# COMPUTER BASED CENSUS MANAGEMENT SYSTEM

**A CASESTUDY OF**

**NATIONAL POPULATION COMMISSION (NPC)**

**BY**

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## APPROVAL PAGE

This is to certify that this work carried out under the supervision of Mr. Tochukwu Umesiegbu has been read and accepted as meeting the requirement for the Award of Bachelor's degree in Computer Science & Information Technology at Caritas University Amorji Nike, Enugu State.

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This is to certify that Ugwu Valentine .C. carried out this project. The research work has not been submitted elsewhere for the award of a degree.

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*Cst/t/2010/444*

## DEDICATION

This project is dedicated to Mother Mary, the very mother of Jesus Christ who is God the son, to God Almighty who made every provision possible for us to attain this academic level.

## ACKNOWLEDGEMENT

We wish to thank God Almighty for His mercy and protection on us from the time of birth through this academic journey.

We are most grateful to my father PROF .S, O.UGWU and Brothers who through their efforts we have finally graduated from this University.

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We will never forget our able head of department, Dr. Arinze Nwaeze, who would always give students the conducive environment to carry out their projects and academic activities successfully. May God reword u?

Our immense gratitude goes to our lecturer Mr. Ejike ugwu who has been our academic adviser from time and helped us a lot even in the project.

Finally, we will not forget to show our sincere appreciation to our colleagues and friends who in one way or the other contributed to our academic pursuit and also for their immense support and contribution to the completion of this project.

## ABSTRACT

The researcher chose to research on this topic “Computer Based Census Management System” because of its relevance to the society. Meanwhile, the manual method so far has its attendant problem of being tedious. The researcher, in order to solve this time consuming, monotonous, and repetitive manual census activities went into a thorough study of the existing system. In the report proper, the Structured System Analysis and Design Methodology (SSADM) was adopted and explained. The high level model of the proposed system was also designed and displayed in a format easily understandable to the user. The high level model of the proposed system was designed architecturally and detailed designed through its separate components. There were four modules in all, each taking care of specific function like: the staff management module that maintains records about the staff; the department management module manages information about departments in the commission; the register person, the register states, and the register LGA modules that do the actual registration of individuals. Finally, the parallel change over methodology was adopted to enable the commission compare the results of the two systems (old and new) before implementation.

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# CHAPTER ONE

## INTRODUCTION

Census has been a reliable exercise from time, from where government rely for decision-making, and aids for administration and planning. According to Robert M. Groves, (2010) Director of the United States Census Bureau;

> "Just like we cannot survive without roads and bridges, the country does not function well without an updated census to distribute funds to areas that most need them and to support community decisions and their own future."

The increasing complexity of modern life means a greater need to plan housing, schools, roads, transportation, and a vast range of social and economic requirement for nation. This cannot be done without a detailed count of the population. Census is being officially managed by some organizations or government, for example the National Population Commission (NPC).

The installation of computer in these organizations or bodies that manages census information will assist not only in fast-recording information but also in solving certain problems, which cannot be easily resolved manually. The human resource of any enterprises are considered to be their most valuable assets, if they are properly harnessed and are well motivated to perform their assigned tasks in such a manner as to enhance the enterprises goals and objectives.

Therefore, adequate population records will provide all the necessary information that is associated with people, which include the size of the population, age structure, educational attainment, labour force and socio-economic characteristics, unlike in the manual method which makes access to data and information very tedious. The integration of different databases so that these databases can be merged and processed together and mainly other reasons, prompted the researcher to develop software for this organization, National Population Commission (NPC).

## 1.1 Background of the study

Census taking in Nigeria can be traced to have started from as far back as 1966 after the colonization of Lagos by our colonial masters. Since then, there have been several attempts to count Nigeria population. However, these censuses are characterized by some difficulties and deliberate and ill-minded attempts to inflate population figures; just in favour of one geopolitical zone or the other. This does not and cannot represent the nation's image as regards to human population. As a result of this, the National Population Commission (NPC) was established using the Decree No. 23 of 1989. The brain behind this was to have successful censuses each time and as well accurate demographic data. It is no doubt that this Commission (NPC) was vested with a lot of powers and functions some of which are;

- To undertake the periodic enumeration of the nation's population through census, sample surveys, etc.
- To establish and maintain the machinery for continuous and universal registration of births and deaths
- To collect, collate and publish data on migration statistics
- To reach and monitor national population polity and set up national population information data bank.

Unfortunately, Nigeria still relies on foreign statistics population information data bank for most of their population estimation.

## 1.2 Statement of the problem

There are many problems affecting the National Population Commission from maintaining a steady reliable figures and estimates. These are the more reasons, why the researcher embarked on this research;

- inadequate manpower

- lack of equipments
- poor organisation
- unstable polity
- manual bulk carrying of data

### 1.3 Objectives of the Study

The objectives of this study are summarized as follows:

- To develop computerized software that automatically stores and retrieves all information on human population.
- To develop a reliable system that could be used in collecting data/information on human population.
- To develop a system that will support direct access to the specific and required information

### 1.4 Significant of the Project

- The system will solve problem associated with the acquisition, storage, and retrieval of information on human population with ease.
- A timely retrieval of information is anticipated with efficiency and reliability.
- It will provide security to data that are unauthorized, users will not gain access to those files and fraud will be minimized in the society which will lead to improvement in administration processes.

### 1.5 Scope of the Project

The major aim of the project is to design a system that will have all information about human population and retrieving of data when ever needed in the society. It focuses on the registration, retrieval and management of information about individuals in the society.

### 1.6 Limitation of Study

During the course of this study, many things militated against its completion, some of which are;

- Lack of finance

- Refusal of the National Population Commission Awka, to give detailed answers and in some cases no answer at all to some questions

- This project is limited to all the data associated with census population figure gotten from the National Population Commission.
- Due to time factor, not all the commissions were reached for source of data and information.

**1.7 Definition of terms**

- DEMOGRAPHY: Demography is the scientific study of the changing number of births, deaths, diseases, etc in a community over a period of time.
- POPULATION: Population is the total number of people living in a particular area, city or country.
- CENSUS: A census is the procedure of systematically acquiring and recording information about the members of a given population.
- ENUMERATION: Enumeration is the head to head count of all individuals in a given society within a period of time.
- MIGRATION: Migration is the act of moving from one region or country to another. It is the movement of a group of people, births, or other animals that move in group from one region to another.
- ESTIMATION: Estimation is the act of making an approximate calculation of something.
- PROJECTION: Projection is an estimate of the rate or amount something.

# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

## 2.0 Introduction

According to Oxford Advance Learner's Dictionary of the contemporary English, census may be defined as the process of officially counting something, especially a country's population and recording various facts. Population is the major concern in the census conduct. More so, the Government of these days seems to realize that they cannot function well without the knowledge, at least to some degree of accuracy, of the nation's population figure. Knowing the population figure means more than what the statement conveys. For instance, J.G. Ottong (1983) spoke of population thus;

> "In the contemporary society, population has become an important issue of concern. This is because population, in terms of its size and composition, has far-reaching implications for change, development and the quality of life in society".

The primary objective of the census results is to assist the country in knowing as accurately and reliably as is possible within the constraints the population size, its composition and distribution. The population figures and characteristic arising out of census help the country to meet its developmental, administrative and political needs and provide inputs while planning for improving the quality of life of our countrymen.

According to the National Bereau of Statistics, NBS, (2009) over the years, increasing interest is being focused on the better measurement of social goals and in assessing the impact of economic growth and distribution of resources across the three tiers of government: the economic and social growth of a nation may be determined by its demographic variables such as the structure of the population.

The population of a nation alongside with its demographic variables is very crucial in the nation's improvement and development. Developing countries like Nigeria can boast of their good administration without periodic censuses taking every ten years.

These censuses must be free of fraudulent practices so as to have accurate figures that represent the nation's image in all aspect.

## 2.1 History of census in Nigeria

Although numerous estimates of the Nigerian population were made during the colonial period, the first attempt at a nationwide census was during 1952-53. This attempt yielded a total population figure of 31.6 million within the current boundaries of the country. This census has usually been considered an undercount for a number of reasons: apprehension that the census was related to tax collection; political tension at the time in eastern Nigeria; logistical difficulties in reaching many remote areas; and inadequate training of enumerators in some areas. The extent of undercounting has been estimated at 10 percent or less, although accuracy probably varied among the regions. Despite its difficulties, the 1952-53 censuses have generally been seen as less problematic than any of its successors.

Subsequent attempts to conduct a reliable post independence census have been mired in controversy, and only one was officially accepted. The first attempt, in mid-1962, was canceled after much controversy and allegations of over-counting in many areas. A second attempt in 1963, which was officially accepted, also was encumbered with charges of inaccuracy and manipulation for regional and local political purposes. Indeed, the official 1963 figure of 55.6 million as total national population is inconsistent with the census of a decade earlier because it implies a virtually impossible annual growth rate of 5.8 percent. In addition to likely inflation of the aggregate figure, significant intraregional anomalies emerge from a close comparison of the 1953 and 1963 figures. In portions of the southeast, for example, the two sets of data imply that some nonurban local government areas (LGAs) had increased at a rate of almost 13 percent per year, while other neighboring areas experienced a minute growth rate of 0.5 percent per year. Despite the controversy, the results of the 1963 census were eventually accepted.

After the civil war of 1967-70, an attempt was made to hold a census in 1973, but the results were canceled in the face of repeated controversy. No subsequent nationwide census had been held as of 1990, although there have been various attempts to derive

population estimates at a state or local level. Most official national population estimates are based on projections from the 1963 census.

The great improvements in transport and accessibility of most areas, in technological capability, and in the level of education throughout the country, as well as the generalized acceptance of national coherence and legitimacy, favored the success of the fall 1991 census. It was to be conducted in about 250,000 enumeration areas by the National Population Commission, with offices in each of the country's LGAs. To reduce possible controversy, religious and ethnic identification would be excluded from the census forms, and verification of state results would be handled by supervisors from outside the state. Some analysts believe that the effort to carry out a reliable census with perceived legitimacy might become an unexpectedly positive exercise, reinforcing a sense of shared nationhood and providing a model for the attempt to overcome regional and ethnic differences. Provisional results of the 2006 census in Nigeria show that Kano in the north is Nigeria's most populous state (9.4 million), followed by Lagos (9.0 million) in the south. Northern states account for 75 million people, while the southern states are home to 65 million. The total population was 140 million.

### 2.2 Processes involved in census operation

Census operation involves a method of collecting data whereby all the data from each and every member of the population is collected.

For example, when you collect the ages of all the students in a given class, you are using the census data collection method since you are including all the members of the population (which is the class in this case).

This method of data collection is very expensive (tedious, time consuming) if the number of elements (population size) is very large. To understand the scope of how expensive it is, think of trying to count all the ten year old boys in the country. That would take a lot of time and resources, which you may not have. However the entire nation is organized into some smaller groups and a lot of processes are taken to ensure that every individual is involved.

While the term Census is generally taken to mean counting the country's population and the recording of certain characteristics at a particular point in time, several distinct operations have to be completed before a picture of the population can be presented.

In the first place, plans must be drawn up outlining what information is to be collected, how it is to be recorded and how the findings are to be presented. After these have been settled, the next step is to organize the collection of the data in the field under careful supervision.

The country is divided into small areas called Enumeration Districts (EDs) and an interviewer is assigned to each. The interviewer is thoroughly trained to ensure that he/she fully understands what questions are to be asked and how to record the answers quickly and correctly on the questionnaires provided. About three weeks before Census day, preliminary enumeration begins. During that period, the interviewer will visit all buildings in his /her ED and record information on the Visitation Record. The actual enumeration begins on Census Day when all enumerators will visit every dwelling unit in all buildings and record the information given on the questionnaires. Therefore, if the quality of enumeration is good, the final tables which will be published will also be of good quality and usable for policy formation.

A field supervisor is placed in charge of a number of interviewers to monitor their work and to attend to any problems which may arise while the field work is being done. He/she also acts as a link between interviewers and the Census Office.

At the Census Office, the completed questionnaires are checked, coded where necessary, and made ready for processing by computers which are programmed to provide statistical tables for publication. The information on the questionnaires is that of the population, therefore this project will not be complete if, to some extent, population and population information are not explained.

## 2.3 Census (population) information

A **census** is the procedure of systematically acquiring and recording information about the members of a given population. It is a regularly occurring and official count of a particular population. The term is used mostly in connection with national population and housing censuses; other common censuses include agriculture, business, and traffic censuses. In the latter cases the elements of the 'population' are farms, businesses, and so forth, rather than people. In this research, however, we are dealing with the census whose elements of population is the people. Therefore it is necessary to explain population and formulars in population dynamics.

### 2.3.1 Population

Population can be defined as the total of people who live in an area, a city, a country, etc; a particular group or type of people or animals living in an area; and or the total number of people living somewhere. Often, there is a sharp increase or decrease of the population of a people, which can be as a result of fertility or war outbreak, epidemics, disaster, etc., respectively.

### 2.3.2 Population Growth and Decline

Nevertheless, the difference between the number of births and deaths occurring in a giving period of time is the **natural population growth**. This natural increase excludes changes in a population size due to migration values currently affecting some developing countries are reported in the last two columns of table1 (Below). The table shows that for most of the selected countries, the crude birth rate is stationary or decreasing. The pattern suggests that natural population growth in the regions have probably been related more to a decrease of mortality (in the early days of life) than to an increase in natality and fertility. In the 1990s, this trend has reversed in some countries due to HIV/AIDS, e.g. in Uganda where the average life expectancy from birth has now dropped into the mid-40s (PRB, 1996). A negative rate of population growth (natural decline in population size in population sometimes called a ‘negative increase’), occurs when the number of deaths exceeds that of births. This category of ‘natural’ population decline is separate from changes in population numbers due to migration or displacement. As human population in developing world generally tends towards increasing size, negative rate of population growth are often the result of the

natural or man-made disasters. For example, Wolf (1982) spoke of the decrease of a particular group of people's population after a conquest thus; "A primary cause of the deaths and population decline was spread of Old World pathogenic organisms to which the new world populations had not yet developed some immunological defenses". There were as many as 14 major epidemics in Mesoamerican Coast, malaria (probably introduced by mosquitoes) traveling on the ships of Spanish merchants and soldiers from Italy, caused regional havoc and then spread through the tropical lowlands".

Whatever the baseline figure, the combined effects of 'new' diseases and colonized catastrophically decimated the population. Also some population declines have been linked with severe environmental degradation, genocide (the international destruction of a given population, often on the basis of ethnic hatred). For instance, in 1993, in the industrial and affluent communities in some developed countries (areas of northern and central Italy), the balance between births and deaths was negative, i.e. approximately minus 78,000. This trend seemed to be related to both economic and behavioral factors, as well as to the wide availability of family planning services.

According to Solinas (1992), the desired pattern of consumption and the cost of living require a level of income, which can only be if both the husband and wife have full-time jobs. In fact the socio-economic living and child rearing has greatly increase in the few decades. As a consequence, fertility is no longer a way to gain social status, and parenthood is no longer as a basic condition of adult life as most couples feel comfortable with just one child; while others completely ignore the biological and physiological drive towards reproduction and renounce parenthood.

