

## **Population education II Bed year**

### **UNIT 1**

#### **Introduction**

The nucleus of economic and social development is to improve the quality of lives of people, so that they could be assets to the society by making themselves productive. India is the first country in the world to launch a national programme in 1952, emphasizing family planning with a view to reducing birth rates “to stabilize the population at the level consistent with the requirement of national economy”. After 1952, sharp declines in the death rates were, however, not accompanied by similar drop in birth rates.

The National Health Policy, 1983 stated that replacement levels of total fertility rate (TFR: average number of children born to a woman during her life time) should be achieved by the year 2000. In the backdrop of the above, population of India has already crossed 1 million (100 crore) mark in 2000. The present status regarding the Indian population is 1,345,647,804 (1.34 billion) As of October 5, 2016 Some basic information may make the matter more clear. India has 18 per cent of global population and 2.4 percent of globe’s land area.

If current trend of population growth continues, India may overtake China in 2045, to become the most populous country in the world. Stabilizing population is an essential requirement for promoting sustainable development with more equitable distribution. Therefore ,we need to educate people about issues of growing population.

#### **Population Education-An Introduction**

World population which was 300,000,000 in 1 AD took 1700 years to increase (double itself) to 640,000,000, but it took only 150 years to double itself again to reach 1,265,000,000 by 1850, and after that only, 100 years to double itself to touch 2,5 16,000,000 figure by 1950.

Current population of the entire world is approximately 7,455,107 987( At this stage, such unprecedented phenomenal growth of world population has received global attention. When the population changes began to affect the

development and quality of life of people at individual, familial, community, national and international level, debate started on problems and issues of population followed by efforts to control the same.

That was the beginning of the efforts to control population both at global and national levels. Efforts to promote direct methods of population control such as adoption of family planning by people have not yielded adequate results due to lack of understanding and motivation at individual and familial levels to adopt family planning methods and techniques.

Thus, population education has been identified as one of the effective interventionist strategies to influence adoption of family planning by the eligible couple and other age-groups of population through imparting necessary knowledge, attitudes, skills and practices in respect of population matters. Yet, by 1995, once again the figure has more than doubled (reached 5,760,000,000) in just 45 years. Further, it crossed 7 billion mark on 31 October 2011. As a result, population education has acquired increasing global attention in view of its place in the overall development of the individuals, families, communities, nations and the world.

It is, therefore, essential for us to understand the concept and significance of population education at national and international level. In ordinary language, by Population Education, we mean the study of the great number of people living on a definite portion of territory having their own Customs, Traditions, Culture, Religion, Beliefs and their own way of life but population education has not yet been defined accurately. The credit for introducing the concept of population education goes to Dr. Sloan Wayland of Teachers College, Columbia University. Several attempts have been made to define population education but no commonly accepted concept has emerged.

**Perhaps this difficulty has arisen on account of three reasons:**

- 1) The concept of population education is of recent origin.
- 2) Population issues are not totally similar in all countries.
- 3) The traditional and cultural values of different countries are not the same.

However, the following definitions put forward by eminent personalities may clear the concept of population education to some extent.

**1. According to Harol Howe**, “Population education is the educational process by which a revision of attitudes towards family size is to be brought about. The process draws on the resources of a number of fields at all levels of education.”

This definition of population education pertains to the size of the family. It is therefore very limited in its scope.

**2. Intensive Training Programme of population education conducted by the Department of Education, Philippines, 1972 defined population education as,**

“Population education is the process of developing awareness & understanding of population situation as well as a rational attitude & behaviour towards this situation for the attainment of quality of life for the individual, the family, the community, the Nation and the World.”

**3. According to Gopal Rao**, “Population Education is an educational programme which provides for the study of the population phenomenon so as to enable the students to take rational decisions towards problems arising out of rapid population growth.”

**From the above definitions we can draw the following conclusion:**

- 1) Population education is a programme of creating awareness among students and the public about the various causes and harmful consequences of rapid growth of population.
- 2) It explains the very changes, characteristics and nature of at least two essential components of population, i.e., Fertility and Mortality rates.
- 3) It deals with population growth as a phenomenon to be understood for taking decisions about family size and the national population policies.
- 4) It explains who environment is damaged by excessive growth of population.
- 5) Population education is an innovation which is almost universal in nature. The universal goal of population education is to stabilize the human population.

The above discussion reveals that population education should not be misunderstood as sex education, family planning, family welfare project, family life education. But population education is an educational programme which studies the population situation in the family, in the community, in the nation and in the world. It is a relationship between population change and quality of life at the micro and macro-level.

Population education enables those students to be aware of the process and consequences of the population growth on the quality of our lives and the environment. The child gets an opportunity to investigate and explore the interaction between populations and their environments. The child also knows the causes and consequences of population increase at local, national and global level.

**Meaning of population Education: According to UNESCO, “Population Education is an educational programme which provides for a study of population situation of the family, the community, nation and world, with the purpose of developing in the students rational and responsible attitudes and behaviour towards that situation.”**

### **1.1 Meaning of Population Education**

Population Education in lay man’s language is the education about population matters i.e. fertility, mortality, migration, etc.

But population education is an educational process. It is a desired to help people to understand the nature, the causes and consequences of population growth.

The population forces (fertility, mortality, migration) are shaped by the population related policies. These factors operate within the society and affect social, political and economic standards also. In other ways the political, social and economic decisions made by the people of a society of Nation influence the behaviour of the individual in relation to population growth.

## **1.2 Definitions:**

According to Gopal Rao, “Population education an educational programme which provides for a study of the population phenomenon so as to enable the students to make rational decisions towards problems arising of rapid population growth”. To tell in simple words population education means educating the students about a large population or ever increasing population and problems “which the population creates”.

According to Sharma, “Population education is the study of human population in relation to his environment with a view to improving his quality of life without adversely affecting the environment.”

In view of Burbson “Population education is an exploration of knowledge and attitude about population, the family and sex. It includes population awareness, family living, reproduction education and basic values”.

Population education should not be misunderstood as sex education, family planning, family welfare project, family life education. But population education is an educational programme which studies the population situation in the family, in the community, in the nation and in the world. It is a relationship between population change and quality of life at the micro and macro-level.

Population education enables those students to be aware of the process and consequences of the population growth on the quality of our lives and the environment. The child gets an opportunity to investigate and explore the interaction between populations and their environments. Population characteristics, the meaning and nature of the process. The child also knows the causes and consequences of population increase at local, national and global level.

## **1.3 Objectives of Population Education**

### **The objectives of Population Education are:**

- 1) To enable the students to understand that family size is controlled.
- 2) To understand that population limitation can facilitate the development of a higher quality of life in the nation.

- 3) To understand That a small family size can contribute materially to the quality of living for the individual family.
- 4) To understand population dynamics of the country in the light of world population.
- 5) To enable the students to appreciate the fact that for preserving the health and welfare of the members of the family and to ensure good prospects for the younger generation, the Indian families of today and tomorrow should be small and compact.
- 6) To give accurate information to the students about the effect of changes in family size and in national population on the individual.
- 7) To change the attitude of younger generation towards family size.
- 8) To understand the causative factors of population growth.
- 9) To understand the importance of small family norm and its relation to economic development.
- 10) To develop in younger generation the appreciation for small family.
- 11) To develop in younger generation the appreciation for the preservation of health of a mother and the health of child.
- 12) To develop an understanding that family size is controllable.
- 13) To develop an understanding about the impact of large population on the environment and the natural resources.

