# INTRODUCTION TO VITAL STATISTICS

- The most important and extensive source of vital statistics both at national and sub-national level is the census.
- Data pertaining to individuals and their households are gathered periodically through a complete enumeration.
- The census provides information on the size of the population at a specified time.
- To study changes in the size of the population, we require data on births, deaths and migration.
- Almost all governments have, as a part of their statistical system, agencies concerned with the continuous recording of data on births, deaths and even than in many cases of marriages, migration etc.
- These agencies supply periodically the total number of vital events that occurred during specified intervals in the form of summary reports.
- The system of collecting vital statistics known as vital registration, differs from the census operation.

# VITAL STATISTICS – A DEFINITION

- Vital statistics is the most important branch of statistics as it deals with mankind in the aggregate. It is the science of numbers applied to the life history of communities and the nation.
- Vital statistics signifies either the data or the methods applied in the analysis of data which provide a description of the vital events (birth, sickness, marriage, divorce, adoption, recognition, separation, deaths etc.) occurring in the communities or in the nation or in a specified region during a specified interval of time.
- Vital statistics may be defined as the total process of registering, compiling and reporting of the aggregate of vital events which have to do with an individual's entrance into life or exit from life and changes in the social and civil status (marriage, divorce, adoption etc.) that may occur during a specified interval of time, among the members of a population residing within a country or any delimited territory during the same period.

- Vital statistics in broader sense refers to all types of population statistics by whatever mode, it is collected and in narrow sense, refers only to the statistics derived from registration of births, deaths, migration, morbidity etc. in the communities or in the nation. (Arthur Newsholme)
- Vital statistics are conventionally numerical records of marriage, births, sickness and deaths by which the health and growth of a community/nation may be studied. (B. Benjamin)
- Vital Statistics is that branch of statistical biometry which deals with data and the laws of human mortality, morbidity and demography. (Arthur Newsholme)

**Therefore, in broader sense, vital statistics refers to all types of population statistics with the purpose to find out changing composition of communities/nations with reference to sex, age, education, birth and death rates, marriages, economics and civic status etc.**

# USES OF VITAL STATISTICS

- **Use to Individuals:** Records of births, deaths, marriages etc. including recognition, adoption, divorce etc. are of paramount use to individuals. These basic registration documents or the certified copies of these documents has the legal significance to the concerned person and is permanent used in the individual lifetime.
- **Use to operating agencies:** Records of birth etc. are very useful tools to the Government/policy makers for various administrative purposes. For example, awareness of public health programmes of post-natal care, control programmes of infectious diseases, public safety, death registration records, crime eradication etc. are of most important use to the Government agencies. Vital registration serve as basic data for planning administration of public health, implementing social welfare measures and drawing various schemes for distribution of public facilities, insurance, trade and commerce also heavily depend upon the vital statistics.

- **Use in Research:** Vital statistics records are very important in demographic research. The study of population growth, population estimation, population projection and analytical studies are of the most important to the Government and policy makers. It also has the significant use in medical research such as in mortality and post-natal statistics of any community/nation.
- **Use in National Vital Statistics:** Statistics in general and Vital statistics in particular are fundamental elements to the Government in public administration and is extremely useful in economic and social development programmes in the nation.
- **Use in International Vital Statistics:** Vital statistics records are also very useful from the international point of view. These are of utmost use in comparison of population growth, medical facilities required, birth, mortality, morbidity rates etc. in any country.

**It may be mentioned that vital statistics and multiple vital records are not ends in themselves but these are continuous tools for the study and development of the human population of the communities/ nations.**

# METHODS OF OBTAINING VITAL STATISTICS

- **Registration Method:** Backbone of Vital Statistics . It is the continuous and permanent record of all the vital events of any region/state/nation and used as legal document. Continuous and permanent records of vital statistics can best be ensured by means of legislation which makes registration of all vital events compulsory. Therefore, registration method is characterized not only by the continuous character of observations but also by the compulsory nature of the method. Registration of vital events for legal purposes is an universal permanent requirement. In a modern society, Birth certificate is necessary and used for various purposes in the lifetime of an individual and the death certificate is of utmost use to the family members of the individual.
- **Population Register:** A population register is a record intended to provide a comprehensive account of all changes in a population. Usually, it records, apart from births, deaths and marriages, movement of people and other related events, that have relevance to population size and change.

- **Census Enumeration Method:** A census is an enumeration at a specified time of individuals inhabiting in a specified area during which the particulars are collected regarding age, sex, marital status, occupation and religion etc. Main deficiency of this is that it produces the data for the census year only and does not produce the records of vital events and also fails to produce the data for the intercensal years. It also fails to record completely the occurrence of births and deaths even for the census year. Periodic surveys have been employed to secure adhoc information on births and deaths in areas where registration method has not been established or where it is very defective. These surveys have the distinct advantages of making available some information on vital stat at the same time the corresponding population.

- **Analytical Method:** Estimation of Vital Rates using Census Data: It is assumed that the estimation of birth, death, marriage rates is the primary object of collecting vital statistics. This method is mathematical one based on analysis of the population growth of two consecutive censuses of the population of any country. This analysis employed must of necessity be the result of very accurate, reliable and dependable enumerations which must produce very reliable age, death and marital status distribution of the population. If certain assumptions are made regarding migration and the reliability of the enumeration is ensured, data from population censuses can be used to derive information on the approximate number of vital events which have occurred in the two consecutive censuses. This method is called the Indirect method for obtaining the vital statistics of any community/nation.

# Estimation of Population

- A very common method to determine the population at time t subsequent to a census or between two censuses is to make use of statistics of births, deaths, immigration and emigration. The population at time t is obtained by

  Population at time t = Total population recorded at last census + (B – D) + (I – E)

  where B = total number of births during the given period

  D = total number of deaths during the given period

  I = total number of immigrants

  E = total number of emigrants