Table1: POPULATION GROWTH

| Country | Under-5 Mortality rate | | Crude Death rate | | Crude Birth rate | | Annual Growth rate | |
|---|---|---|---|---|---|---|---|---|
| Year | 1990 | 1994 | 1960 | 1994 | 1960 | 1994 | 1994 | 1960 |
| Very High U5MR Countries (over 140) | | | | | | | | |
| Niger | 320 | 320 | 29 | 19 | 54 | 53 | 2.5 | 3.4 |
| Somalia | 294 | 211 | 28 | 19 | 50 | 50 | 2.2 | 3.1 |
| Liberia | 288 | 217 | 25 | 14 | 50 | 47 | 2.5 | 3.3 |
| Tanzania | 249 | 157 | 23 | 14 | 51 | 43 | 2.8 | 2.9 |
| Nigeria | 204 | 191 | 24 | 16 | 52 | 45 | 2.8 | 2.9 |
| Gabon | 287 | 151 | 24 | 16 | 31 | 37 | 0.7 | 2.1 |
| Uganda | 218 | 185 | 21 | 19 | 50 | 52 | 2.9 | 3.3 |
| Pakistan | 221 | 137 | 23 | 9 | 49 | 41 | 2.7 | 3.4 |
| High U5MR Countries (over 140) | | | | | | | | |
| Kenya | 202 | 90 | 22 | 12 | 53 | 45 | 3.1 | 3.3 |
| Nicaragua | 209 | 68 | 19 | 7 | 51 | 41 | 3.2 | 3.4 |
| Iraq | 171 | 71 | 20 | 7 | 49 | 38 | 2.9 | 3.1 |
| Zimbabwe | 181 | 81 | 20 | 12 | 53 | 39 | 3.3 | 2.7 |

**Calculated on the basis of crude birth and death rate. Source: UNICEF, 1996**.

### 2.4 Population Density

The concentration or dispersal of people in an area, which determines the relationship between a population and territorial growth, is commonly referred to as "Population Density". It is measured as the number of residents per unit area of land surface. The population density (people per sq. km) in Nigeria was reported at165.4, according to a World Bank report released in 2011 and there is an increase in density in the just last calculated Nigerian density as can be seen in table 2 below.

Table 2 POPULATIONS AND POPULATION DENSITY

| | **Previous** | **Last** |
|---|---|---|
| Population density (people per sq. km ) in Nigeria | 161.4 | 165.4 |
| Population in largest city in Nigeria | 9466458.0 | 9831147.0 |
| Population in the largest city (%of urban population) | 13.5 | 13.5 |
| Population in urban agglomerations of more than (%of total population) in Nigeria | 14.6 | 14.7 |
| Rural population growth (annual%) in Nigeria | 21413926.0 | 22186169.0 |
| Rural population (% of total population) in Nigeria | 1.1 | 1.1 |
| Rural population in Nigeria | 52.4 | 51.6 |
| Urban population growth (annual %) in Nigeria | 76943793.4 | 77803783.0 |
| Urban population (% of total) in Nigeria | 4.0 | 4.0 |
| Rural population in Nigeria | 47.6 | 48.4 |
| Urban population in Nigeria | 70007683.6 | 72861947.0 |

**World bank indicators-nigeria-density&urbanisation**

#### 2.4.1 Sex ratio

This is an indicator of the sex distribution of the population. It is defined as the number of men per 100 women. If it is 100, it means that there are more women than men in the population; if it is over100, it means that there are more men than women. While when it drops below 90, it is often an indicator of very high male out-migration. A sex ratio value between 90 and 100 is considered demographically 'normal' or typical of an

undistributed population. However, values lower than 90 or higher than 110 suggest that some factors (such as gender-specific labour migration or war and the death of young males) are affecting the distribution of the population under consideration.

The following represent the sex ratios of Nigeria population as at 2011;

Table 3 POPULATION SEX RATIOS

| | |
|---|---|
| AT BIRTH | 1.06male(s)female |
| UNDER15 YEARS | 1.05male(s)/female |
| 15-64 YEARS | 1.04male9s)/female |
| 65 YEARS AND ABOVE | 0.94male(s)/female |
| TOTAL POPULATION | 1.04male(s)/female |

**Nigeria Demographics Profile 2012**

According to the table above, the total sex ratio (both people at birth, less than 15 years, 15-64 years, and people under 65 years and above) is rated as1.04 male(s) per female. By percentage ratio, it is 104, and then Nigerian population can be seen to be demographically 'normal'.

**2.5 Human Population Growth Limitation**

Although world human population considered in aggregate is growing exponentially, not all human populations are growing at the same rate.

Per capita growth rates (r) and exponential doubling times vary widely among different countries and regions. Current population size alone is not a good predictor of doubling time, nor is population density. The data given below are from 1993, population sizes are in millions, fertility rate is the average number of children per woman. Replacement fertility is 2.10.

Table 4: POPULATION, FERTILITY RATE, AND DOUBLE TIME OF SOME COUNTRIES

| Country | Population | Fertility Rate ($R_o$) | Doubling Time | r |
|---|---|---|---|---|
| Germany | 81 | 1.40 | -654 | -0.0011 |
| Japan | 125 | 1.50 | 217 | 0.0032 |
| United States | 258 | 2.00 | 92 | 0.0075 |
| China | 1178 | 1.90 | 60 | 0.0115 |
| Mexico | 90 | 3.40 | 30 | 0.0231 |
| Philippines | 65 | 4.10 | 28 | 0.0248 |
| Iran | 63 | 6.60 | 20 | 0.0347 |
| Nigeria | 95 | 6.60 | 23 | 0.0301 |

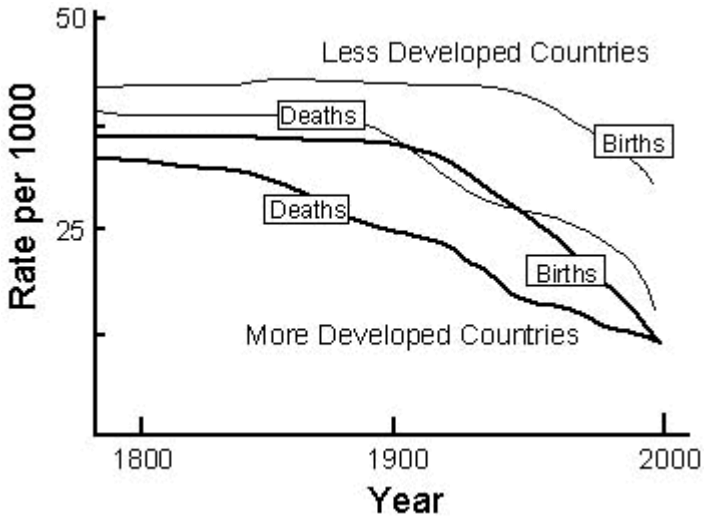
**(data source: Worldwatch Database. Worldwatch Institute, 1996)**

Countries that presently have relatively low fertility rates (<= 2.00) and relatively small annual rates of growth (<= 1%) did not previously exhibit such slow growth characteristics. The process of change from rapid population growth to slow population growth, in human populations, is called demographic transition.

Demographic transition is the process of change from populations with both high birth and death rates (that are at or near equilibrium) to a situation in which both birth and death rates are low (and at or near equilibrium).

Historically, the process of demographic transition involves an initial drop in death rates followed by a later drop in birth rates. The disparity between birth and death rates during transition results in a period of very rapid population growth. All presently industrialized countries (economically developed or more developed countries) have gone through demographic transition, and all other countries (less developed, area

marked by the boxes on the graph) are presently in the transition (rapid growth) phase of demographic transition (after Keyfitz, 1990, p 67, Fig. 6.5).




Causes for decreases in death rate:

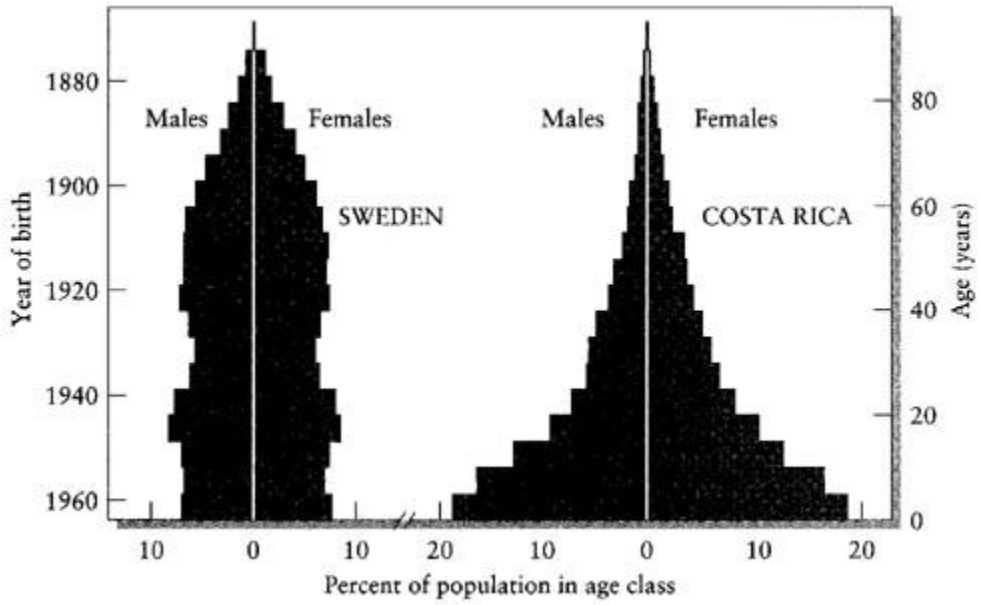
- nutrition improvement
- public health sanitation (water and sewage) improvements
- medical advances

Causes for decreases in birth rate:

- socioeconomic change, economic development, industrialization
- government commitment to family planning (contraception) increases infant mortality decreases
- social status of women increases
- education opportunities for women increase

Humans exhibit Type I survivorship, this means that most mortality occurs late in life, after reproduction. Mortality that follows reproduction may have relatively little effect on absolute population growth rates, so even high death rates (or poor life expectancy) compared to industrialized countries have little effect on population growth if birth rates are also high.

High birth rate (rapid population growth, less developed) countries typically have a broader based age structure pyramid than do low birth rate (slow population growth, industrialized) countries (Ricklefs, 1996, p 332, Fig. 15.5).




The skew toward younger (pre-reproductive) age classes in the age structure of less developed countries makes absolute population growth continue even as individual fecundity is decreasing. Similarly, large population size makes it possible for absolute population growth to occur even if the per capita rate of growth is near zero.

Although, all human populations are changing toward equilibrium, the absolute population growth that will occur could exceed the carrying capacity of earth for humans.

**2.6 Population and People's Culture**

In some Third World/Developing countries, high numbers of offspring are encouraged. In fact, ethnic and peasant groups worldwide set a high value on fertility. For example, among the Akan of Ghana, a woman who gives birth to ten children is rewarded with "the tenth-child sheep", so that she would not stop at the seventh, eighth, or ninth child.

Throughout history, the high fertility of human beings has been balanced by both natural and cultural control. Natural controls include biological determinants of natural

fertility, such as women's monthly menstrual cycles, their nutritional status, and infectious or degenerative diseases. Meanwhile, cultures which broadly includes clusters of shared values and behavior, controls fertility through practices related to conception, as well as to the care of fertile and pregnant women, infants and children. Cultural controls affect population dynamics in two ways:

a. By determining and shaping behaviours that result in the reduction of women's natural potential for fertility, e.g. late age of age of marriage and birth, prolonged breast feeding, prolonged separation of parents after a birth, use of family planning methods, etc.
b. By defining the sets of values, beliefs and specific attitudes that influence the context of reproduction and parenting, e.g. perceptions of the best age to start parenting stigmatizing new pregnancies that occur when the previous child is still breastfeeding, giving special names to persons who bear twins or triplets, etc.

According to Short (1984), researches have shown that under favourable conditions, prolonged breastfeeding can result in birth-spacing intervals of three or more years, with reliability comparable to modern medical and chemical contraceptives. The way in which women are physically treated can raise and lower the age of the first menstruation, lengthen or reduce the period of adolescent sterility, increase or decrease the frequency of amenorrhea, and hasten or retard the upper limit of the fertility age (Harris and Ross, 1987).

Also, variation in nutritional intake, physical workload and harsh living conditions may decrease fertility an increase the risk of natural abortion, maternal mortality and infant mortality (Bongaarts, 1982; Hamilton et al, 1984).

Overemphasis on modern methods can also lead to discounting traditional values in the community (Mamdami, 1972). A good method of assessing the effects of any international change in population control-related behaviours in a community is to measure **birth intervals-** i.e average period of time between consecutive births amongs those women who are having children in the community. This can be a very sensitive measure at local levels, able to show changes rapidly and inexpensively.

Intrauterine death and spontaneous abortion are high among human females, i.e. up to 25 percent of pregnancies during the first month (MacCormack, 1982). Although pattern is partly due to natural anatomical physiological factors, such a high abortion rate cannot be explained without taking into account the effects of harmful cultural practices. Among such behaviours are not reducing the workload of women pregnancy or not providing them with a high quality diet. Additionally, international abortions (by mechanical or chemical means) are practiced in many cultures as a child-spacing device (Devereux, 1976). The impact of these practices may reach far beyond the direct effects on the new life- unsafe abortion's fertility.

More or less deliberate 'infanticide' has also been widely reported in historical and anthropological literature. In addition to direct killing, at least five other forms of infanticides behavior occur in several cultures: placing an infant dangerous situation; abandonment with little chance of survival; negligence resulting in accidents; excessive physical punishment; and lowered biological support (Scrimshaw, 1983). And, not only infants, but also children are victims of direct or indirect of homicide (Dickemann, 1984).

**2.7 Database management system (DBMS)**

Since the census management system is all about the integration of different database so that different database can be merged and processed together; then it is necessary to explain briefly the database management system. Before we say what DBMS is, the researcher will have to define database.

A database as defined by Ashtontate, (1988), is an organized set of related data designed to meet the information needs of an organization to avoid duplication of data and permit retrieval of information. The term database management system (DBMS), Fred, R. MedFadden, (1988) is defined as the systematic organization and management of a large collection of information in a large computer. A DBMS is software that creates, manages, protects and provides complex software packages that are written in programming languages like java, visual basic, COBOL, FORTRAN, dBase. A DBMS can give user relatively power commands without having to be introduced by a programmer or some technically proficient computer intermediary. The DBMS

provides users, with a set of language commands, for the explicit purpose of accessing information from the database.

### 2.8 Importance of census

To meet its goal of being the leading source of data about our nation and its people, the Census including the population and housing census every 10 years and the economic census every five years; the need is as follows;

a) Representation

Once the population dynamics are known for regions and states, this information is used to adjust government representation of the citizens. It is used to determine the number of seats in the House of Representatives, and draw legislative district and school district boundaries.

b) Community Programs

The census takes an accounting of the economics, homeless population, the elderly population, school-age population and the growth of a region. This allows the federal government to distribute billions of dollars in funds for community programs, such as job training, or homeless programs that are needed in each region.

c) Genealogy Information

With each census a record has been kept of every respondent's name, age at the time and where a person was born. This has created a wealth of information that can be used by anyone researching their family's ancestry as far back as the 1900s.

d) Historical Documentation

The census' collection of information records the changes the Federal Republic of Nigeria has gone through since 1900s. The information on the economy, movement of population and industry changes, illustrate "the changing values and interests of the Nigeria people" and is a significant source of historical information.