#### **1.4 Scope of population education**

population education studies population situation and problems, and social and economic problems arising due to increase in population. population education also studies the relationship between pollution and population of the world.

sex education, family planning education and demography are not considered synonymous with population education but some elements of these are included in population education. population education is to be spread in both the formal and informal sectors.

## **The scopes of population education can be divided into five areas**

### **1) Demography:**

it is the study of population. it analyses population movement. the birth, deaths and migration are the elements of population. fertility, mortality and migration are called demographic processes. fertility rate, mortality rate, migration rate and population growth rate come under the area of demographic measurement

#### **I ) factors affection population:**

a) births    b) death    c) migration

ii) Demographic measures:    a) fertility rate    b) mortality rate    c) migration rate

iii) sources of demographic data: a) population census b) registration of birth, marriage and death

iv ) population:    a) size    b) composition    c) distribution d) population density  
e)dependency ratio f)life expectancy

### **2 ) Determinants of population growth:**

The change in population means change in the number of people. fertility, mortality and migration of demographic processes come under this. biological, social and cultural factors which affect the demographic process are included in it:

i) fertility ii )mortality iii )migration iv) social, religious, cultural and economic aspects v) values, traditions and beliefs.

### **3) effects of rapid population growth:**

The economic development, food production, health, education and physical environment are affected by the pressure of rapidly growing population. the inter-relationship among population growth, economic development and social welfare come under this area:

i)economic development ii)production of cereal crops iii)employment iv)health services v)education vi)environment vii)natural resources.

**4) Human sexuality and reproduction system:**

The difference in body structure of male and female, the role of man and woman in the society, fertility system, sex development, biological, social and psychological aspects are included in this subject:

- i) difference in the body structure of male and female
- ii) structure and functions of productive organs of the body of male and female.
- iii) sex development- biological, social and psychological aspects
- iv) reproductive system
- v) sex education
- vi) role of male and female in the society
- vii) marriage etc.

**5) planning for future:**

Marriage, family life, family planning, family welfare, number of children, child spacing, etc. comes under this category. When to get marriage, when to bear the children, where to live and where to get work are the problems of this subjects:

- i) marriage ii) family life and family welfare iii) size of family iv) child spacing v) health of child vi) family planning vii) care of child.

**1.5 Need & Importance of Population Education**

The need & importance of population education can be stated under following headings:

**1) Controlling of Population Explosion**

At present we are witness the unprecedented growth of population in the form of population explosion. This is indeed a dangerous trend as it poses a great challenge for the welfare and development of the India and the entire mankind. Here population education can serve as safety value against the global threat to mankind.



## 2) **Ensuring Quality Life:**

Rapid population growth is a great hindrance in the way of enjoying the better standard of life. Here population education serves as a potent instrument through which people can be made aware about the better quality life through a programme of planned intervention to stop unprecedented the population growth and to ensure better stand of life.

## 3) **Optimum Use of Natural Resources:**

The problem of rapid population growth has led to the uneven and indiscriminate use of natural resources. As a result multiple problems and issue have come up on account of this problem.

## 4) **Solving Food Problem:**

Third world countries like India find is very hard to make both ends meet. The developing countries like India are not able to meet the adequate provision of food millions of helpless and poor people. Population education can help in this regard by make people aware about the ill

## 5) **Effects of over population.**

Creating Positive & Health Attitude among Students: Population education in long run can help us to developing in young generation the positive attitude toward rapid population growth and its effects on economy and development of the take rational decisions about the looming threat of population explosion.

## 6) **Developing Appropriate Reproductive Behaviour:**

About 50% Population in India is under the age of 18. This age group needs to be properly made aware ill effects of population growth. Population education is needed on the account that it can help us to develop among the young generations the appropriate reproductive behaviour. At present

## 7) **Need for Democracy:** It has been well said that greater the population lesser the democracy and lesser the population greater the democracy. Population explosion leads to unemployment, poverty and many other social

issues; therefore there is need of restricting the rapid population for the success of democracy and the development of the nation.

- 8) **To check the effects of over population:** Population education makes us aware of the ill effects of the rapid population growth and its impact on the socio-economic prospects of the nation. Therefore there is the need of population education for better understanding of the issues related to the population.

### **1.6 Purpose of population education as intergral part of education.**

Education has a great motivational force to perform for controlling over population. Suitable educational measures need to adopted to promote desirable changes.

1. Community forums and voluntary organisations should discuss the drawbacks of large families and the merits of small families.
2. Children in the elementary stage should also be taught through their courses of study, the merits of small family and demerits of large family and should develop favourable attitude and appreciation for having a small family when they become adults.
3. Boys and girls at the secondary stage should be given the knowledge in a scientific way about the reproductive biology system and the sex-hygiene.
4. Parent-teacher associations can also take the responsibility of educating the families.
5. Schools should assume the responsibility of educating the community and the families and should collaborate with other agencies for the education of the masses for having small families.

### **1.7 Historical Background of Population Education**

Population education has a relatively short history. The first attempt to voice the need for population education was made, perhaps, by Alva Myrdal in 1941. In her book Nation and Family, she tried to convince the USA that a conscious population policy was essential to realize the social policy. She emphasized the role of education in the development of new population policy.

The March 1962 issue of Teachers College Record, Columbia University, carried an article by Warren S Thomson entitled 'The Population Explosion', and another article 'Population-Gap in the Curriculum' by Philip M Hauser. Both these articles drew attention to the need for including population content in the school curriculum. In 1964, a project to prepare instructional materials related to population education was undertaken at Teachers College, Columbia University, under the leadership of Prof Sloan Wayland. The output of this project was two documents - "Teaching Population Dynamics", and "Critical Stage of Reproduction". These were designed as proto-type materials for the pre-service training of secondary school teachers.

The first Director-General of UNESCO, Sir Julian Huxley, in his Annual Report for 1948, emphasized that overpopulation could drastically affect the future civilization and its rate of advance. He was particularly concerned by the undernourishment of much of the world's population and with the problems of erosion and depletion of natural resources.

He wrote, "Population must be balanced against resources or civilizations will perish." He suggested that UNESCO's task must include educating the peoples of the world to realize the gravity of the problems involved.

The workshop on Population and Family Education, sponsored by the UNESCO Regional Office for Education in Asia held at Bangkok in September-October 1970, was a landmark in (his history of population education. Educators from 13 member states in Asia addressed themselves to the task of preparing a statement of objectives for population education, suggesting strategies for organizing programmes, outlining content for incorporation into school curriculum in the social sciences and the natural sciences, and preparing a set of draft sample instructional materials in mathematics, science, and social studies.

A noteworthy outcome of the workshop was that in course of time several of the participants played key roles in developing population education programmes in their own countries.

After initial resistance, the programme of population education picked up quite fast in the seventies. Five countries in Asia launched national programmes in population education after the 1970 Regional Workshop, with financial support

from the United Nations Fund for Population Activities (UNFPA) and technical assistance from UNESCO. India was perhaps, the first country to have taken up the task of introducing population education. India launched the National Family Welfare Programme in 1951 with the objective of "reducing the birth rate to the extent necessary to stabilize the population at a level consistent with the requirement of the National economy.

