,12 SAY "AGRICULTURE:" GET AGRIC PICT "99.99"
@12,12 SAY "TRANSPORT & AVIATION:" GET TRANSP PICT "99.99"
@14,12 SAY "YOUTH, SPORTS & CULTURE" GET YOUTH PICT "99.99"
@16,14 SAY "WORKS:" GET WORK PICT "99.99"
@ 6,42 SAY "HEALTH:" GET HEALTHY PICT "99.99"
@ 8,42 SAY "CAPITAL PROJECT" GET CAPRO PICT "99.99"
@10,42 SAY "MISCELLANOUS:" GET MISCELL PICT "99.99"
@12,42 SAY "SAVINGS AND EMERGENCY" GET SAVEMERG PICT "99.99"
@16,42 SAY "YEAR" GET YEA PICT "9999"
READ
PERS=EDUCATE+FINANCE+AGRIC+TRANSP+YOUTH+WORK+HEALTHY+CAPRO+MISCELL+SAV
SUM TAXATION TO T1
SUM CUSTOMEX TO T2
SUM AGRICEXP TO T3
SUM VAT TO T4
SELE 1
SUM AMOUNT TO T5
TOTALS=T1+T2+T3+T4+T5
CLEA
@2,20 SAY "BUDGET ALLOCATION FOR " + LTRIM(STR(YEA,4))
@3,20 TO 3,45
@6,38 TO 20,38
@6,53 TO 20,53
@5,20 TO 5,52
```

```

@7,12 TO 7,70
@4,20 SAY "AMOUNT ACURABLE TO GOVERNMENT = "
@4,52 SAY TOTALS
@6,12 SAY "DEPARTMENT"
@6,40 SAY "PERCENTAGE"
@6,60 SAY " AMOUNT"
@8,10 SAY "EDUCATION:"
@8,42 SAY EDUCATE
@8,55 SAY EDUCATE/100*TOTALS PICT "9999999999.99"
@9,10 SAY "FINANCE:"
@9,55 SAY FINANCE/100*TOTALS PICT "9999999999.99"
@9,42 SAY FINANCE
@10,10 SAY "AGRICULTURE:"
@10,55 SAY AGRIC/100*TOTALS PICT "9999999999.99"
@10,42 SAY AGRIC
@11,10 SAY "TRANSPORT & AVIATION:"
@11,55 SAY TRANSP/100*TOTALS PICT "9999999999.99"
@11,42 SAY TRANSP
@12,10 SAY "YOUTH, SPORTS & CULTURE:"
@12,55 SAY YOUTH/100*TOTALS PICT "9999999999.99"
@12,42 SAY YOUTH
@13,10 SAY "WORKS:"
@13,55 SAY WORK/100*TOTALS PICT "9999999999.99"
@13,42 SAY WORK
@14,10 SAY "HEALTH:"
@14,55 SAY HEALTHY/100*TOTALS PICT "9999999999.99"
@14,42 SAY HEALTHY
@15,10 SAY "CAPITAL PROJECT:"
@15,55 SAY CAPRO/100*TOTALS PICT "9999999999.99"
@15,42 SAY CAPRO
@16,10 SAY "MISCELLENOUS:"
@16,55 SAY MISCELL/100*TOTALS PICT "9999999999.99"
@16,42 SAY MISCELL
@17,10 SAY "SAVINGS & EMERGENCY:"
@17,55 SAY SAVEMERG/100*TOTALS PICT "9999999999.99"
@17,42 SAY SAVEMERG
@18,12 SAY "TOTAL % = "
@18,35 SAY PERS
@20,25 SAY "IS ALLOCATION ALL RIGHT?(Y/N)" GET RIGHT
READ
IF UPPER(RIGHT)="N"
LOOP
ELSE
IF UPPER(RIGHT)="Y"
EXIT
ENDI
ENDIF
ENDDO
SET TALK ON
SET STATUS ON
RETURN

```

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