## 2.9 Benefits of computer-based census management system

Trends across the world show a growing demand for computer-based information systems for business-oriented organizations (Nyandiere, 2007). In addition, industry, non-profit organization, government agencies and organizations whether business-oriented or not cannot boast of anything standard without one form of information system or the other. Otherwise they will be many years backward and cannot meet up with challenges of the modern development and settings.

There is no doubt that the increasing demand for information systems is as a result of the benefits of those systems. Computer-based census management system as one out of the so many information systems and as a sub-class of information systems must inherit some of those attributes benefits. However, the benefits of the system will be explained with respect to the organization and Nigeria at large.

The benefits of a computer based census management systems are clear to see, and there are many advantages. The most obvious of these are the time taken to access files, confidentiality, and the space needed to store information.

- **Time taken to access files**

A computer based census system is far superior to a manual system when it comes to accessing files, as the speed at which this can be done is far quicker. If an individual's records are needed, these can be accessed in a matter of seconds, simply by searching for the relevant person on screen. All the information needed can be stored on a single file, as opposed to having reams of paper and various files for each individual and/or staff that would require sifting through to access in a manual census management system.

- **Confidentiality**

Files kept on a computer based census management system can be password protected, so that only the authorized people can view the files. In a manual census management system, the only way to keep files confidential would be in a locked cabinet. The speed at which these files can be accessed is far quicker even when using a password protection system on a computer.

- **Space needed**

All files can be kept on computer, taking up far less space, than having to house filing cabinets, shelves and drawers to keep track of paperwork. A computer census system for example would house all staff information, population information, department information, and report details in small files on the computer, whereas in a manual system the information would be needed to be kept in separate files in a certain order, for them to be easily accessible.

- **Data Centrality**

These systems provide fast, centralized access to databases of personnel and population information. Access to data when those computers are networked is central, providing a "one-stop" location to find and access pertinent computer data. As it is the case, the system makes use of central database to manage population demographic information, store product information and keep track of individual's records.

- **Information Coverage**

Census systems provide organizations with the advantages of having large amounts of data, all accessible via a central source. Information coverage is a huge advantage for any organization (Nigerian National Population Commission included), because having vast amounts of useful data from every different department streamlines access and increases productivity.

# CHAPTER THREE

# METHODOLOGIES AND ANALYSIS OF THE PRESENT SYSTEM

## 3.1 Introduction

When analyzing an existing system, note is taken on how the existing system works or the procedures on how jobs and activities are been carried out in the organization. During system analysis, investigation of an existing system in order to understand its operation is carried out for better understanding of the existing system and the introduction of more efficient and economic means of achieving the desired goals is also made.

System analysis is conducted with the following objectives in mind: to identify the client's need; to evaluate the system concept for feasibility; to evaluate cost constraints; to proposed allocate functions to hardware and software, and create a system definition that forms the foundation for all subsequent engineering work (Pressman, 1997).

The analysis of the present system was carried out to identify the existing problems affecting the system; this would enable the analyst to validate or invalidate the present system if many weaknesses were found. The analyst would go ahead in designing the system that would replace the existing system that must have been proved unsatisfactory.

Before any meaningful progress could be made in system design, a few numbers of procedures have to be followed in other to guarantee a successful new system. The procedures include the following;

### 3.1.1 Feasibility study

In order to determine whether or not a given project is feasible, i.e., to determine whether the change can be carried out within reasonable time and the properties to be identified and development of high level model of the proposed system, there must be some form of investigation into the goals and implications of the project. Three areas are considered during this analysis, they include;

**(a) Economic feasibility**

This involves the study to determine if the cost of developing a system will be lower than the overall benefits that will be enjoyed after doing so or will be higher in cost based on the benefit attached to the system to be designed.

**(b) Technical feasibility**

This part is concerned with the availability of equipments/hardware, software, and the knowledge of how it will be required when developing a system, that will respond to user's request promptly. If the equipments, hardware required to develop and design the system is not available and cannot be easily acquired then, it is not technically feasible.

**(c) Behavioral feasibility**

This part is concerned with impact the system would make on the social, personal, and working relationship within the organization. This also concerns the working effect people would have on the system i.e., reactions of both the computer literates and illiterates. The investigation or feasibility study is usually carried out by a small team of systems and management personnel from different levels and departments for an organization. In some cases, the investigation team may be a group of consultants who do not really know much about the organization and such investigations may be lopsided or not very reliable.

These concerns the study of the type of information required by the user and system in general. The user is recognized to have a scope of the users and the kind of information needed by the user since the effectiveness of any system is determined by the users' satisfaction.

The product of this stage is a formal feasibility study document.

### 3.2 Research Methodologies Adopted

The research methodology is the process the researcher used in performing the analysis of the present system and the subsequent acquisition of data for the designing of the proposed system, which would replace the existing system.

There are certain methodologies available depending on the software development environment, the requirements of the user, the nature of the software being developed etc. Some of the methodologies are as follows:

- Structured System Analysis and Design Methodology (SSADM)

In structured design methodology, the whole project is structured into small, well-defined activities. SSADM also specifies the sequence and interaction of these activities. In coding aspect, programs are broken into functions and subroutines and there is always a single entry point and a single exist point into and from each function and subroutine.

- Object Oriented Design (OOD)

In OOD, the conceptual model of the real world problem is developed. This is to test the design before having to build it.

- Prototyping

Prototyping is the process whereby an incomplete version of the eventual program is created. This is not the eventual implementation and may be completely different from the actual software.

However, the researcher in completing this research used the Structured System Analysis and Design Methodology (SSADM) effectively. The methodology revolves around the use of the three key techniques namely; logical data modeling, data flow modeling, and entity/event modeling.

In Logical Data Modeling, the data requirements of the system are identified, modeled and documented. Data are separated into entities (things about which a business needs to record information) and relationships (the associations between the entities).

The Data Flow modeling is the process of identifying and documenting how data flows within or moves around the system. Data Flow Modeling examines processes (activities that transform data from one form to another), data stores (the holding areas for data), external entities (what sends data into the system or receives data from the system), and data flows (routes by which data can flow) within the system.

While in the Entity Behavior Modeling business events are identified and related to its entity with the necessary documentation of each relation at the end of process.

SSADM consists of five main steps, as listed below;

**Feasibility Study**
**Requirement Analysis**
**Requirement Specification**
**Logical System Specification**
**Physical Design**

Furthermore, the researcher chose this methodology (SSADM) because of certain reasons as can be seen below.

- High quality systems are always the product of the SSADM.
- The method separates the logical aspects of the system from the physical aspect.
- It goes with well-defined techniques and documentation.
- And above all, the user involvement of the method gives more room for both the user and the developer to have a better understanding of the proposed system.

However, whatever with advantages also goes with disadvantages:

The size of SSADM is a hindrance to using it in some circumstances. There is an investment in cost and time in training people to use the techniques. The learning curve can be considerable if the full method is used, as not only are there several modeling techniques to come to terms with, but there are also a lot of standards for the preparation and presentation of documents.

### 3.3 The Organization (NPC) and her Environment

The National Population Commission (NPC) was established by the Federal Government under the Decree No. 23 to facilitate its 1991 census project.

Within the Commission, there are hierarchical orders of offices, with separate responsibilities, but towards actualizing a successful population census. The hierarchies are the Chief Executive, the chairman and many Commissioners.

Each of the commissioners is responsible for a zone as well as a department in commission's headquarters. There is also a director in charge of the general administration of the commission and a secretary to the commissioner. In addition, there is a deputy director for each of the departments. Assistant directors head the offices including the Capital Territory, while the controller heads the Local Government offices. The supervisors come next in the hierarchical structure of the organization and do the field operations.

Before the commissioners are the Chief Analysts and Statisticians who work under the National Level. The analysis department relates population with National occurrences and events like prevalent economic issues, epidemics outbreak, population growth and decline through the data collected from the Statistics department, which keeps record of data received from the commissioners.

#### 3.3.1 Vision, Mission and the Clients of the Commission (NPC)

As a standard organization, and depending on their services, the Commission has the following as their vision, mission, clients and even nature of services.

**(a) Vision**

To harness the nation's population into a veritable tool for a greater Nigeria where population profile will be consistent with the imperatives of sustainable development.

**(b) Mission**

To build conducive atmosphere for effective management of Nigeria's population for sustainable development through:

i Provision of demographic data for planning, implementation and evaluation of development programmes;

ii Continuous and universal registration of births, deaths, and migration and

iii Coordination of population intervention activities and programmes in Nigeria.

**(c) Clients**

They are essentially the various stakeholders in population activities in Nigeria. They include the various Federal Government Ministries, Extra Ministerial Development and Agencies e.g. Federal ministry of health, Ministry of Women Affairs, Ministry of Internal and External Affairs, National Planning Commission, Students Researchers / Planners, political parties, International Organizations and Agencies such as Non-governmental Organisations (NGOs), Community based organization (CBOS), Federal ministry of Education and Foreign Embassies.

**(d) Nature of Services**

The nature of services provided by national population commission is determined by the roles which it plays and the duties it is expected to perform in the national interest. These functions are being discharged through the Departments and Units as explained below.

### 3.3.2 Functions of the National Population Commission's (NPC's) Departments

National Population Commission as an organization is charged with a lot of activities. These functions need be organized in different ways to be handled by different units to make things easier and clearer.

Hitherto, the commission is made up of different departments as given below.

(a) Administration and Suppliers
(b) Finance and Accounts

(c) Planning, Research and Statistic

(d) Cartography

(e) Information Technology

(f) Vital Registration

(g) Census and Surveys

(h) Public Affairs

Below are the functions of each department.

### 3.3.3 Administration and Suppliers department

This department is responsible for Training Development and service welfare; in charge of supplies; responsible for personnel budgeting; in charge of office and residential accommodation; in charge of staff record keeping. In addition, they are also responsible for payment of death benefits retirement and burial entitlement; upgrading/conversion and advancement of staff; in charge of transport and logistics and responsible for appointment, promotion and discipline.

### 3.3.4 Finance and Accounts Department

This department ensures that proper Budgetary and accounting systems are established in the national population commission to enhance internal control, accountability and transparency. They also ensure that the essential management control tools are put in place to minimize waste and mismanagement; that all government revenue are collected and paid in to treasury; Ensuring among others the safety and proper maintenance of all Government assets under the Departments care.

### 3.3.5 Planning, Research and Statistic Department

The Planning and Research Department is one of the core department recognized by the Federal Civil Service rule of 2007, and in effect, one of the core departments in National Population Commission. The department renders the following services:

The Planning and Research department has the mandate to plan, design researches and conduct survey, prepare the budget plan, monitor and evaluate Commission projects and activities, coordinate bilateral and multilateral cooperations with various

stakeholders, carry out Due Process exercise, print and produce survey reports and ensure the dissemination of materials and data from surveys. These are the mandate the department strives hard to carry out for the Commission.

The department is made up of 3 divisions namely;

(1) Planning division
(2) Research division
(3) Coordination division

The clients include the Commission staff, the general public, universities, government agencies, and non- governmental organizations.

### 3.3.6 Cartography Department

The Cartography Department is one of the core departments of the National Population Commission that is charged with acquisition, production and preservation of various categories of maps that serve as bases for the conduct of National Head Count (i.e. Population Census), and other related socio-economic and demographic surveys, e.g. National Demographic and Health Surveys (NDHS), Sentinel Surveys, National Demographic and Education Surveys, (NDES), National Migration Surveys etc.

The cartography Department in accordance with its statutory function co-ordinates various categories of personnel to demarcate the country into Enumeration Areas (EAs) i.e. compact geographical units with identifiable boundaries made up of physical and/or man-made features and with a population threshold an enumerator can cover within the specified period of census.

The Department is structured into 4 divisions, namely:

(i) Field Operations and Quality Control Division

(ii) Automated Mapping and GIS Division

(iii) Map Research and Archives Division and

(iv) Map Reproduction Division

Clients to the Department are the Public, Private Organizations, Governmental and Non-Governmental Organizations (NGOs).

### 3.3.7 Information Technology Department

The Information Technology department performs the following duties;

- Manage in collaboration with other department ICT policy of the commission.
- Strengthen technical capability of National population Commission in ICT data processing, database development, and networking.
- Produce accurate and reliable census. Data and statistical table.
- Generate relevant integrated databases.
- Networked computing facilities in national population commission established internet connectivity and maintain website.
- Process vital registration data.
- Maintain all the IT Equipment of the national population commission.
- Advice management on issues related to ICT as accepted by world ICT body.

### 3.3.8 Vital Registration Department

The Vital Registration Department is one of the core Department of the National Population Commission mandated to undertake the continuous and compulsory Registration of Births, deaths, etc. throughout the country, through an Ac t titled "Births, deaths, etc' (Compulsory) Registration "no 69 of 1992" dated 14th December, 1992. This act empowers the Commission to register such vital events nationwide. The Act clearly spelt out the registration hierarchy, responsibilities, establishment of centers, procedure for Registration, time limit for registration/documentation of vital events such as, Births, Deaths Stillbirths, Marriage, Divorces, and the penalties for various offences among other issues.

In the same vein, the department also collates, analyses and publishes data on the movement of foreigners in and out of Nigeria (international migration). The Arrival and Departure cards completed by all immigrants and emigrants at all legal entry/departure points (Air, land and sea borders) constitute the source of raw data for publication.

The department is structured into three divisions, namely:

(i) The Vital Registration Division

(ii) The Vital Statistics/Publication Division

(iii) The Migration Division

Clients to the Department are the public, private organization, Government officials and NGO's

### 3.3.9 Census and Surveys Department

The Departments objective is built around the decennial National Population and Housing Censuses and other socio-demographic surveys while key activities include census and survey questionnaire design, data collection, analysis and dissemination. The Census Department basic function is to ensure strategic planning and execution of National Population and Housing Censuses, and institutional surveys in collaboration with other department, or Unit established for the purpose. In this regard the department implements the Commission's constitutional mandate of undertaking the National Population economic and social censuses and surveys.

The census department is made up of 4 divisions as follows

- Census division
- Survey division
- Evaluation and analysis division
- Dissemination and publication division

### 3.3.4 Public Affairs Department

The Public Affairs Department is one of the service departments of the National Population Commission charged with the responsibility of enlightening the general public on and mobilizing support and resources for the activities of the Commission.

Hitherto, it was a mere Information Unit, in the Office of the Chairman of the Population Bureau. The department was transformed into a full-fledged department in 1989 as part of the recommendations of the public enlightenment advisory committee

for the 1991 census. The creation of the department was also due to the commitment to mobilize the grassroot for the 1991 census. In line with its mandate the Public Affairs Department formulated an advocacy and publicity programme for the 1991 census. The erstwhile Chairman, Alhaji Shehu Musa embarked on advocacy tour to key traditional rulers, Governors and local government Chairmen across the country. Publicity committees were set up at the National, State and Local Government levels. Radio and Television jingles were heard and seen respectively across the country. Census messages were placed in major National Newspapers as well as billboards across the country.

The public enlightenment exercise for the 2006 census was even of a higher dimension. An information center was set up at the headquarters with hot lines for the public to have access to census information.