The Family Welfare Programme in India is recognized as a priority area, and is being implemented as a 100% centrally sponsored programme.

The national family planning program was launched in 1951, and was the world's first governmental population stabilisation program. During the First and Second Five Year Plans population education was mainly "Clinical" under which facilities for provision of services were created. Clinical approach adopted in the first two plans was replaced by "Extension and Education Approach" which envisaged expansion of services facilities along with spread of message of small family norm.

In the IV Plan (1969-74), high priority was accorded to the programme and it was proposed to reduce birth rate from 35 per thousand to 32 per thousand by the end of plan. The objective of the V plan (1974-79) was to bring down the birth rate to 30 per thousand by the end of 1978-79 by increasing integration of family planning services with those of Health, Maternal and Child Health (MCH) and Nutrition, so that the programme became more readily acceptable

The first National Seminar on Population Education held in 1969 in Bombay (now Mumbai) set the pace for the introduction of population education in the school system. The seminar was chaired by Dhairwandy Rama Rao.

The Department of Social Science and Humanities of NCERT provided the academic services for the seminar. The seminar proposed that population education should be an integral part of education at all levels. It was also proposed that population education should be introduced into the curriculum at school and college level.

Further it was proposed that Population Education Cell should be established in NCERT in order to develop suitable curricula of population education. The

education of out of school children was also advocated. Promotion of research in education was also stressed.

During 198's Population education has been launched as a national programme under the banner of the National Population Education Programme (NPEP) by the Ministry of Education with the financial support and technical assistance of UNESCO. By 1998, all the states and union territories were implementing the programme. The NPEP has completed three cycles and entered a new phase in 1998. During its first cycle, it had sought to institutionalize population education in the formal school and teacher training systems.

The programme was expanded to non-formal education, adult education and universities during the Seventh Five Year Plan (1986-90). Similarly in the VI five year Plan (1980-85), certain long-term demographic goals of reaching net reproduction rate of unity were envisaged.

The Family Welfare Programme during VII five year plan (1985-90) was continued on a purely voluntary basis with emphasis on promoting spacing methods, securing maximum community participation and promoting maternal and child health care. Realizing that Government efforts alone in propagating and motivating the people for adaptation of small family norm would not be sufficient, greater stress has been laid on the involvement of NGOs to supplement and complement the Government efforts. Reduction in the population growth rate has been recognized as one of the priority objectives during the Ninth & Tenth Plan period.

The population education programme is now being implemented in many countries at various levels of education in primary and secondary schools, pre-service and in-service teacher training, vocational and technical schools, higher education and non-formal and adult education.

In this way the concept of Population Education has evolved and it is growing in a world-wide movement from strength to strength at the initiative and cooperation of various national and international, governmental and voluntary agencies.

According to current projections, the global population will reach eight billion by 2024, and is likely to reach around nine billion by 2042. ... Long-range predictions to 2150 range from a population decline to 3.2 billion in the "low scenario", to "high scenarios" of 24.8 billion.

### **1.8 DISTRIBUTION AND DENSITY OF POPULATION (Demographic situation of the World.)**

Man is the cream of creation. He is the creator, producer and consumer. There is no part of the earth which has not been touched by man. To understand population properly, it is necessary to understand know distribution and density of population.

According to 2011 census, the estimated population of the world is 7 billion out of the estimated population 75.5% is concentrated in the developing and under developing and under developing countries of Europe, North America, South Africa, Japan, Australia and New zeland.

#### **Continent wise the distribution is**

Asia =61.2%, Africa =11.5%, North America =5.4%, South America =8.4%  
Europe + Russia =13% and Oceania=0.5%

Country wise china is the largest country with a population of 1.35 billion of the world and comprises of about 20% of the world population. It is followed by India. The population of India according to 2011 census is 1.20 billion. It comproses of the 17.5% of the population of the world. The next in order are U.S.A, (27 million), Indonesia (21 million), Russia (16 million), Japan (13million), Bangladesh (12.8milli n) and Nigeria (11 million)

Hemisphere wise 90% of the total population is concentrated in the Northern hemisphere and only 10% is in the southern hemisphere.

### **1.7 DENSITY OF POPULATION**

Population distribution is more locational, while as population density is more proportional population distribution is the spatial distribution in which people finds its location. Population density means relationship that exists between size of

population and the area, Density of population is expressed in number of ways. The two important ways are

### 1. Arithmetic density = Total Population

Total area

Expressed in terms of number of persons per sq.km.

### 2. Physiological density or Nutritional density

= Total Population

Total agriculture area

Expressed in terms of number of persons per sq.km of arable lands or agricultural land. The average arithmetic density of world population is about 45 persons per sq.km. The actual density of population varies from place to place, region and country to country. The density of population varies from less than 1 person per sq.km to over 1000 persons per sq. Km and the areas of high density of population are small and scattered.

Such unevenness in the distribution of population is not found as whole but in each region and country. There are number of factors which are responsible for such uneven distribution of population.

## **DISTRIBUTION OF POPULATION IN WORLD**

The world has been divided into 3 zones on the basis of density of population. These three zones are;

1. Regions of High density of population
2. Regions of moderate density of population
3. Regions of low density of population

### **Regions of High density of population**

The regions of high density of population include those areas where the density of population is above 250 persons per sq km. There are four major zones of high density of population in the world.

1)Eastern Asia: - which include china, Japan and kore.

2)Southern Asia: - Comprising of India, Pakistan and Bangladesh.

3)North Western Europe: - Comprising of Great Britain, Nether lands, Belgium, Denmark and Germany.

• ***North eastern United States:*** - comprising regions between Great lakes and Atlantic coast.

The high density of population in the first two regions of Asia is due to intensive agriculture in low lands receiving adequate rainfall and irrigation facilities similarly there is high density of population in Nile valley and Java Islands of Indonesia. These are regions of intensive agriculture. The regions in Europe and United States have high density of population due to industrialisation and urbanisation.

### **Regions of medium Density**

The regions of medium density of population include the areas where the density of population is between 50-250 persons per sq. Km. Moderate density of population occurs in the river valleys of south- East Asia, central and southern Europe, Russia, regions of South America and South Africa. These are regions of extensive agriculture, pastoral activities and industrial development.

### **Regions of Low density's**

The regions of low density of population comprises of the areas where the density of population is below 50persons per sq.km. These include 80% of the land are, which is too rugged, too hot, too cold, too wet, too dry for the people to live in large number. The Polar Regions such as Antarctica and Greenland are extremely cold and sparsely peopled. The high mountains & dissected plateaus such as those in central Asia have rugged relief which render settlements rather difficult except in accessible areas. The equatorial rain forest regions are inhospitable to live. The tropical deserts such as Sahara and Australia do not favour such as Sahara and Australia do not favour human settlement except in oases.

In such inhospitable forests, deserts or mountainous regions, small number of nomads inhabit the area.



**What is the world population in 2019?**

7.7 Billion

7.7 Billion (2019)

The current world population is 7.7 billion as of October 2019 according to the most recent United Nations estimates elaborated by Worldometers.

Life expectancy refers to the number of years a person is expected to live based on the statistical average. Life expectancy varies by geographical area and by era. ... In mathematical terms, life expectancy refers to the expected number of years remaining for an individual at any given age.