The department is structured into two divisions namely:

(i) Public Relations, Protocol, Advocacy, Community and Field Mobilization.

(ii) Information, Education and Communication (IEC) and Publicity Division.

### 3.3.5 Organizational structure

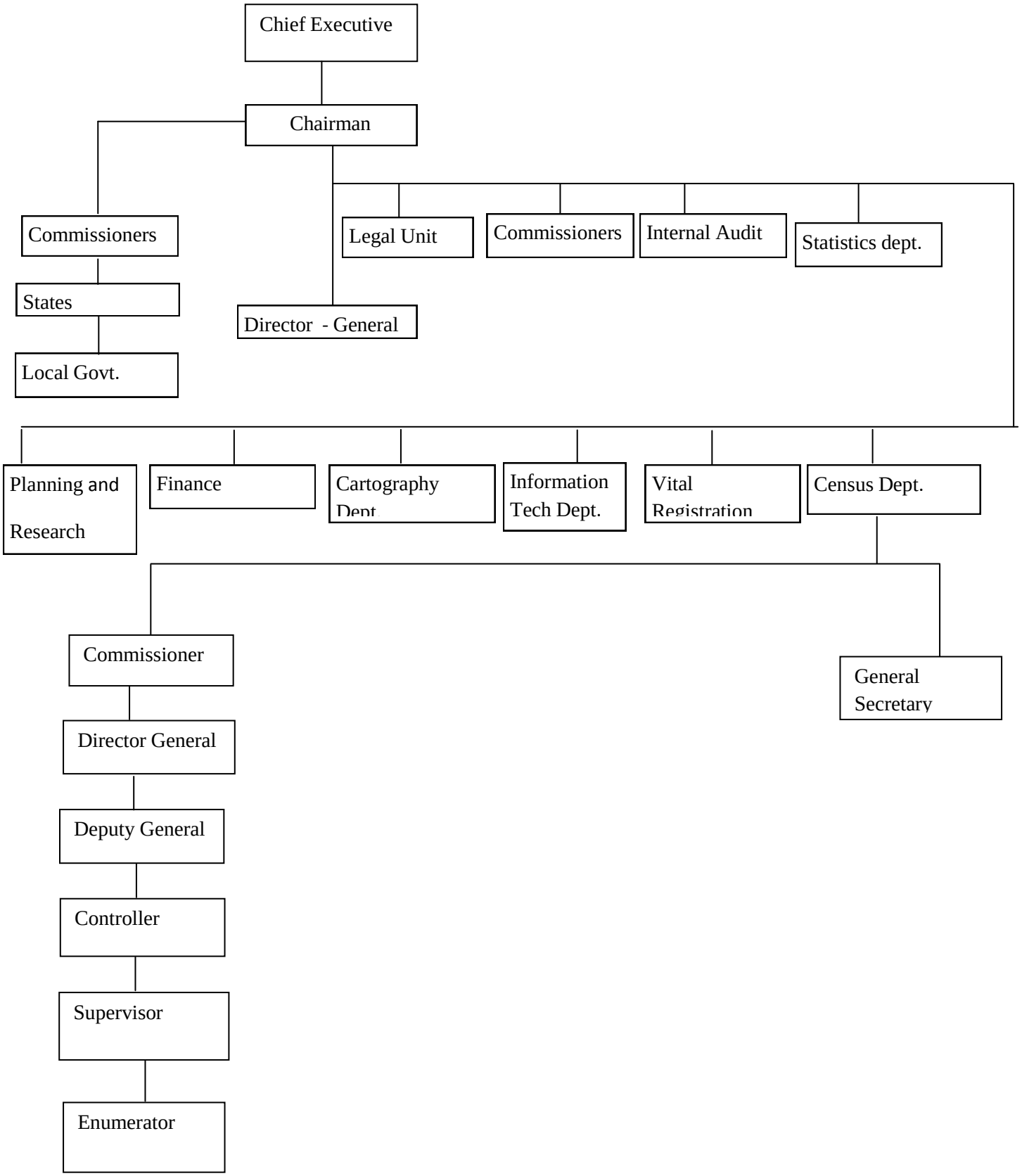



**Fig. 3.1 The Commission's Organogram**

### 3.4 Present Procedure

The analysis of a given system could be defined as examining the given system's part and relationships. The present procedure can easily be seen in the organization's structure or hierarchical order. Consequently, the researcher had the opportunity to look into the activities of the commission and observed that though many people claim that they use computer in their offices, still a lot of manual work are being done in the commission as files are kept physically. Below are the procedures or the functions and activities of the Commission;

**The Enumerator**

The Enumerator has to go from house-to-house interviewing respondents based on the questionnaire given to them. The Enumerator also performs the following;

Check the boundary and map of the enumeration area and ensures that the boundaries coincide with the adjoining enumeration that no area is left in between the enumeration areas and no adjoining enumeration areas overlap.

Acquaint himself with all fully and partially occupied building in the area, number the buildings and households in the buildings.

Establish a necessary report with the households head and members, this will enable him enumerate successfully all the households within the area. And lastly, check that the respondents properly fill all questionnaires.

**The supervisor**

The supervisor oversees the affairs of the enumerators and supply materials (if needed) to them and visits the supervisory areas before the commencement of the census. Also, he intimates the chiefs about the exercise and solicits their supports during the exercise. The supervisor in turn reports to the controller for urgent attention as the case may be.

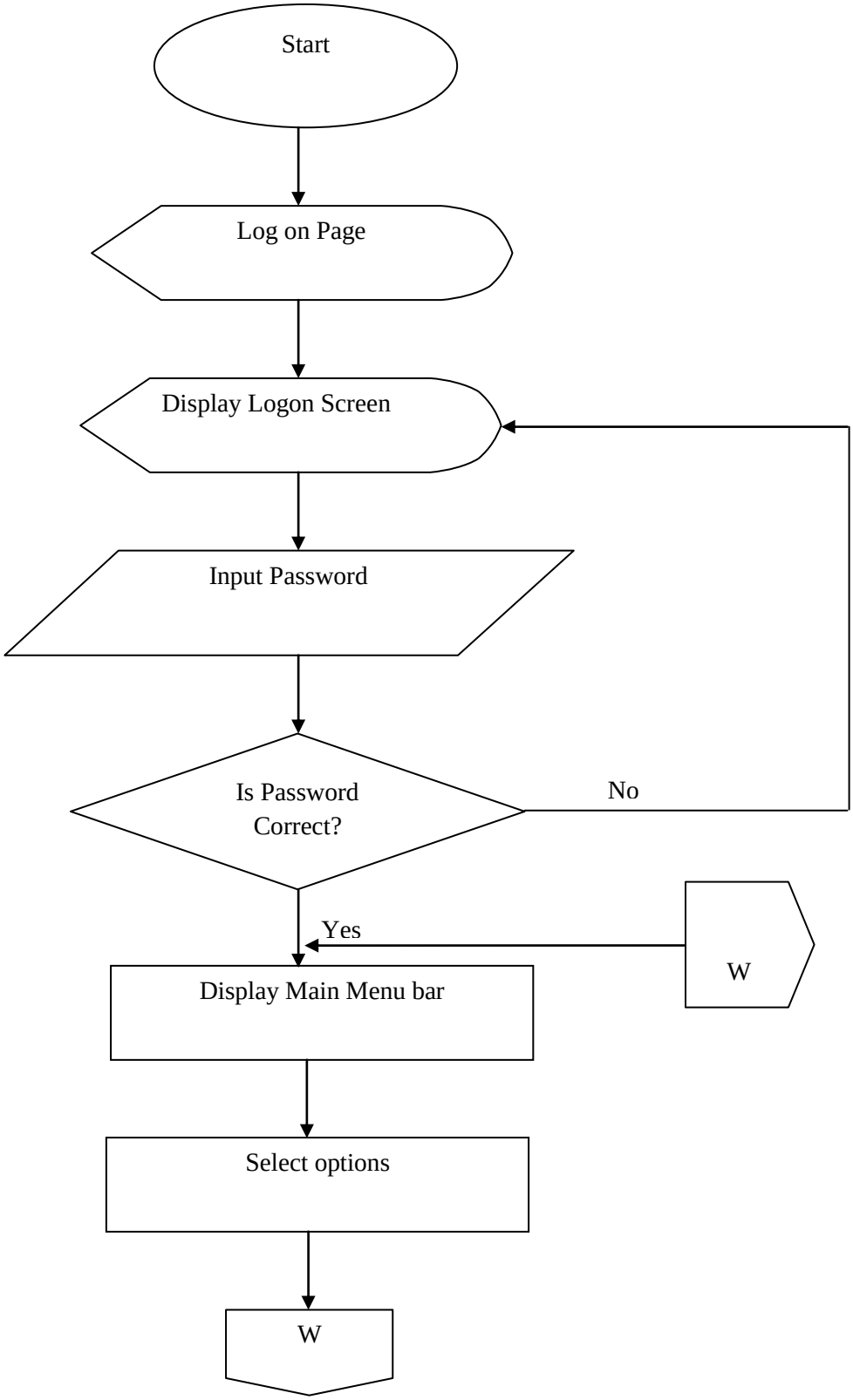
The controller

The controller heads the state office of the National Population Commission (NPC) and oversees the enumeration exercise in the state. He would after the exercise report directly to the commissioner.

### 3.4.1 Flowchart of the Proposed System

The flowchart is a pictorial representation of the sequence of operations in a process. Therefore the flowchart of this Commission could be defined as the diagrammatic representation of how a process is completed in the Commission. Below is the system flowchart of the Commission.

**The Proposed System flowchart**



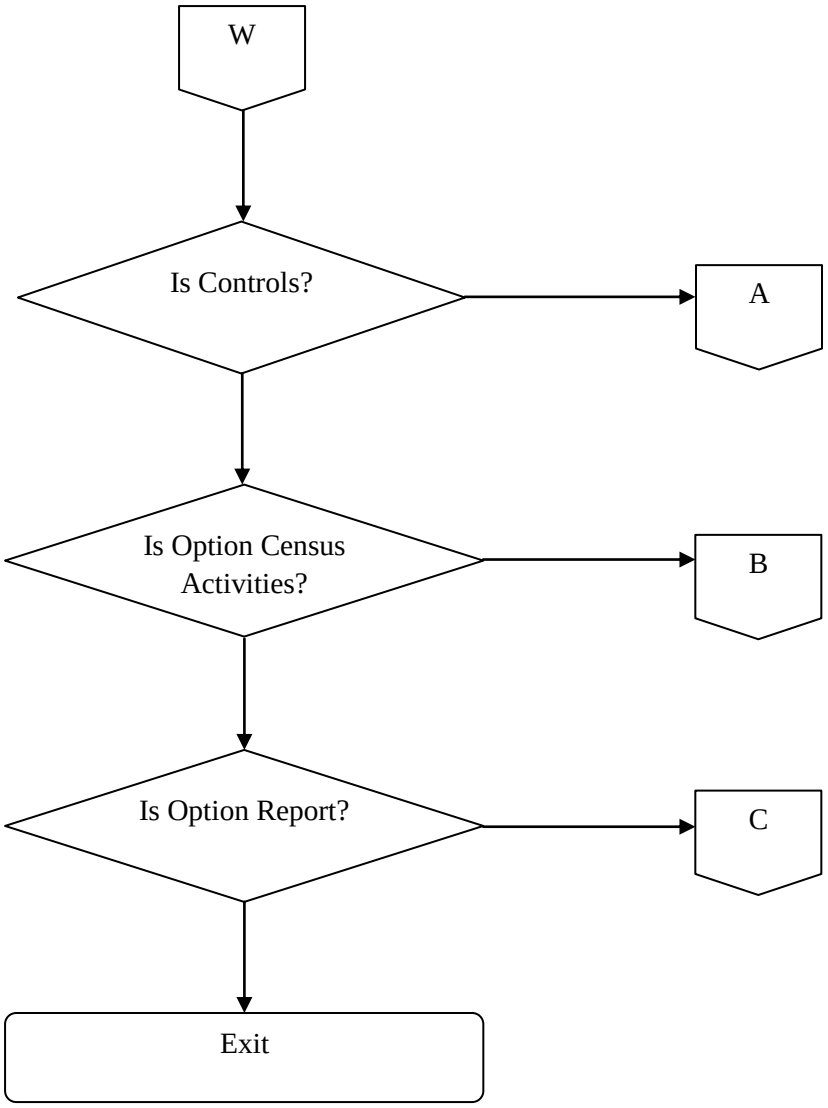



**Fig. 4.2: The Proposed System Flowchart of the Design**

### 3.6 Information Flow

Information flow represents how information produced by the Commission goes in the Commission. The information /data collected at the local level by the Enumerators under the supervision of the supervisors goes through the Controllers. The Commissioners will then collect those data which must have passed through the Director- General and send them to the Commission at the national level. These data will in turn be released from the Commission at the national level to the public.

The organization produces as information the following;

- Epidemic i.e. outbreak of diseases, for instance, HIV/AIDS.
- Rate of population growth, mortality, migration, birth, etc.
- Natural disasters caused by population density.

Below represents the information flow chart of the Commission.