**DISTRIBUTION AND DENSITY OF POPULATION IN INDIA.**

The population of India according to 2011 census is 1021 billion. It accounts for 17.5% of the total population of the world. However India accounts only for 2.42% of the total land area of the world. The density of population according to 2011 is 382 persons per sq. Km. Up with a population of 199 million are the largest populated states of India. It is followed by Maharashtra (112million) Bihar (104million), west Bengal (a/m) M.P (72million) T.N (71million) Rajasthan, Karnataka etc. Population wise Sikkim is the smallest state and its population is (1.05million)

On the basis of density of population Indian states /union territories can be divided into 3 categories.

1. High density 2. Medium density 3. Low density

**1.High density states /Union Berritories.**

The states of high density of population comprises of the states /union Berritories where the density of population is above national average i.e. 382 persons per sq. Km. Bihar (1,106), west Bengal (1,028), Kerala (860) Up (829) Haryana (573) T.N (555) Punjab (551) Delhi (11320), Chandigarh (9258) Pondicherry (2547) Daman Di4 (2191) Lakshadweep (2149) Dadra Nagar Haveli (700)

**2.Moderate Density states/union territories.**

The states of moderate density of population comprises of those states /union territories where the population density is between 100-382 persons per sq km. They include Maharashtra (308), Jelangona (309), Rajasthan (132), J&K (124) Himachal Pradesh (123) Nagaland (119), Manipur (115).

### **3.Low Density states/Union territories.**

These include those states where the population density is below 100 and comprises of. Sikkim (86), Mizoram (52), Arunachalprash (17) and Andman Nicobar Island (46).

### **FACTORS AFFECTING THE DISTRIBUTION OF POPULATION:-**

The population distribution pattern is ever changing phenomena. The main factors which affect the distribution of population on the surface of the earth are grouped into two categories.

#### **1) Physical factors**

#### **2) Non-physical factors.**

#### **1. PHYSICAL FACTORS**

The physical factors which determine the distribution of population are;

1) **LOCATION:-** About 66% of the world population is concerned up to the distance of 500km from sea, and 75% up to the distance of 1000kms from the sea. These figures indicate that coasts are density population. This is because coastal areas experience moderate climate conditions and have increased accessibility to all the regions.

**2) Climate:-** The most importance factor which determines the distribution of population in any region of the hot and humid climate is hostile for the people and has small concentration of population cold climates are also not suitable for population concentration and the areas of cold climate are sparsely peopled. The hot deserts of the, where temperature remains very high and have seareity of water also do not attract people. The areas where climate conditions are favourable are densely peopled.

**3) Relief:** - The relief feature of the earth exerts tremendous influence upon the distribution of population in the different parts of the world high rugged relief restrict human access, habitation and cultivation. Almost all the mountainous areas of the world do not favour the human settlements and that is why population in such areas is sparse.

The plains and valley support human activity and are densely populated.

**4) Soils:** - is the medium on which crops are cultivated. The soils supply us with three basic necessities of life.i.e. Food clothing and shelter. The areas with fertile soil support and attract large people. The fertile soil are density populated on the other hand the areas with infertile soil are sparsely populated.

**5) ENERGY RESOURCES:** - The regions which are rich in energy and mineral resources attract people for the exploitation of resources for the economic upliftment of living standard petroleum and coal form the basis for the modern industrial development and where the minerals are found the population is dense.

**6) ALTITUDE:** - It has been found that the density of population decreases with altitude. Nearly 80% of the population is concentrated up to the attitude of 500mts. High altitude impose limitation on the human habitation due to drastic reduction of atmospheric pressure and reduction of oxygen level, which are dangerous for human being.

## **2. NON PHYSICAL FACTORS**

The non physical factors or cultural factors which determine the distribution of population in the world are;

**I. Historical Factors:** - The cities of early civilization are generally crowded because they have got settled very early i.e. Athens, Rome, and Nile valley Delhi etc.

**II. Demographic Factors:** - These include the regions distribution fertility, mortality and migration Higher the fertility, higher the density of population. Higher the mortality, lower the density of population and higher the immigration rate higher the density of population and higher the emigration lower the density of population.

**III. Urbanisation:** - Urban areas are densely populated than rural areas because of availability of employment facilities and other socio-economic facilities.

**IV. Industrialization:** - Industrialization leads to urbanisation. Industrial economy supports large population as compared to agricultural economy.

**V. Modern facilities:** - The areas with modern facilities i.e. having a good network of roads and communication, hospitals, drinking water, electricity, educational facilities, computer network tend to be densely populated.

**VI. Cultural factors:-** These include social attitudes, stage of economic development and political organization.

### **List of states and union territories of India by population**

India is a union of 28 states and 9 union territories.

[1] As of 2011, with an estimated population of 1.2 billion, India is the world's second most populous country after the People's Republic of China. India occupies 2.4% of the world's land and is home to 17.5% of the world's population.

[2] The Indo-Gangetic plains have one of the world's biggest stretches of fertile flat-deep alluvium and are among the most densely populated areas of the world. The eastern and western coastal regions of Deccan Plateau are also densely populated regions of India.

The Thar Desert in western Rajasthan is one of the most densely populated deserts in the world. The northern and north-eastern states along the Himalayas contain cold arid deserts with fertile valleys. These states have relatively less population density due to indomitable physical barriers.

3) The first population census in British India was conducted in 1872. Since India's independence in 1947, a census has been conducted every 10 years, the first occurring in 1951.

[4] The census in India is conducted by the Office of the Registrar General and Census Commissioner under the Ministry of Home Affairs, and is one of the largest administrative tasks conducted by a federal government.

[5] The latest population figures are based on data from the 2011 census of India.

[6] During the decade of 2001–2011, India's annual population growth rate has slowed down from 2.15 percent to 1.76 percent.

[7] Based on decennial census data, Dadra and Nagar Haveli have the fastest growth rate of 55.5 percent, followed by Daman and Diu (53.5 percent), Meghalaya (27.8 percent) and Arunachal Pradesh (25.9 percent). Nagaland recorded the lowest growth rate of -0.5 percent

. [7] India has 641,000 inhabited villages and 72.2 percent of the total population reside in these rural area

. [a] Of them 145,000 villages have population size of 500–999 persons; 130,000 villages have population size of 1000–1999 and 128,000 villages have population size of 200–499. There are 3,961 villages that have a population of 10,000 persons or more.

[b] India's 27.8 percent urban population lives in more than 5,100 towns and over 380 urban agglomerations.

[8] In the decade of 1991–2001, migration to major cities caused rapid increase in urban population.

[9][10] On the basis of net migrants by last residence during the past decade, Maharashtra had most immigration with 2.3 million, followed by National Capital Territory of Delhi (1.7 million), Gujarat (0.68 million) and Haryana (0.67 million). Uttar Pradesh (–2.6 million) and Bihar (–1.7 million) topped the list for interstate emigration.

[10] The five states of Uttar Pradesh, Maharashtra, Bihar, West Bengal and Madhya Pradesh account for almost half (47.90 percent) of the total Indian population.[6]

While the national average for sex ratio shows an increase from 933 in 2001 to 940 in 2011,[6] the 2011 census shows a sharp decline in child sex ratio, the number of females per thousand males in a population between age group 0–6 years.[6] States such as Punjab, Haryana, Himachal Pradesh, Gujarat, Tamil Nadu, Mizoram and Andaman and Nicobar Islands recorded an increase in child sex ratio.[6] National child sex ratio has declined from 927 in 2001 to 914 in 2011.

[6] Telangana census was separated from Andhra Pradesh state census figures, after Telangana was officially formed on 2 June 2014

[12] Uttar Pradesh is the most populous state of India with estimated population of 228,959,599 in 2018. which is more than the population of Brazil, the fifth most populous country in the world. Uttar Pradesh accounts for 17.15% of the total country population 1,335,140,907. Maharashtra is the second most populous state with more than 120 million people living here closely followed by Bihar is at third place. Population of Maharashtra and Bihar are slightly less than Japan.

Three states have population more than 10 crore. Twenty states and one union territory (Delhi) have a population of over ten million. 48.63% of the country's population lives in five States, namely, Uttar Pradesh, Maharashtra, Bihar, West Bengal and Madhya Pradesh. Ten most populated states of India contributes 73.92% of India's population.

Seven States has population more than 20th ranked country of the world. 16 states comes under top 50 countries.

Sikkim (671,720) is smallest state and Lakshadweep (71,218) is smallest union territory of India.

Bihar has highest growth during 2011-2018 of 14.76% followed by Uttar Pradesh and Rajasthan. Daman & Diu is only state/UTs having negative decadal growth rate of -9.52%.

Top 5 states with highest sharing of rural population : Himachal Pradesh, Bihar, Assam, Odisha and Meghalaya.

Top 5 states with highest sharing of urban population : Goa, Mizoram, Tamil Nadu, Kerala and Maharashtra.

### **1.10 INTRODUCTION-- CAUSES OF OVERPOPULATION**

The rapid growth of the world's population over the past one hundred years results from a difference between the rate of birth and the rate of death. The growth in human population around the world affects all people through its impact on the economy and environment.

The current rate of population growth is now a significant burden to human well-being. Understanding the factors which affect population growth patterns can help us plan for the future.

### **1.10 CAUSES OF OVERPOPULATION**

**The following are the causes for overpopulation.**

#### **i. Decline in the Death Rate**

The fall in death rates that is decline in mortality rate is one fundamental causes of overpopulation. Owing to the advancements in medicine, man has found cures to the previously fatal diseases. The new inventions in medicine have brought in treatments for most of the dreadful diseases. This has resulted in an increase in the life expectancy of individuals. Mortality rate has declined leading to an increase in population.

Owing to modern medications and improved treatments to various illnesses, the overall death rate has gone down. The brighter side of it is that we have been able to fight many diseases and prevent deaths. On the other hand, the medical boon has brought with it, the curse of overpopulation.

#### **ii. Rise in the Birth Rate**

Thanks to the new discoveries in nutritional science, we have been able to bring in increase in the fertility rates of human beings. Medicines of today can boost the reproductive rate in human beings. There are medicines and treatments, which can help in conception. Thus, science has led to an increase in birth rate. This is certainly a reason to be proud and happy but advances in medicine have also become a cause of overpopulation.

#### **iii. Migration**

Immigration is a problem in some parts of the world. If the inhabitants of various countries migrate to a particular part of the world and settle over there, the area is bound to suffer from the ill effects of overpopulation. If the rates of emigration from a certain nation do not match the rates of immigration to that country, overpopulation makes its way. The country becomes overly populated.

Crowding of immigrants in certain parts of the world, results in an imbalance in the density of population.

#### **iv. Lack of Education**

Illiteracy is another important cause of overpopulation. Those lacking education fail to understand the need to prevent excessive growth of population. They are unable to understand the harmful effects that overpopulation has.

They are unaware of the ways to control population. Lack of family planning is commonly seen in the illiterate lot of the world. This is one of the major factors leading to overpopulation. Due to ignorance, they do not take to family planning measures, thus contributing to a rise in population.

Viewing the issue of increasing population optimistically, one may say that overpopulation means the increase in human resources. The increase in the number of people is the increase in the number of productive hands and creative minds. But we cannot ignore the fact that the increase in the number producers implies an increase in the number of consumers. Greater number of people requires a greater number of resources.

Not every nation is capable of providing its people with the adequate amount of resources. The ever-increasing population will eventually leave no nation capable of providing its people with the resources they need to thrive. When the environment fails to accommodate the living beings that inhabit it, overpopulation becomes a disaster.

#### **The two main common causes leading to over population in India are**

- 1) The birth rate is still higher than the death rate. We have been successful in declining the death rates but the same cannot be said for birth rates.
- 2) The fertility rate due to the population policies and other measures has been falling but even then it is much higher compared to other countries.

The above causes are interrelated to the various social issues in our country which are leading to over population.



3) **Early Marriage and Universal Marriage System:** Even though legally the minimum age of marriage of a girl is 18 years, the concept of early marriage still prevails and getting married at young age prolongs the child bearing age. Also, in India, marriage is a sacred obligation and a universal practice, where almost every woman is married at the reproductive age.

4) **Poverty and Illiteracy:** Another factor for the rapid growth of population is poverty. Impoverished families have this notion that more the number of members in the family, more will be the numbers to earn income. Some feel that more children are needed to look after them in their old age.

Also hunger can be cause of death of their children and hence the need for more children. Strange but true, Indian still lag behind the use of contraceptives and birth control methods. Many of them are not willing to discuss or are totally unaware about them. Illiteracy is thus another cause of over population.

5) **Age old cultural norm:** Sons are the bread earners of the families in India. This age old thought puts considerable pressure on the parents to produce children till a male child is born.

6) **Illegal migration:** Last but not the least; we cannot ignore the fact that illegal migration is continuously taking place from Bangladesh, Nepal leading to increased population density.

### **1.11 Growth of Population**

Growth of population is the change in the number of people living in a particular area between two points of time. Its rate is expressed in percentage. Population growth has two components namely; natural and induced. While the natural growth is analysed by assessing the crude birth and death rates, the induced components are explained by the volume of inward and outward movement of people in any given area.

The decadal and annual growth rates of population in India are both very high and steadily increasing over time. The annual growth rate of India's population is 2.4 per cent. At this current rate of increase, it is estimated that the country's population will double itself in another 36 years and even surpass population of

China. In next section, we shall discuss the composition of population in terms of various variables.

### **1.11 EFFECTS OF OVER POPULATION**

Even after 67 years of independence, the scenario of our country is not good, due to over population. Some major impacts of high population are as follows:

- 1) **Unemployment:** Generating employment for a huge population in a country like India is very difficult. The number of illiterate persons increases every year. Unemployment rate is thus showing an increasing trend.
- 2) **Manpower utilisation:** The number of jobless people is on the rise in India due to economic depression and slow business development and expansion activities.
- 3) **Pressure on infrastructure:** Development of infrastructural facilities is unfortunately not keeping pace with the growth of population. The result is lack of transportation, communication, housing, education, healthcare etc. There has been an increase in the number of slums, overcrowded houses, traffic congestion etc.
- 4) **Resource utilisation:** Land areas, water resources, forests are over exploited. There is also scarcity of resources.
- 5) **Decreased production and increased costs:** Food production and distribution have not been able to catch up with the increasing population and hence the costs of production have increased. Inflation is the major consequence of over population.
- 6) **Inequitable income distribution:** In the face of an increasing population, there is an unequal distribution of income and inequalities within the country widen. water also do not attract people. The areas where climate conditions are favourable are densely peopled.