### 3.6.1 Information Flow Diagram

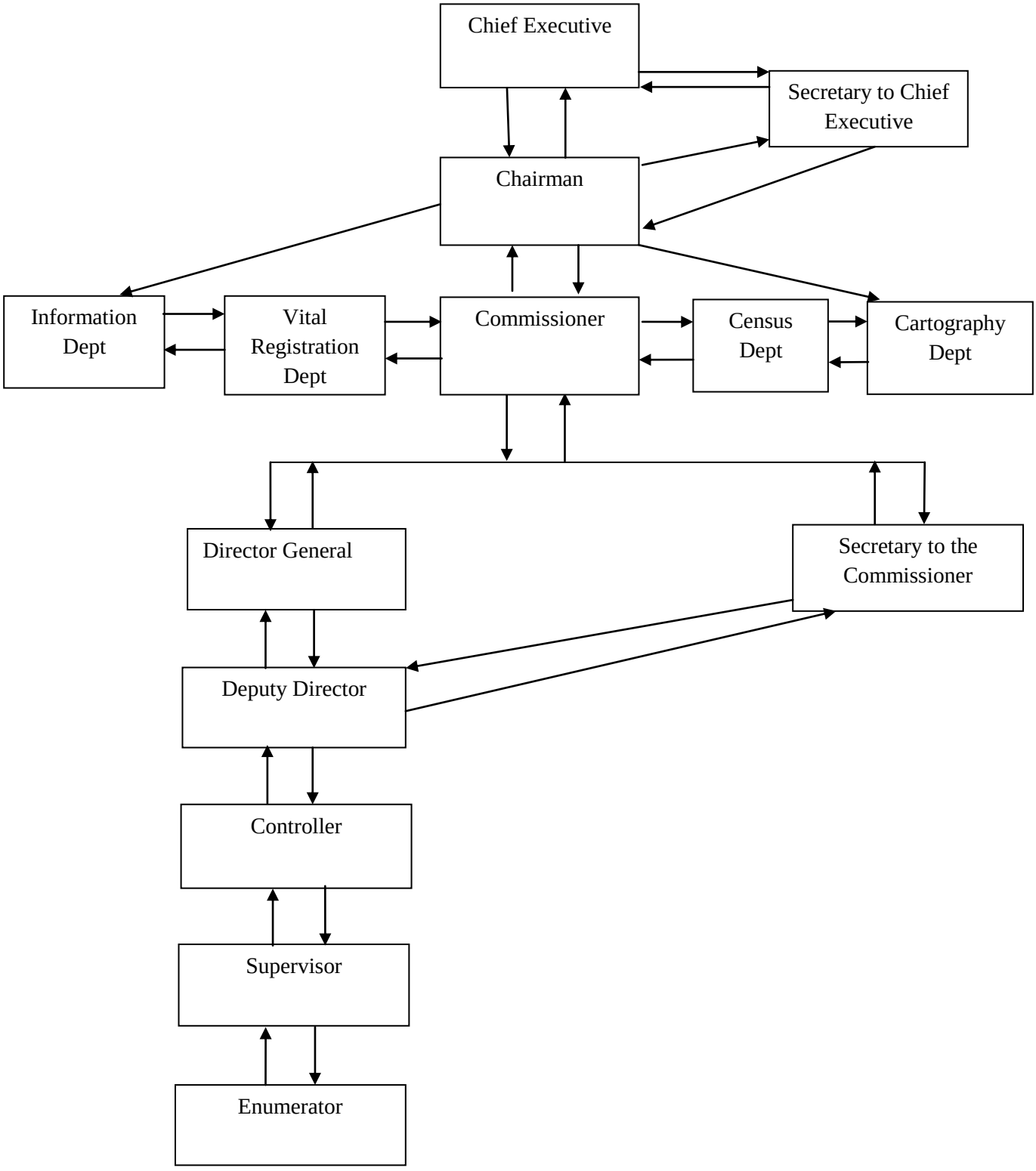



**Fig. 3.3 The Information Flow Diagram** 3.7

**Weaknesses Identified in the present System**

There is an existing system in the National Population Commission just as we have one form of existing system or the other in many organizations today. However, some may contain entirely pen and papers. The system under study is found to have some weaknesses as can be seen below;

- Lack of enumerators to cover as many villages as possible and as a result a supervisor might be assigned to cover about 10 villages with 14 or fewer enumerators.
- As a result of not covering most or all the areas of in a given locality, there is always incomplete data.
- Files got missed as a result of manual storage of data.
- Large physical space consumption since there is manual form of data storage.
- Inadequate communication link.
- There is always waste of time since it is difficult to locate a particular file from stored files

### 3.8 Analysis of the New System

System design can be regarded as the drawing, planning, sketching or arranging of many separate elements into viable unified whole. While the system analysis phase is concerned with the question of what the system is doing and what it should be doing to meet user's requirements, the system design phase centers on how the system is developed to meet the requirements. The new census management system comprised of the following modules: Staff registration, department creation, report generation and head count registration, which has the following sub modules; register person, register states, and register LGA.

Staff registration is the component of the proposed system that would be used to manage records of every staff of the census department. Through this module, information about each staff and/or recently employed staff could be recorded, stored and retrieved when necessary.

Again, the department creation component, will manage records concerning the census department of the commission. Whenever new department is created, it will be recorded and stored for retrieval at any moment. Modifications could also be done, in case if there are alterations in the department.

Moreover, census activities could be done through the register person, register state, and that of the LGA's sub modules. At the end of the day, reports are being are being generated through the report generation module and submitted to the central store.

#### 3.8.1 Advantages of the New System

The new system when installed will benefit the commission and as such the following are the advantages of the system;

- The commission will have records of individuals at a central store that enables direct access to data as reports on individuals would be generated, and stored for retrieval.
- The rate at which data could be accessed would be maximal.

- Creating, updating and modifying information details as opposed by the old manual-like system will be facilitated.
- Collection of human information that used to be tedious will now be easy task.

### 3.8.2 Disadvantages of the New System

The commission is made up of different departments and as such is faced with different tasks or activities. Census activities are one category out of the so many categories of tasks of the commission. This system may not work well with data collected by other departments other than the census department.

### 3.8.3 Data Flow Diagram of the New System

This represents the flow of data within the system. In every system, there is a way information go and this system (census management system) has also its own data flow diagram as flows:

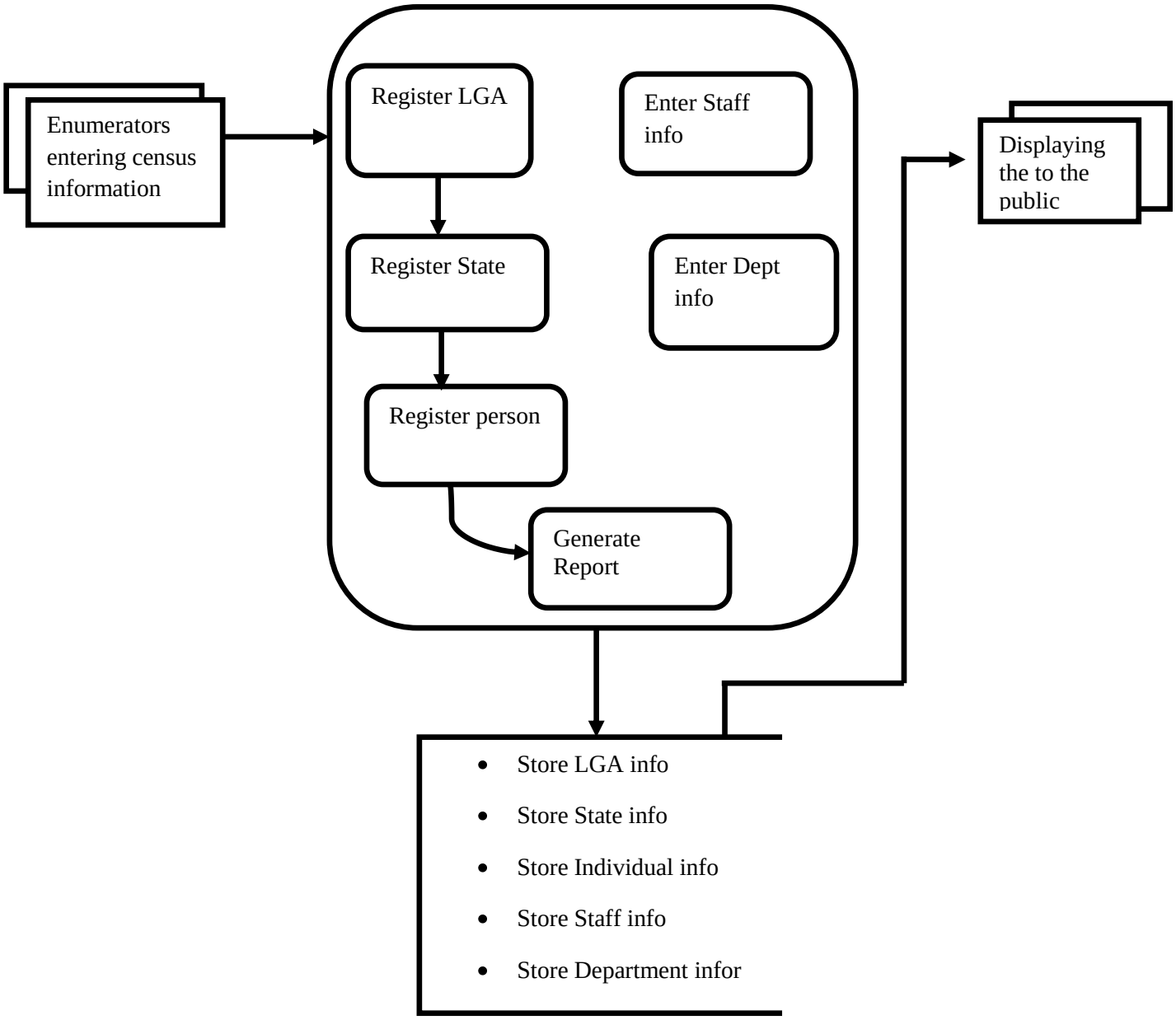



**Fig. 3.4: The Data Flow Diagram of the Proposed System**

### 3.8.4 High Level Model or Proposed Solution

The proposed solution to the problems of the organization is the computerization of the organization in such a way as to include modules to take care of all the lapses observed. With computerization and a subsequent online information base, zonal offices can communicate directly to the National Level of the organization electronically and the public will have access to the publication. The top- down High Level Model is drawn below.

The high level model represents the overall structure of the new system comprising the major components or modules of the software. The following represents the high level model of the system that is being developed;

### 3.8.5 HLM of the Proposed System

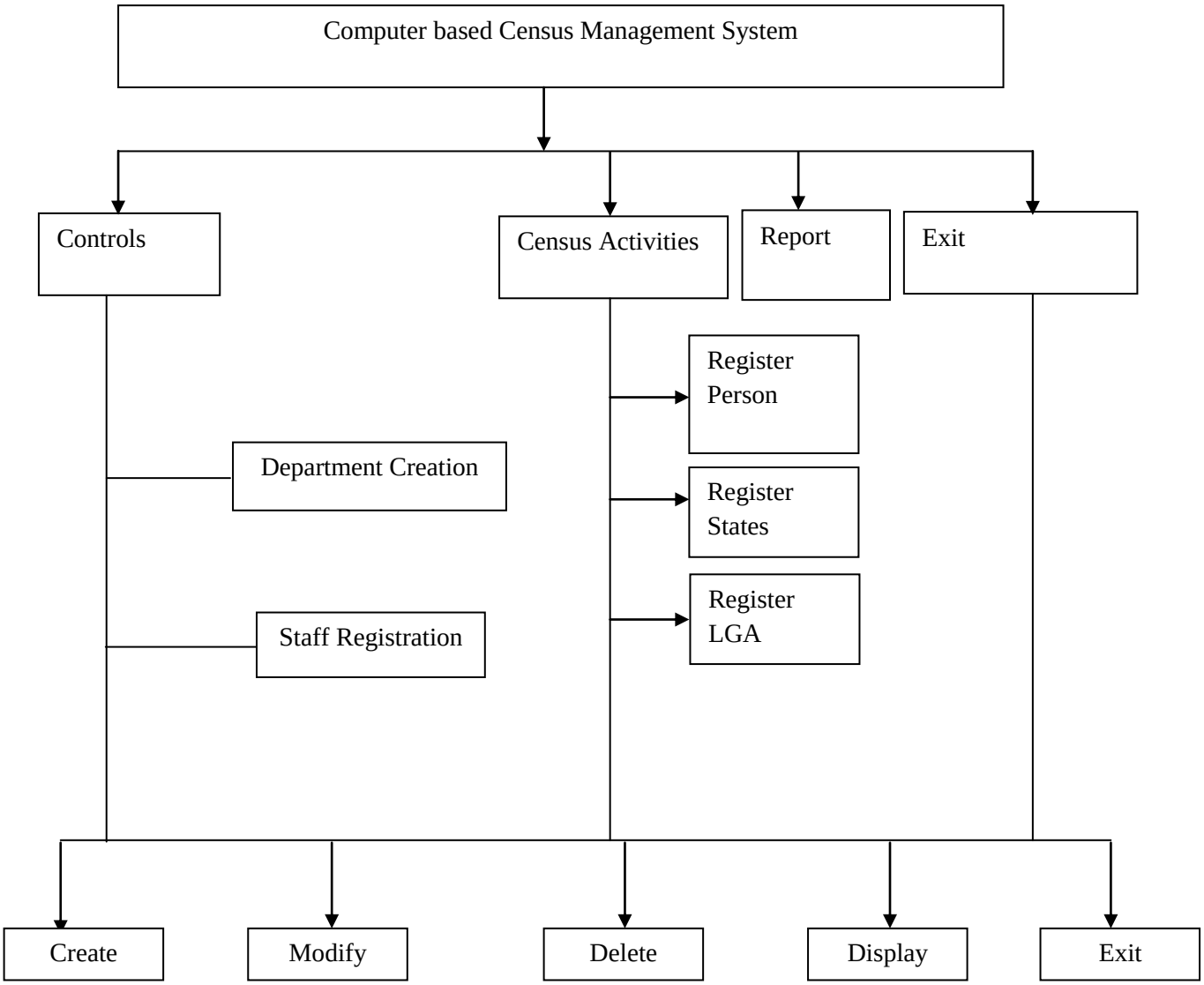



**Fig. 3.4 The High Level Model of the Proposed System**

# CHAPTER FOUR
# SYSTEM AND IMPLEMENTATION

## 4.0 Introduction

System design can be regarded as the drawing, planning, sketching or arranging of many separate elements into viable unified whole. While the system analysis phase is concerned with the question of what the system is doing and what it should be doing to meet user's requirements, the system design phase centers on how the system is developed to meet the requirements.

System design is the task of structuring the system under study, following specifications of the processing requirements such as input, output, and the breaking down of these processing requirements into a program.

## 4.1 Objectives of the new System

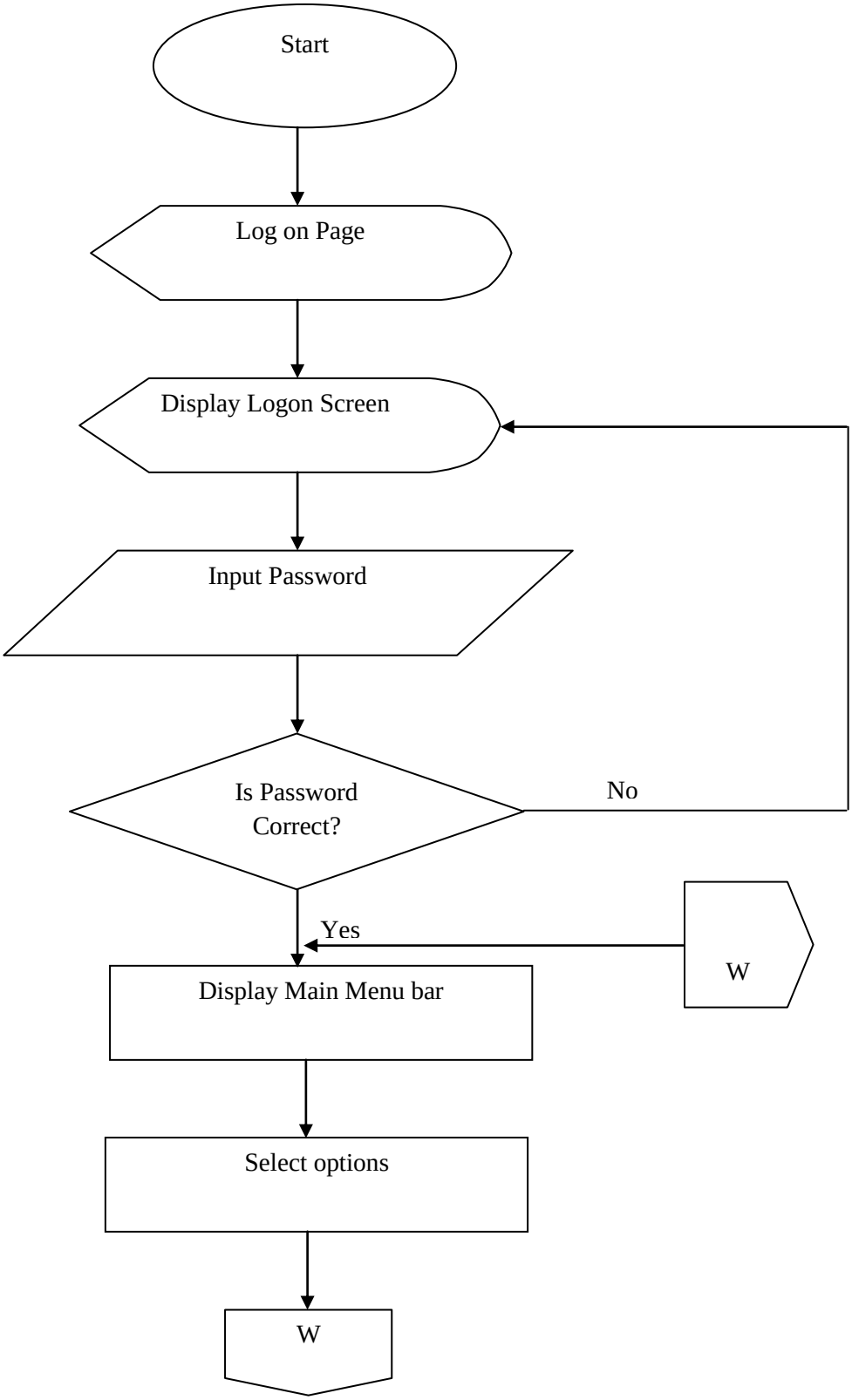
The goals of the new system are as follows:

- Establish built-in procedure to reduce creation of greater storage spaces;
- Add new features that would respond immediately to real-time events of the organization;
- Keep and retrieve an update of the records of the real-time events, as the new system should be able to provide information about a particular individual and/or staff at any point in time.