### **1.12 Malthusian Theory**

**Thomas Robert Malthus** (1766-1834) was the key figure to analyse the population statistics. His formulation on population was a landmark in the history of population theories. He generalized the relationship between population factors and social change.

In his Essay on the Principle of Population (1798) Malthus argued that because of the strong attraction of the two sexes, the population could increase by multiples, doubling every twenty-five years. He contended that the population would eventually grow so large that food production would be insufficient. Human capacity for reproduction exceeded the rate at which subsistence from the land can be increased. Malthus further wrote 'Population when unchecked increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio.'

Malthus contended that the world's population was growing more rapidly than the available food supply. He argued that the food supply increases in an arithmetic progression (1, 2, 3, 4, and so on), whereas the population expands by a geometric progression (1, 2, 4, 8, and so on).

According to him, the population could increase by multiples, doubling every twenty-five years. He said the gap between the food supply and population will continue to grow over time. Even though food supply will increase, it would be insufficient to meet the needs of expanding population. Moreover, the famine and other natural calamities cause widespread sufferings and increase the death rate, which is nature's check against population.

### **Sex Ratio**

Sex ratio is used to describe the number of females per 1000 of males. Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India. In the Population Census of 2011 it was revealed that the population ratio in India 2011 is 940 females per 1000 of males. The Sex Ratio 2011 shows an upward trend from the census 2001 data. Census 2001 revealed that there were 933 females to that of 1000 males. Since decades India has seen a decrease in the sex ratio 2011, but since the last two of the decades there has been a slight increase in the sex ratio. Since the last five decades the sex ratio has been moving around 930 of females to that of 1000 of males.

The major cause of the decrease of the female birth ratio in India is considered to be the violent treatments meted out to the girl child at the time of the birth. The Sex Ratio in India was almost normal during the phase of the years of independence, but thereafter it started showing gradual signs of decrease.

Though the Sex Ratio in India has gone through commendable signs of improvement in the past 10 years, there are still some states where the sex ratio is still low and is a cause of concern for the NGO organizations. One of the states which is showing a decreasing trend in the population of women 2011 and is a cause of concern is Haryana. The state of Haryana has the lowest rate of sex ratio in India and the figure shows a number of 877 of females to that of 1000 of males.

There are also states such as Puducherry and Kerala where the number of women is more than the number of men. Kerala houses a number of 1084 females to that of 1000 males. While Puducherry and Kerala are the only two states where the number of female is more than the number of men, there are also states in India like that of Karnataka, Andhra Pradesh and Maharashtra where the sex ratio 2011 is showing considerable signs of improvement. The main cause of the decline of the sex ration in India is due to the biased attitude which is meted out to the women.

The main cause of this gender bias is inadequate education. Pondicherry and Kerala houses the maximum number of female while the regions of Daman and Diu and Haryana have the lowest density of female population.

### **Age Structure**

The relative age structure of people contained within a specific age group is one of the most vital and basic characteristic feature of population since it affects almost all the different dimensions of community life, social attitudes, political tendencies, economic activities, military services, and mobility of population. Human population is divided into three groups:

- i) Below 15 years of age.**
- ii) Between 15 and 60 years of age.**
- iii) Above 60 years of age.**

The first group is of children supposed to be entirely dependent on parents. The second group consists of adults or workers who are supposed to be economically independent. The third group comprises old people returning back to the category of nonworkers. The division of population into these groups is

referred as population pyramids. India, as per 1981, census, this threefold division was as follows:

Age	Percentage
0-14	39.5
15-59	54.3
60 and above	6.2
Total 100%	

Taking the first and the third group together i.e.  $(39.5+6.2) = 45.7\%$  of our population is taken as Dependent Population.

The remaining population of 54.3% has to support this dependent population. The proportion between the two is termed as Dependency Ratio. In India the dependency ration is about 83, which means that in every 100 persons in the age group of 15-59 years have to support 83 persons who are dependent on them. The children below 15 years of age are bound to be highly demanding in terms of educational, nutritional and health needs.

### **1.14 Population structure**

Population structure is defined by the organization of genetic variation and is driven by the combined effects of evolutionary processes that include recombination, mutation, genetic drift, demographic history, and natural selection.

#### **Population structure may refer to many aspects of population ecology:**

- 1) Population stratification
- 2) Population pyramid
- 3) Age class structure
- 4) F-statistics
- 5) Population density
- 6) Population distribution
- 7) Population dynamics and population growth
- 8) Population genetics
- 9) Population size.

## **1.15 FERTILITY**

Fertility (technically, births/population rate) is the total number of live births per 1,000 of a population in a year. The rate of births in a population is calculated in several ways: live births from a universal registration system for births, deaths, and marriages; population counts from a census, and estimation through specialized demographic techniques. The birth rate (along with mortality and migration rate) are used to calculate population growth.

### **Measures of Fertility**

#### **i. Crude Birth Rate:**

Crude Birth rate is a measure of fertility-defined as Births in year

$$\text{CBR} = \text{Births in a year} \times 1000$$

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Population at mid-year

For example, an estimated 3,689,000 in a total population of 76,398,000 for a particular country, the CBR will be:

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$$3,689,000 \times 1,000$$

$$76,398,000$$

$$= 48.3 \text{ per } 1,000$$

#### **ii) General Fertility Rate (GFR):**

General Fertility Rate expressed as:

$$\text{GFR} = \text{Births during year} \times 1000$$

women 15-44 or 49age at mid-year

For example, if births during the year were 3, 689,000 and women 15-49 were 14,952,000 for a country in a particular year, gives a GFR as:

$$\text{GFR} = 3,689,000 \times 1,000$$

$$14,952,000$$

$$= 246.7 \text{ per } 1,000$$

### **iii) Age-Specific Fertility Rate (ASFR):**

Age- Specific Fertility Rates expressed as:

$$\text{ASFR} = \text{Births in year to women aged } x(\text{e.g } 15-19) \times 1000$$

women aged 15- 49 as 'x' at mid-year

ASFRs are expressed per 1,000 population

Births for each five year age-group, for example, 15-19,20-24, and so on are usually used to calculate the ASFRs

**iv)Total Fertility Rate (TFR):** The average number of children that would be born to a woman by the time she ended childbearing if she were to pass through all her childbearing years conforming to the age-specific fertility rates of a given year i.e 15-19, 20-24, 25-29,30-34,35,39,40-44,45-49.

## **1.16 MORTALITY**

Mortality is the condition of being mortal, or susceptible to death; the opposite of immortality. Mortality rate, or death rate is a measure of the number of deaths (in general, or due to a specific cause) in a particular population, scaled to the size of that population, per unit of time. Mortality rate is typically expressed in units of deaths per 1,000 individuals per year; thus, a mortality rate of 9.5 (out of 1,000) in a population of 1,000 would mean 9.5 deaths per year in that entire population, or 0.95% out of the total.

### **Measures of Mortality**

i) The Crude Death Rates:

The Crude Death Rate (CDR) is simply the deaths in a population at mid-year and multiplied by 1,000, that is:

$$\text{CDR} = \text{Deaths in year} \times 1,000$$

Total Population at mid-year

### **ii) Age Specific Death Rate:**

Age Specific death is defined as the as the occurrence of deaths in the specific age group e.g 15-20yrs.

The age specific death rate can be expressed as:

$ASR = \frac{\text{No. of deaths in age group 15-20yrs the during the year}}{\text{Mid year population}} \times 1000$

Mid year population

### **iii) Disease Specific Death Rate:**

Disease Specific Death Rate is defined as the deaths occurring due to the particular disease E.g Specific death rate due to tuberculosis. It can be expressed as:

$DSR = \frac{\text{No. of deaths due to tuberculosis the during the year}}{\text{Mid-year population}} \times 1000$

Mid-year population

**iv) Maternal mortality rate(MMR):** the number of maternal deaths per 1,000 women of reproductive age in the population (generally defined as 15–44 years of age).

**v) Infant mortality rate (IMR):** the number of deaths of children less than 1 year old per 1,000 live births.

**vi) Child mortality rate (CMR):** the number of deaths of children less than 5 years old per 1,000 live births.

**vii) Standardized mortality ratio (SMR):** a proportional comparison to the numbers of deaths that would have been expected if the population had been of a standard composition in terms of age, gender, etc.

## **1.17 MIGRATION**

**Definition: -** Migration is defined as the movement of an individual or a group from one place of residence to settle in another, either permanently or semi-permanently. Together with fertility and mortality, migration is one of the chief



elements determining the population change of an area. Migration results in the re-distribution of population.

**Migration has three fold impacts.**

1. On the area experiencing immigration.
2. On the area experiencing out migration.
3. On the migrants themselves.

Whenever migration takes place, in whatever form it modifies the area of origin, the area of destination, as well as the life of migrants.

**Migration types**

The phenomena of migration have been divided into various types on the basis of distance, time, movement, migration etc.

**On the basis of distance migration is divisible into 3 types.**

1. Long distance migration
2. Medium distance migration
3. Short distance migration

**On the basis of motivation migration has been divided into two types.**

1. Social migration
2. Economic migration

**On the basis of time, migration has been divided into two types.**

1. Long term migration
2. Short term migration

On the basis of nature of movement migration has been divided into two types.

- 1. Immigration:-** Which denotes immigration
- 2. Emigration:-** Which denotes outmigration.

**On the basis of territorial jurisdiction migration the migration is of two types**

1. International migration:-When the migrates movement of the people is from one country to another country.
2. Internal migration: - When the movement of the people is within the territorial jurisdiction of a country.

**The internal migration is further classified into**

- i. Rural to urban
- ii. Urban to Urban
- iii. Rural to rural
- iv. Urban to rural.

**1.18 NUPTIALITY**

"The birth rate is the primary determinant of population growth in most countries. Since the family is the structural unit primarily responsible for births throughout the world, changes in the rates of marriage and divorce play an important indirect role in population growth".

The study of nuptiality according to the multilingual Demographic Dictionary, " deals with the frequency of marriages. ", with the characteristics of persons, united in marriage; and with the dissolution of such unions" .

Marriage entails a change from any other marital status to the status of married. Among the Kotas, marriage is universal and is usually arranged by the parents of the concerned persons. The marriage can be broken by divorce or by the death of one of the spouses.

**1.18 Measures of Nuptiality;**

There are several measures of nuptiality like, crude marriage rate, general marriage rate, age specific rates, order specific rates, total marriage rates etc., But only a few are applied here. Crude marriage rate; The most commonly used index to describe

the incidence of marriage is the crude marriage rate. The formula for the crude marriage rate is

M

$p = \frac{M}{P} \times 1000$

P

There M is the total number of marriages among residents in an area during the year. P is the average number of persons living in the area during the year.

### **1.19. Which state of India is the sex ratio minimum?**

In the Population Census of 2011 it was revealed that the population ratio in India 2011 is 943 females per 1000 males. Haryana has the lowest sex ratio (877) in Indian states while in union territory Daman Diu has lowest sex ratio of 618. Kerala has the highest sex ratio of 1084 in the all Indian states

#### **sex ratio in india**

Sex Ratio of India is 107.48, i.e., 107.48 males per 100 females in 2019. It means that India has 930 females per 1000 males. In absolute terms, India has 48.20% female population compare to 51.80% male population. India has 49,314,062 more males population than females population.

#### **Sex rate at birth**

The survey shows that sex ratio at birth in rural India was 898 in 2015-17 while the figure for urban India was 890. Jul 18, 2019.

### **1.20 Life expectancy**

It is the average age that a new-born infant is expected to attain in a given country. The average life expectancy, over the globe, has risen from 40 to 65.5 years over the past century. In India, life expectancy of males and females was only 22.6 years and 23.3 years, respectively in 1900. In the last 100 years improved medical facilities and technological advancement has increased the life expectancy to 60.3 years and 60.5 years, respectively for the Indian males and females. In Japan and Sweden, life expectancy is quite higher, being 82.1-84.2 for females and 77-77.4 for males, respectively.

## **UNIT 2 STANDARD OF LIVING AND QUALITY OF LIFE**

**Food and nutrition-health and hygiene-sanitation,housing, clothing-leisure-employment,social,cultural and spiritual enlightenment-ethics and aesthetics-physical quality of life index- impact of development of family life on society, cultural and personality.**

### **Food and nutrition-health and hygiene**

#### **What Is a Standard of Living?**

A standard of living is the level of wealth, comfort, material goods, and necessities available to a certain socioeconomic class or a certain geographic area. The standard of living includes basic material factors such as income, gross domestic product (GDP), life expectancy, and economic opportunity. The standard of living is closely related to quality of life, which can also include factors such as economic and political stability, political and religious freedom, environmental quality, climate, and safety.

#### **Standard of Living vs. Quality of Life**

The terms standard of living and quality of life are often believed to mean the same. While they may overlap, there is a difference between the two. A standard of living generally refers to wealth, comfort, material goods and necessities of certain classes in certain areas—or more objective characteristics, whereas a quality of life is more subjective and intangible, such as personal liberty or environmental quality. Characteristics that make up a good quality of life for one person may not necessarily be the same for someone else.

### **2.1 Food and nutrition**

#### **FOOD, NUTRITION AND**

#### **HEALTH**

The term 'food' brings to our mind countless images. We think of items not only that we eat and drink but also how we eat them and the places and people with whom we eat and drink. Food plays an important role in our lives and is closely associated with our existence. It is probably one of the most important needs of our lives.

The food that we eat is composed of small units that provide nourishment to the body. These are required in varying amounts in different parts of the body for performing specific functions. This means that good nutrition is essential for good health. However, if our diet provides the

important units in incorrect amounts, either very less or in excess of what is required, it results in an imbalance of nutrients in your body. The condition is responsible for various deficiency diseases and slow or no growth of the body.

In this lesson you will learn about why food is essential, its functions and components. You will also be introduced to the terms like ‘nutrition’ and ‘nutrients’. After learning the meaning of these terms, you will then learn the sources and functions of the nutrients and the amounts required by different individuals.

## **2.1 WHAT IS FOOD?**

The term ‘food’ refers to anything that we eat and which nourishes the body. It includes solids, semi-solids and liquids. Thus, two important features for any item to be called food are:

- (i) It should be worth eating, that is, it should be ‘edible’.
- (ii) It must nourish the body.