## 4.2 Main Menu

These contain the control structure where you call other sub modules. It is done in such a way that it is menu-driven, in the sense that it contains options of what one can do with the program. It also serves as control center where different activities included in the program are evoked or called up for performance. The menu-driven system made up of the main menu and other submenu. Each submenu has a particular functions and task it carries out. Such options include menu bar options.

### 4.3.1 The Program Flow Chart of the New System



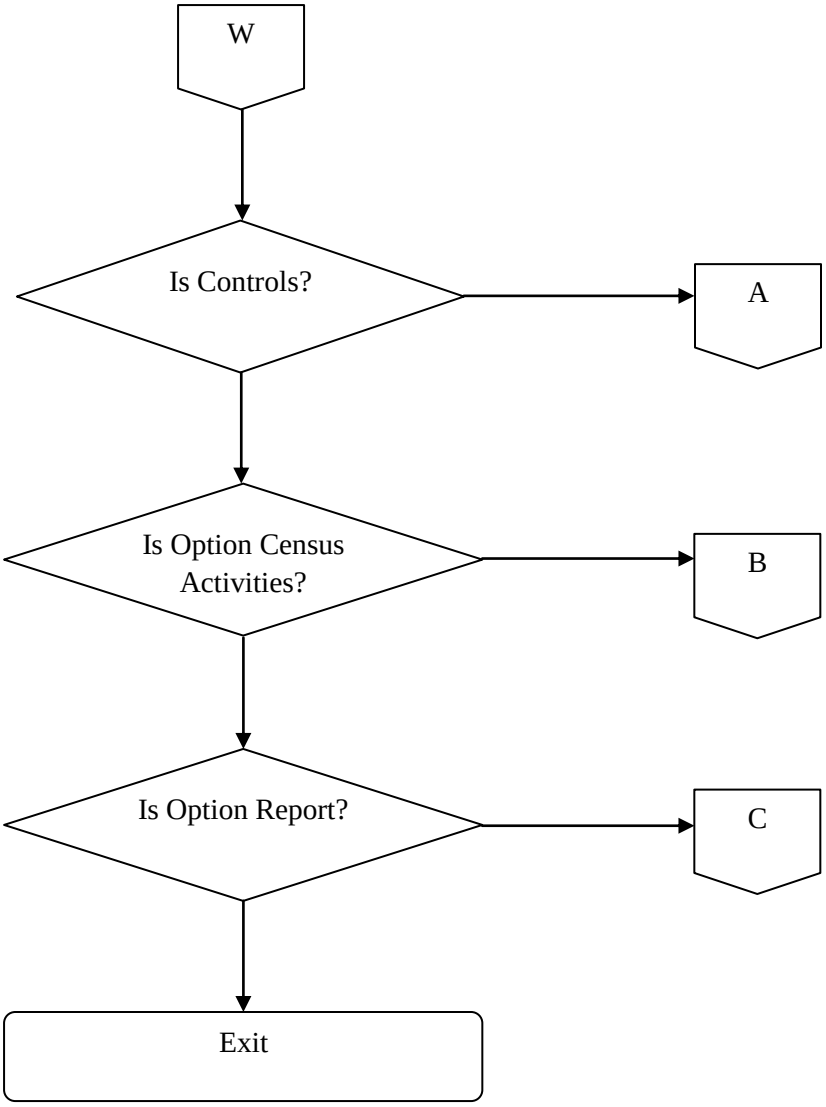



**Fig. 4.2: Main Menu Flowchart of the Design**

### 4.3.2 Flowchart for each Module of the Design

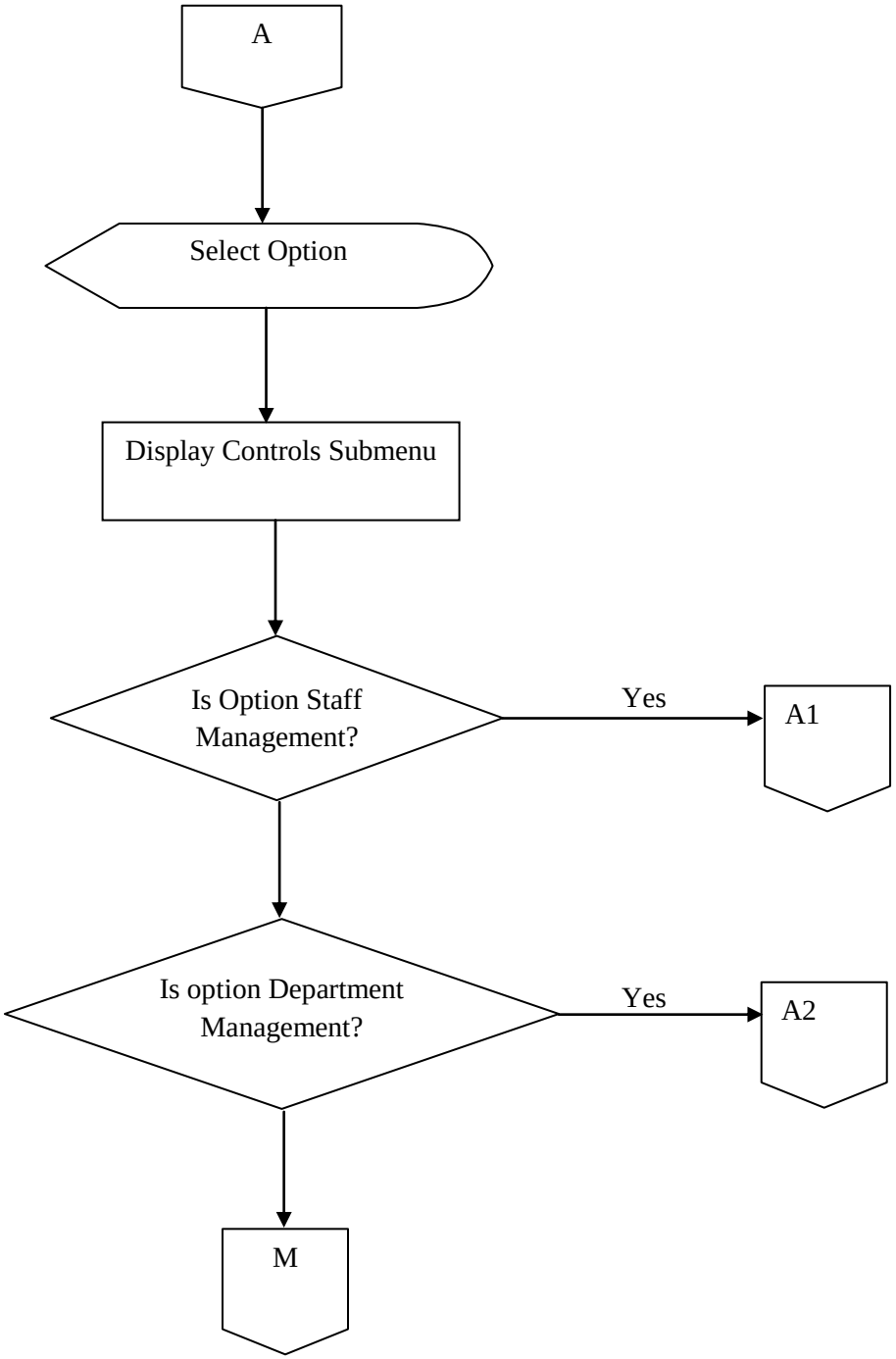



**Fig. 4.3: Controls Flowchart**

#### 4.3.2.1 Staff Management Flowchart

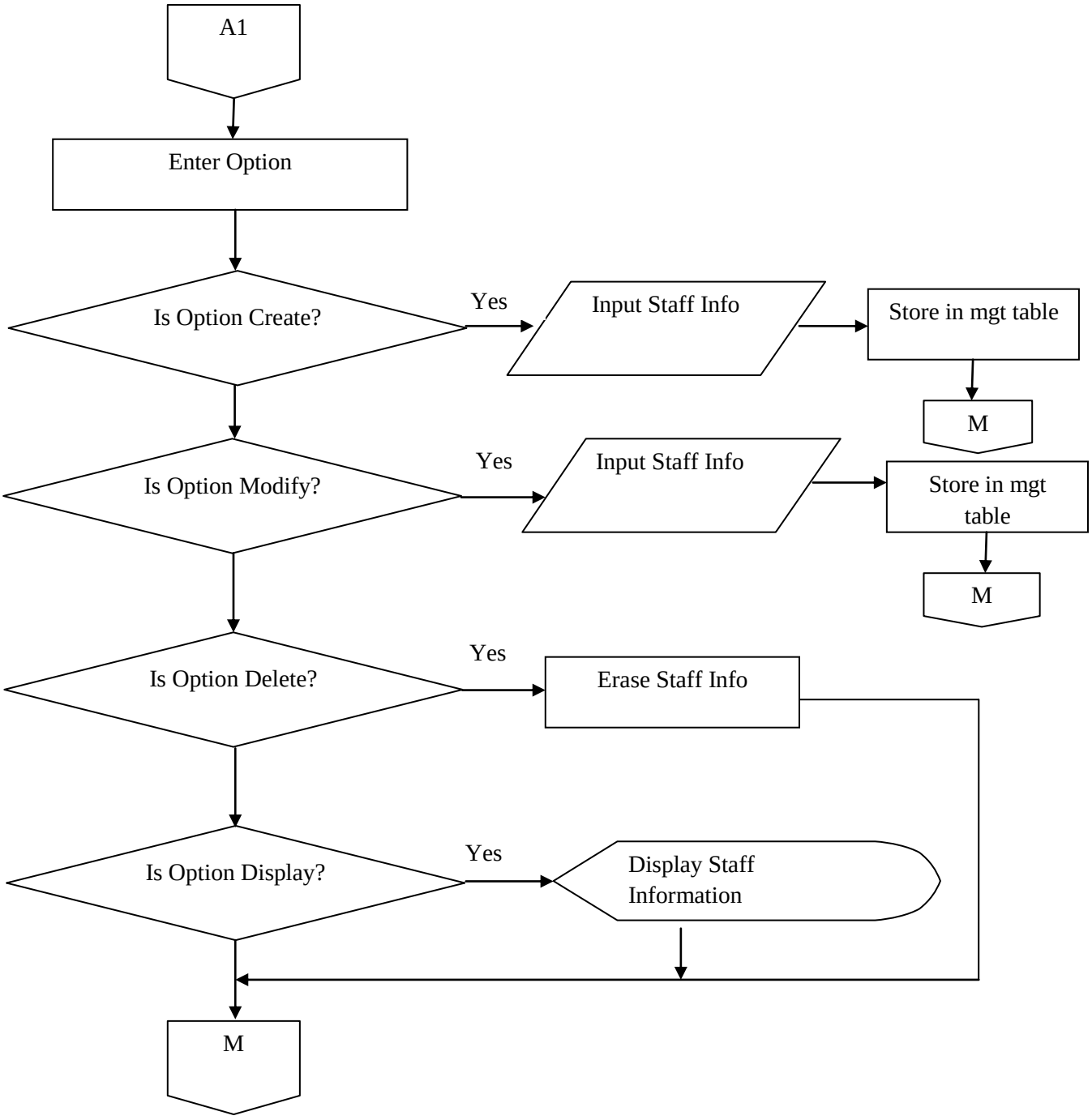



**Fig. 4.4: Staff Information Flowchart**

#### 4.3.2.2 Department Creation Flowchart

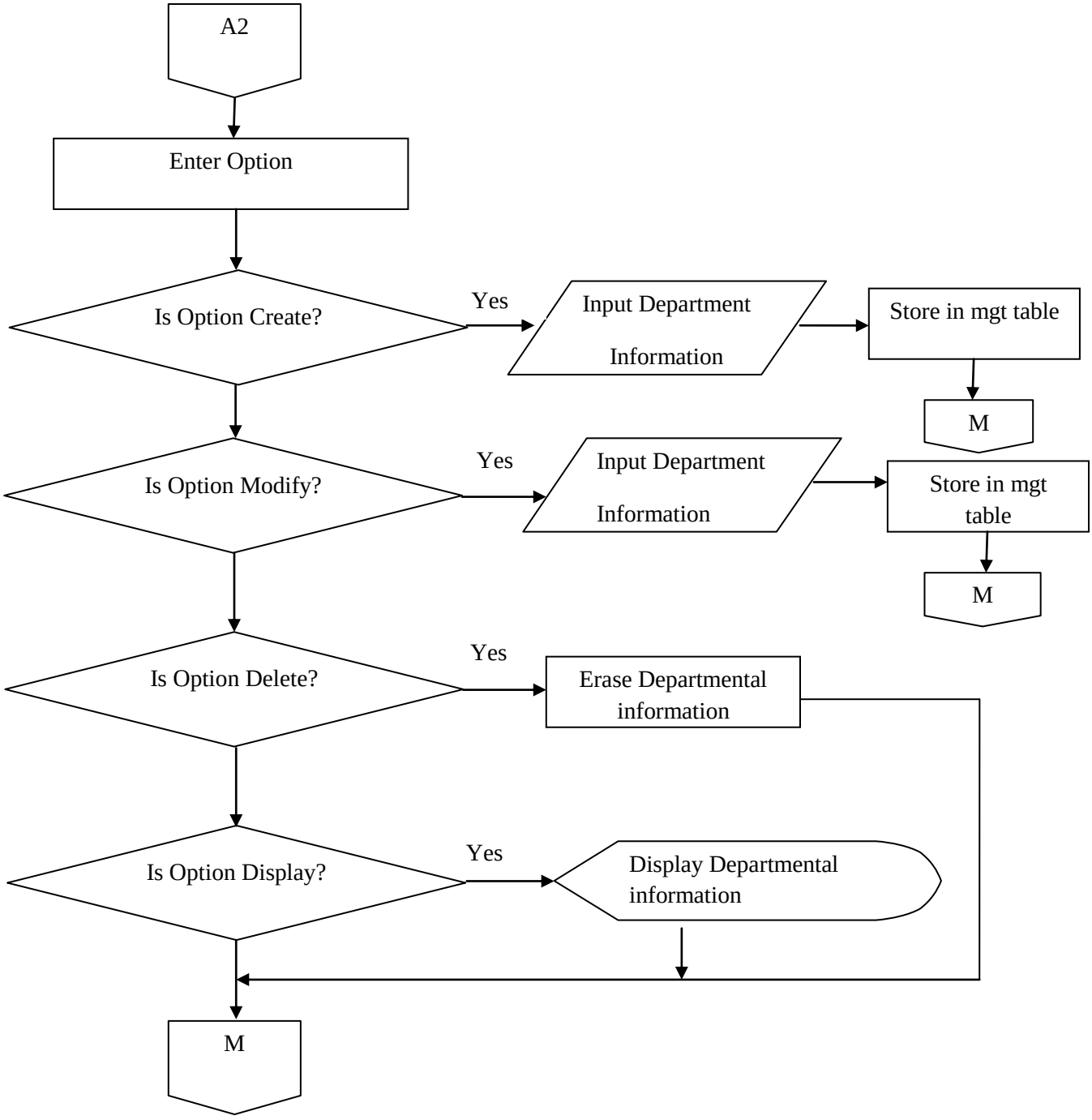



**Fig. 4.5: Department Creation Information Flowchart**

#### 4.3.2.5 Register Person Flowchart

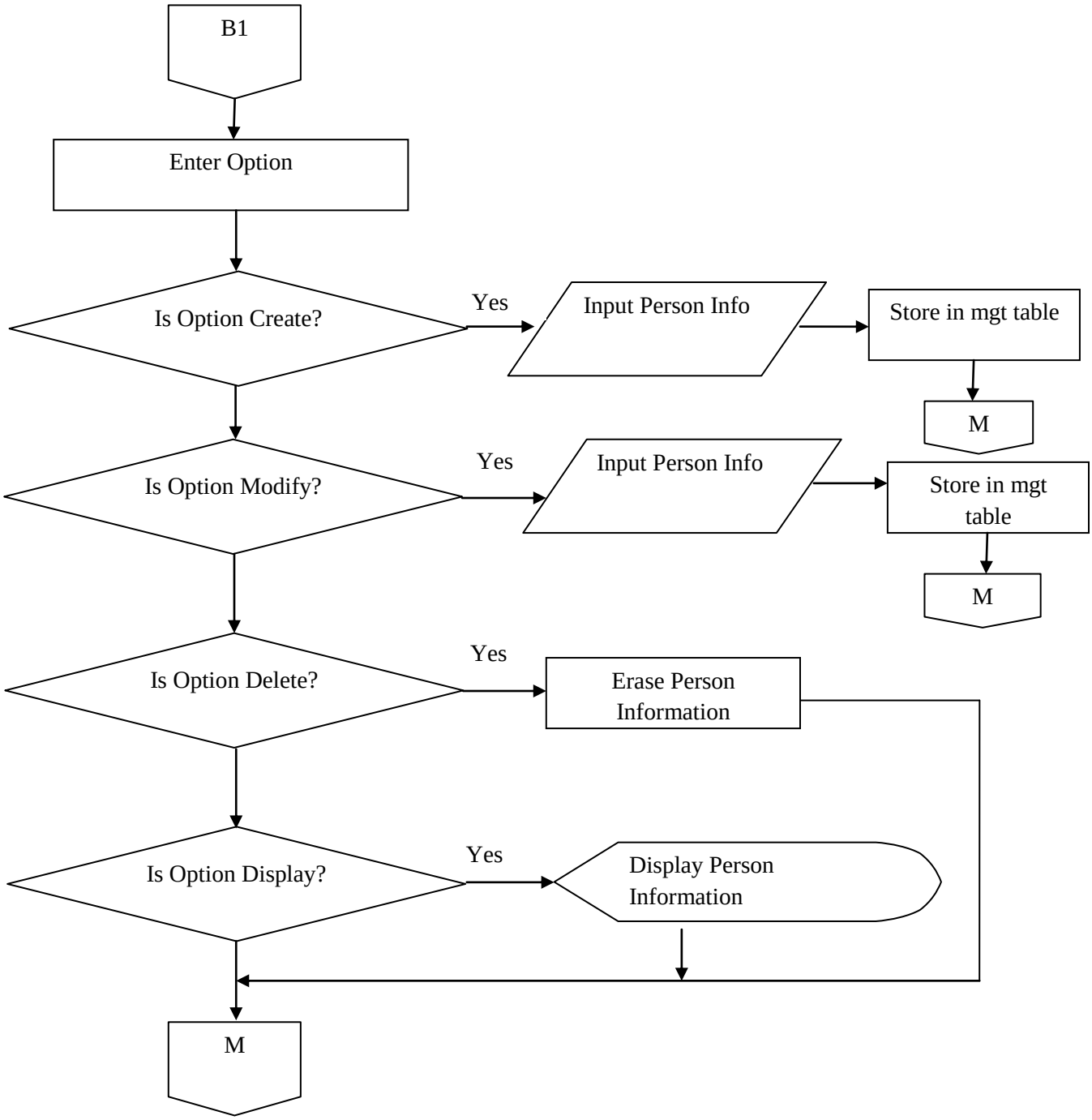



**Fig. 4.8: Register Person Flowchart**

#### 4.3.2.5 Register States Flowchart

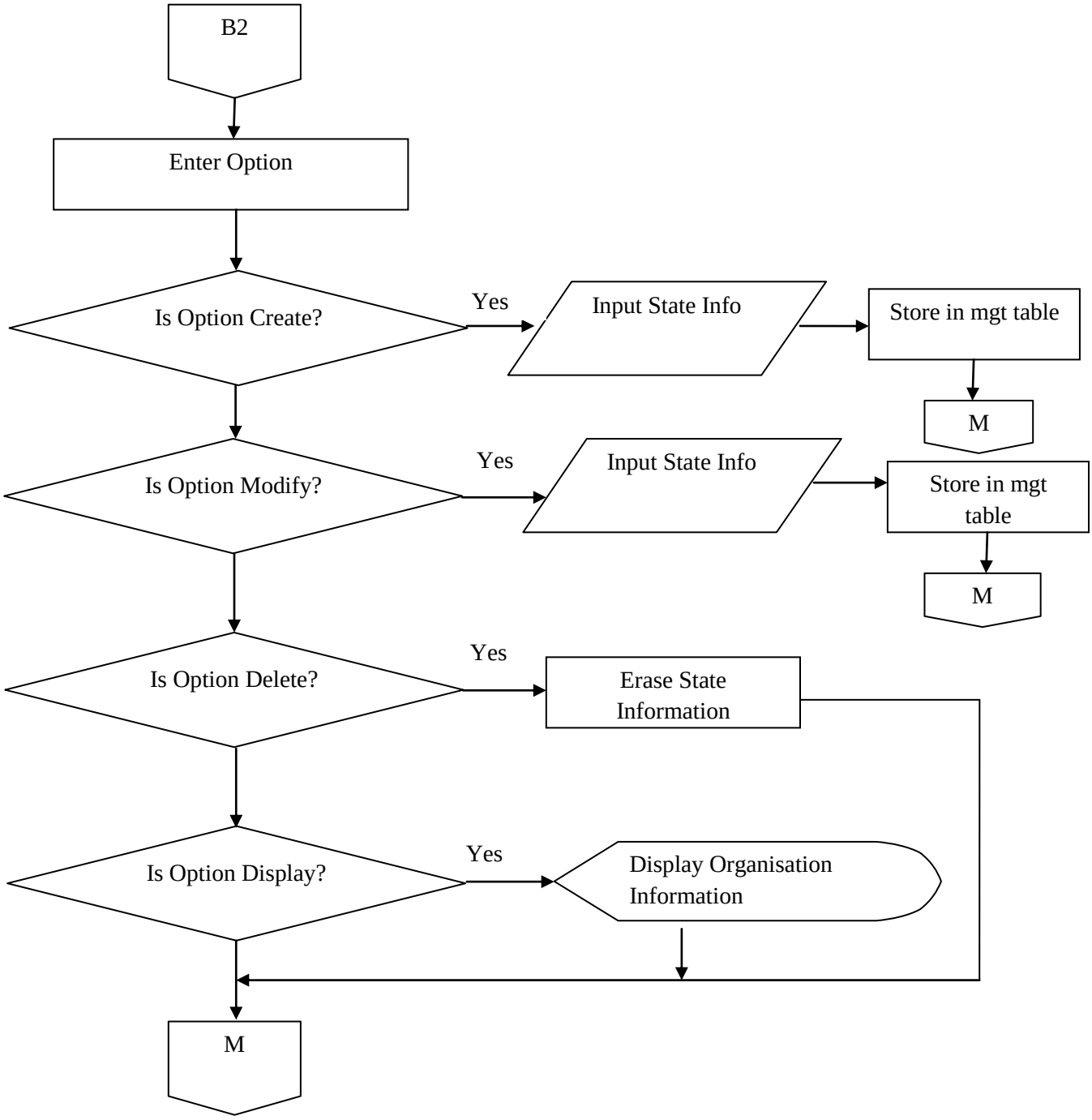



**Fig. 4.9: State Registration Flowchart**

### 4.3.2.7 Register LGA Flowchart

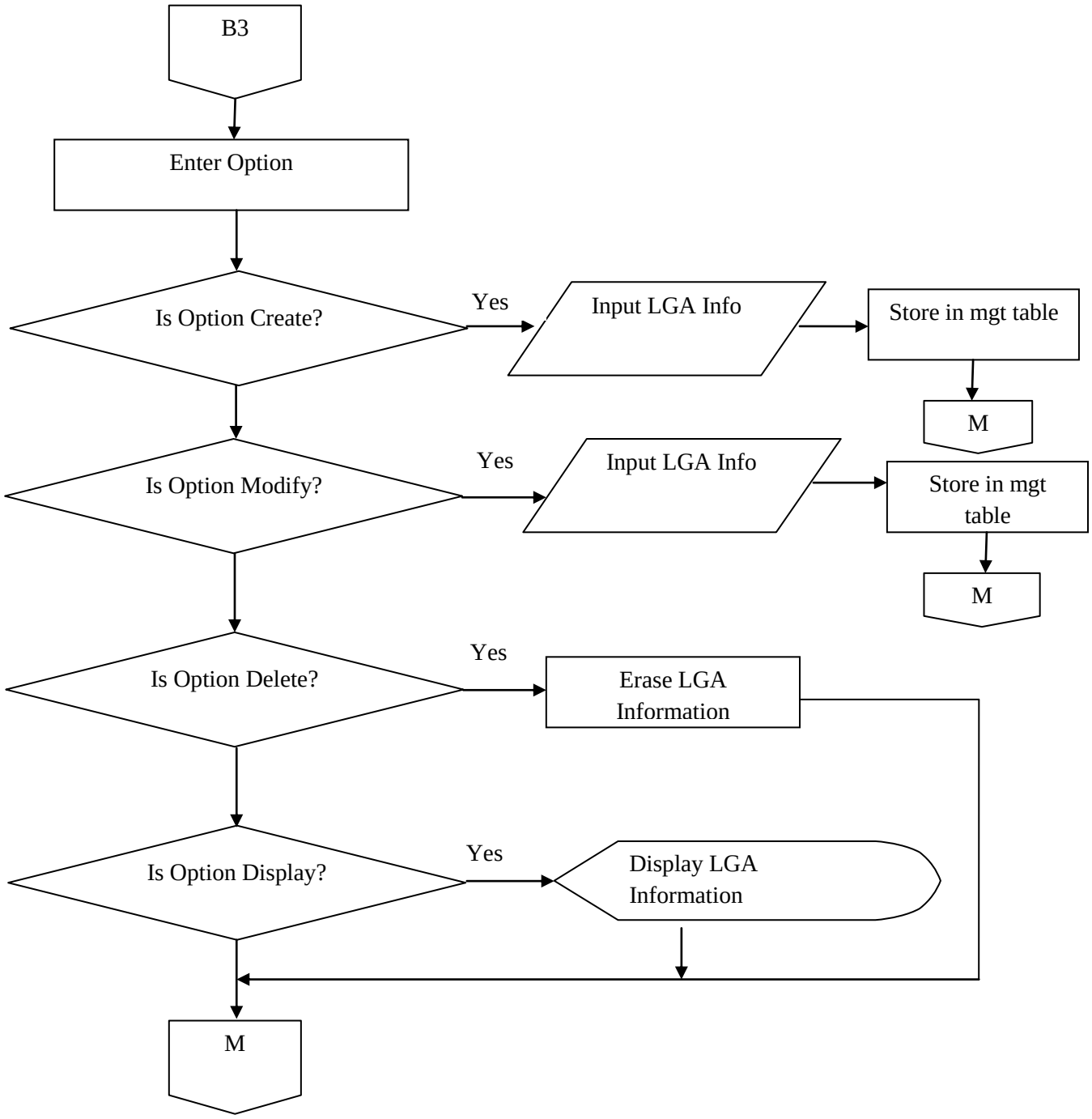



**Fig. 4.9.1: LGA Registration Flowchart**

#### 4.3.2.4 Report Flowchart

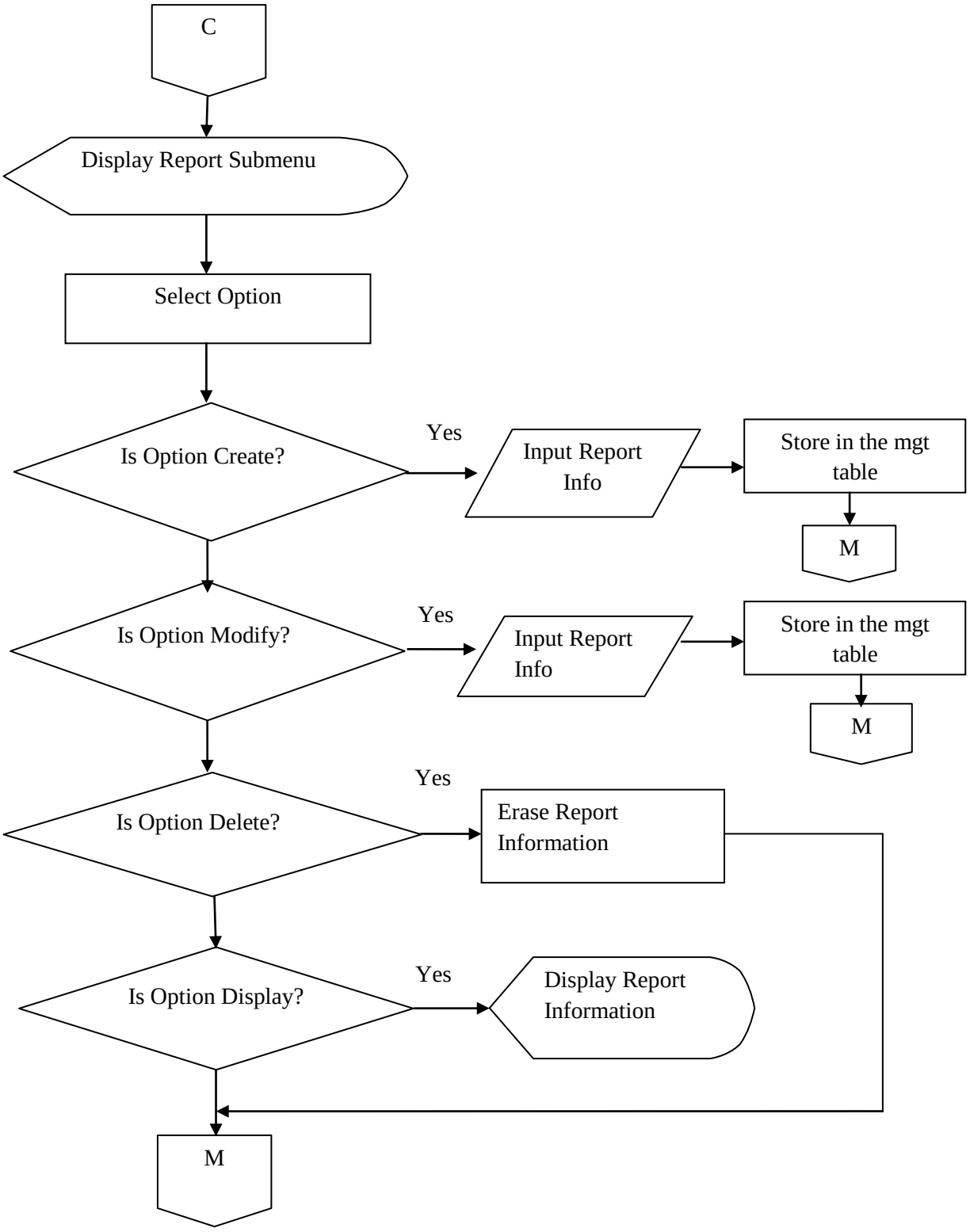



**Fig. 4.7: Report Information Flowchart**

### 4.4 Input Specifications

#### 4.4.1 Department Input Specification

| | | | |
|---|---|---|---|
| Department ID: | | No of Staff: | |
| Department Name: | | Date of Registration: | |
| Department Head: | | | |

#### 4.4.2 Staff Input Specification

| | | | |
|---|---|---|---|
| Staff ID: | | First Name: | |
| Others: | | Surname: | |
| Sex: | | DOB: | |
| Address: | | Phone No: | |
| Email: | | Department: | |
| Start: | | End Date: | |
| Higher Qualification: | | Results Obtained: | |
| School Attended: | | | |
| Date Obtained: | | | |
| Other Qualifications: | | | |
| Professional Qualification: | | | |

### 4.4.3 Department Management Input Specification

Department ID:

Department Name:

Department Head:

No of Staff:

Date of Creation:

### 4.4.4 Person Management Input Specification

Surname:

First Name:

Other Name:

Current Age:

Sex:

DOB:

Occupation:

Disabled:

State of Birth:

LGA of Birth:

Nationality:

Residential State:

Residential LGA:

Residential Town:

Registration:

Working:

### 4.4.5 States Management Input Specification

State ID:

State Name:

State Zone:

### 4.4.6 LGA Management Input Specification

LGA ID:

LGA Name:

LGA Zone:

State:

Death of Registration:

### 4.5 Database Specification

Database specification comprises all the data fields and records collected and analysed to help in creating a good database management system for the new system. The design of database involves two tasks:

i. Assigning a unique name to the database file and
ii. Defining the structure of the file

The database attributes includes file names, field type, length or width.

The database for this project was created using MYSQL. MYSQL is a relational database management system (RDBMS) that is highly compatible with various programming languages. It was chosen because of this compatibility and the ease with which records in the database can be accessed and manipulated from an application development.

### 4.5.1 Staff Table Structure

Table 5: Staff's Table structure

| S/N | Field Name | Field Type | Field Width | Description |
|---|---|---|---|---|
| 1 | Staff ID | Char | 20 | Staff identification number |
| 2 | Staff Name | Varchar | 350 | Name of staff |
| 3 | Sex | Char | 6 | The Sex of the Staff |
| 4 | Address | Varchar | 250 | Address of the Staff |
| 5 | Phone No | Char | 15 | Staff's Phone number |
| 6 | Email ID | Varchar | 250 | Staff's Email Address |
| 7 | Department Name | Varchar | 150 | Staff's department |
| 8 | Highest Qualification | Char | 10 | Staff's highest Qualification |
| 9 | School Attended | Varchar | 250 | School Attended by Staff |
| 10 | Result Obtained | Varchar | 150 | Result Obtained by staff |
| 11 | Other Qualification | Varchar | 300 | Other Qualification by Staff |
| 12 | ProfessionalQualification | Varchar | 250 | Staff's Professional Qualification |

### 4.5.2 Department Table Structure

Table 6**:** Department's Table Structure

| **S/N** | Field Name | Field Type | Field Width | Description |
|---|---|---|---|---|
| 1 | Department ID | Char | 25 | Department's Id number |
| 2 | Department Name | Varchar | 250 | Name of the department |
| 3 | Department Head | Varchar | 250 | Department's head name |
| 4 | No of Staff | Char | 5 | Number of staff |

### 4.5.3 LGA Table Structure

Table 7: LGA Table Structure

| S/N | Field Name | Field Type | Field Width | Description |
|---|---|---|---|---|
| 1 | LGA ID | Char | 20 | LGA's Identification number |
| 2 | LGA Name | Varchar | 250 | The name of the LGA |
| 3 | LGA Zone | Char | 15 | The LGA's zone |
| 4 | LGA State | Varchar | 250 | The LGA's State |

### 4.5.4 State Table Structure

Table 8: The State Structure

| S/N | Field Name | Field Type | Field Width | Description |
|---|---|---|---|---|
| 1 | State ID | Char | 25 | State's Identification |
| 2 | State Name | Varchar | 250 | Name of the State |
| 3 | State Zone | Char | 15 | The State's Zone |

### 4.5.5 Person Management Input Specification

Table 9: The person Management Input Specification

| S/N | Field Name | Field Type | Field Width | Description |
|---|---|---|---|---|
| 1 | Surname | Varchar | 250 | The person's Surname |
| 2 | First Name | Varchar | 250 | The Person's First Name |
| 3 | Other Name | Varchar | 250 | The Person's other Name |
| 5 | Current Age | Char | 10 | Current Age of the Person |
| 6 | Sex | Char | 6 | The Peron's Sex |
| 7 | Nationality | Varchar | 150 | The person's Nationality |
| 8 | Residential State | Varchar | 150 | Person's Residential State |
| 9 | Residential LGA | Varchar | 150 | Person's Residential LGA |
| 10 | Residential Town | Varchar | 150 | Person's Residential Town |
| 11 | Occupation | Varchar | 150 | Person's Occupation |
| 12 | State of Birth | Varchar | 150 | Person's State of Origin |
| 13 | LGA of Birth | Varchar | 150 | Person's LGA |
| 14 | Disabled | Char | 50 | Whether disabled or not |
| 15 | Work Status | Char | 10 | The work status of the Person |

### 4.7 Program Data Dictionary

#### 4.7.1 Table 6: Program Variable's Dictionary

| S/N | Variable | Field Type | Field-width | description |
|---|---|---|---|---|
| 1 | DepertmentID | Char | 25 | Department's Id number |
| 2 | DepartmentName | Varchar | 250 | Name of department |
| 3 | EmailID | Varchar | 250 | Person's Email address |
| 4 | SurName | Varchar | 250 | Person's Surname |
| 5 | FirstName | Varchar | 250 | Person's first name |
| 6 | CurrentAge | Char | 10 | Person's current age |
| 7 | LGAName | Varchar | 250 | Person's LGA |
| 8 | LGAZone | Varchar | 15 | The LGA's zone |

### 4.8 System Implementation

#### 4.8.1 Introduction

It is a good programming practice to include document on how a new system should be managed and maintained, to enable it stand the taste of time. System implementation is the actual introduction of the new system to change the previous system. In a similar manner, systems documentation consists of writing the description of what a program does and how to use it.

The new system can be implemented in the organisation by either applying a stage-by-stage process or by running the old system and the new system simultaneously until the system takes over the old system's operation.

Furthermore, staff's in the organization must undergo a thorough training on how to operate the new system. This is to obtain, by the organization, the maximum and efficient use of the new system.

### 4.8.2 Language Justification

The researcher, in the course of developing the software used Visual C-Sharp .Net. The motive behind the use of the language is its compatibility with several Operating Systems. It is object oriented and combines the feature of Java and Visual BASIC. C-sharp runs on Visual **.**Net platform thereby making it to run on any Operating System.

It is secured in that it does not cause harm to user's system and access to information is restricted. The language is simple to learn.

## 4.9 System Requirements

This is the physical and non-physical components of the system. They are broadly classified into hardware and software requirements.

### 4.9.1 Hardware Requirements

Hardware requirements of the system are as follows:

- Random Access Memory (RAM)- at least, 64MB Memory capacity
- Hard Disk-at least 2.4GB of storage space
- Bus speed – at least 233MHZ
- Stabilizer -1000watts
- Uninterruptible Power Supply (UPS) -1000Volt Amp
- Visual Display Unit (VDU) with enhanced image graphics card
- Enhanced Keyboard and mouse
- Floppy diskette Drive -1.44MB (or 3.5" high density disk )

### 4.9.2 Software Requirements

The following are the software requirements of the system;

Microsoft Windows Operating System – (Win9x and above)

MYSQL Data Base

### 4.9.3 Software Installation

It is apparent that any software that has not been well installed on the computer system cannot be executed. Assuming you have an already installed system of any version of operating system, this application program is installed from the CD-ROM as follows:

- Switch on the system and allow it to boot
- Insert the CD-ROM into its drive
- On window start menu, CLICK the RUN option
- Locate the Program by using the "Browse" button on the RUN dialogue box
- Double click the program "Set-up" to enable the program commence installation
- After installation, lunch the program by supplying the access password to the program to gain access.

### 4.9.4 Documentation

Program documentation is an ordered set of information for the computer system to follow and produce a result. These instructions are stored in computer memory to solve problem. For this to be achieved there must be a procedure involving how to stop and start the system, enter information and must be properly documented.

The system needs to be retrieved and maintained periodically for the following reasons:

- To ensure that the system is able to cope with the changing requirements of the National Population Commission.
- To confirm that the planned objectives of the management are been met and to take actions as soon as possible, if otherwise.

### 4.9.5 Training of Operators and application details

Before the user can use the software, it is necessary to give a thorough training on how to use the software. It is also important to note that the users of the software are the operators. Training involves the tutorials, lectures or other methods used to make the users to understand how to use and maintain the software program. The following steps would help train and guide the users on how to use the program effectively:

- Follow the instruction as in the software installation above
- Compile the program from the compile option
- If successful, RUN the program from the run option of the Integrated Development Environment( IDE)
- Enter the security password to continue
- Enter the main menu, select any of the submenus you want and continue
- After performing necessary actions on the submenu, exit the program from the "EXIT" menu.

### 4.9.6 Changeover Procedures

This is the process of changing from the former or previous system to the new system. In a changeover procedure, the organization change from the existing system to new system. This can be done in one of the following ways:

a. Parallel changeover

This is the process of running the two systems simultaneously and comparing their results until the new system proves satisfactory; after which the use of the new system would be commenced.

b. Direct changeover

This is the case whereby the new system replaced the old system immediately after development and when it must have proved successful. This procedure may be drastic if the new system fails.

c. Phased changeover

In phased changeover method, the system usually starts with one unit or department of the organization. The advantage is that the organization would avoid losses in case it (the new system) fails.

d. Pilot changeover

In pilot changeover, some operations that are complex may be run in parallel with the new system followed by a direct change in some other remaining application.

### 4.9.7 Changeover Recommendation

Here in this project work, the parallel changeover method is recommended as running the two systems simultaneously or in parallel would enable the commission to have enough time to train her staff on the new system usage.

Moreover, there would be no big losses in case the developed system fails.

### 4.9.8 Maintenance Details

It is important to note that even though a system is well-built and software well-written, definitely it must go wrong at one time or the other. Maintenance may be taken to mean keeping the working standards of both the hardware and software constant. This preventive maintenance can be carried out a number of ways including the active and passive preventive maintenance.

In one way, diagnostic software can be installed alongside the operating system or even installed as a third party to resolve problems.

Periodic cleaning of the system, lubricating mechanical components, back up storage, and reseating chips would be vital to the proper functioning of the system. This method is regarded as active preventive maintenance.

Steps can be taken to prevent the system from the environment and this refers to passive preventive maintenance. These involve introducing power-protecting devices such as the uninterruptible power supply (UPS), ensuring a clean temperate-environment and preventing excessive vibration.

Other areas of consideration for the maintenance of then PC are the surface area of the circuit board and the monitor, and the floppy, CD-ROM, and the hard disk drives.

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATION

## 5.1 Summary

This research has been able to identify that the use of computer-based census management system to carry out census operations would go a long way to help maintain accurate and reliable information. Furthermore, fast-recording of relevant data is another advantage.

The researcher used National Population Commission (NPC) as a case study as that would be a good environment to study the history, evolvement, problems, etc., of the organization.

Moreover, the study of related literature was also carried out where related issues such as the history of census, processes involved in census operation, census information, population growth, population decline, benefits of computer-based census management system, etc., were discussed.

In the same way, analysis of the existing system was done to identify the associated problems. Also solutions to the identified problems were provided and the need to have a computerized system that would take care of the identified problems was discussed.

Nonetheless, analysis of the proposed system was made in which the analysis of how the new system would take care of the problems associated with the old system was done. This is done by the decomposition of the high level model of the proposed system.

Finally, documentation and implementation were affected, and the system requirement, changeover procedure, manual and training of the staff were handled.

## 5.2 Conclusion

The study of the existing system was done. And the new system designed.

The need for the computerization of the organization was highly emphasized as computer could store, update, and retrieve information in a manner that no human agent can do. Computer could always process data and produce accurate and reliable results when given correct data. The use of computer in census operations will solve problems

encountered in the manual system. Hence, one could then conclude that the computerization of the Census activities is a welcomed development that must be undertaken as it has as advantages;

- The increase in processing speed
- Improved storage facilities and easy retrieval
- Bridge the gap of transporting data with vehicle through the use of computer network.

**5.3 Recommendations**

The efficiency and effectiveness of using computer to handle census taking has already been identified by the researcher, therefore the researcher recommends;

- That the computer based census management system should be adopted in the National Population Commission (NPC).
- That the parallel changeover methodology should be adopted as that would give room for the comparison of results.
- That the staff of the commission should be thoroughly trained on the use of the software as it would enable them to be competent.

**5.4 Suggested Areas for Further Research**

Of course, this system does not contain everything about census as claiming that would mean fallacy. The system focused on the collection of information and report generation. Hence for the system to improve, we now suggested that;

- Other researchers should go into statistical data and include mathematical procedures for basic population calculations and projections.
- Other researcher should go into biometric data to include components that will detect fraudulent activities.

**5.5 Areas of Application**

This system will find application in any agency whose primary job was to enumerate human beings of any age bracket. For instance, the Anambra State malaria control department of the Ministry of health enumerates children at infancy and pregnant women.

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## APPENDIX 1

**User Name: Ese**

**Password: Warri**