### **Have you ever wondered why food is considered a basic necessity?**

Food is anything that we eat and which nourishes our body. It is essential because it contains substances which perform important functions in our body.

## **2.1 FUNCTIONS OF FOOD**

There are basically three important functions of food:

### **1. Social Function**

Food and eating have significant social meaning. Sharing food with any other person implies social acceptance. Food is also an integral part of festivity every where in the world. Have you noticed that certain occasions such as birth of a child or a marriage or birthdays, are celebrated by having feasts and serving delicacies? Food also has a specific significance and meaning in the religious context.

### **2. Psychological Function**

We all have emotional needs, such as need for security, love and affection. Food is one way through which these needs are satisfied. For example, how do you feel when your mother prepares your favourite food or dish? You feel that she loves you and cares for you. Food is often served as a reward also. Do you recall giving a chocolate because some one had been good to you? Similarly, certain foods become associated with sickness, such as khichri and bland foods. Sickness is an unpleasant experience, hence, even the food items served during this state may be associated with unpleasant feelings.

### **3. Physiological Function**

There are three physiological functions performed by food. These are Food, Nutrition and Health

Foods and Nutrition energy giving, body building, regulating body processes and providing protection against diseases. Let us see them in detail.

### **(i) Food provides energy**

Everybody needs energy to do work. Energy is required for walking, studying, eating, working in the house or outside. You get this energy from the food that you eat. You need energy even when you are resting. Can you tell why? Different organs inside your body are always working, for example, heart is pumping blood, stomach is digesting food, lungs are breathing in air, etc.

All these organs need energy for their respective functions and food provides that energy.

(ii) Food helps in body building Have you ever wondered how a small child grows into an adult?

Our body is already made up of thousands of small cells. New cells are added to these to help the body to grow. Food is needed for the formation of new cells. Cells also die or are damaged due to injury. New cells need to be formed and this repair work is done with the help of food.

(iii) Food regulates body processes and provides protection against diseases Regulatory functions refer to the role of food in controlling body processes, for example, our body temperature is maintained at 98.60 F or 37.0 C. Similarly, the heart beats are also maintained at 72 beats/minute. Excretion of waste products from the body is also regular. If not, the body suffers from a disease called constipation which can lead to further complications. All these processes are regulated by the food that you eat.

The food that we eat gives us strength to fight against disease germs.

## **2.2 NUTRITION AND NUTRIENTS**

Let us now read about the meaning of nutrition. All of us eat food. Food provides nourishment to the body and enables it to stay fit and healthy. The food that we eat undergoes many processes, like, first the food is digested, then it is absorbed into blood and transported to various parts of the body.

where it is utilized. The waste products and undigested food are excreted from the body.

NUTRITION is the process by which food is taken in and utilized by the body.

NUTRITION = Eating Digestion Absorption Transportation Utilization.

### **Nutrients and their Functions**

We all know that food helps in the nourishment and health of our body. The nourishment is brought about by small units called nutrients present in food.

### **Now what are these nutrients?**

Nutrients are the chemical substances present in food and are responsible for nourishing the body.

### **Nutrients are of two types:**

1. Macronutrients
2. Micronutrients

Both macronutrients and the micronutrients are equally essential for good health. Each nutrient plays a significant role in the body.

### **Food, Nutrition and Health**

#### **1. Macronutrients**

These are present in large quantities in foods and are also required in large amounts by the body. Carbohydrates, proteins, fats and oils are macronutrients.

#### **A. Carbohydrates**

##### **(i) Available carbohydrates**

Carbohydrates are present in a large quantity as starch in cereals, legumes, pulses and potatoes. They are present as simple carbohydrates in sugar, jaggery, fruits, honey and milk. Starch and sugars are easily digested and provide energy to the body.

##### **(ii) Unavailable carbohydrates or dietary fibre**

They are present in the form of cellulose and hemicellulose which are not digested in our body. They add bulk to the stool and help in easy defecation process.

Energy can be derived from carbohydrates, fats and proteins and it is measured in kilo calories. However, carbohydrates are cheapest sources of energy. If there is a short supply of carbohydrates and fats in our body, proteins are utilized for energy production. Function of proteins is to provide for body building. Therefore,

carbohydrates have to be consumed in proper amounts to spare proteins for body building purpose.

FOOD HAS been a basic part of our existence. Through the centuries we have acquired a wealth of information about the use of food to ensure growth of children and youth, to maintain good health through life, and to meet special needs of pregnancy and lactation and to use it to recover from illness.

When you study food composition you will know the nutritional contribution of foods. You may have been told that certain foods are very important for maintaining good health, while others are harmful. As you study the science of Foods and Nutrition, you will need to examine the ideas you have about foods very carefully and accept or reject these in the light of the knowledge you will acquire.

Whatever you learn in this area should be used and applied in your personal life. A large part of our food heritage is scientifically beneficial and needs to be retained; some aspects may need to be modified in the view of the changes in our lifestyle.

Food is an important topic of conversations, articles in newspapers and magazines, as also of advertisements. Some of this information may be correct, but a large part of it may not be. As you learn this subject, you will be able to spread the knowledge gained to those around you, so that they discard false ideas about food, which interfere with their food selection and affect their health.

Food, nutrition and health are intimately connected aspects of our life. Let us start our study by defining these and related terms.

### **Definitions**

Food is that which nourishes the body. Food may also be defined as anything eaten or drunk, which meets the needs for energy, building, regulation and protection of the body. In short, food is the raw material from which our bodies are made. Intake of the right kinds and amounts of food can ensure good nutrition and health, which may be evident in our appearance, efficiency and emotional well-being

Nutrition has been defined as food at work in the body. Nutrition includes everything that happens to food from the time it is eaten until it is used for various functions in the body. Nutrients are components of food that are needed by the



body in adequate amounts in order to grow, reproduce and lead a normal, healthy life. Nutrients include water, proteins, fats, carbohydrates, minerals and vitamins. There are several nutrients in each of the groups: proteins, fats, carbohydrates, minerals and vitamins; hence the plural form of these words has been used. Thus there are over 40 essential nutrients supplied by food, which are used to produce literally thousands of substances necessary for life and physical fitness.

The study of the science of nutrition deals with what nutrients we need, how much we need, why we need these and where we can get them. Nutrition is the result of the kinds of foods supplied to the body and how the body uses the food supplied.

Adequate, optimum and good nutrition are expressions used to indicate that the supply of the essential nutrients is correct in amount and proportion. It also implies that the utilisation of such nutrients in the body is such that the highest level of physical and mental health is maintained throughout the life-cycle.

### **Foods, Nutrition and Health**

Nutritional status is the state of our body as a result of the foods consumed and their use by the body. Nutritional status can be good, fair or poor. The characteristics of good nutritional status are an alert, good natured personality, a well developed body, with normal weight for height, well developed and firm muscles, healthy skin, reddish pink colour of eyelids and membranes of mouth, good layer of subcutaneous fat, clear eyes, smooth and glossy hair, good appetite and excellent general health. General good health is evident by stamina for work, regular meal times, sound regular sleep, normal elimination and resistance to disease.

Poor nutritional status is evidenced by a listless, apathetic or irritable personality, undersized poorly developed body, abnormal body weight (too thin or fat and flabby body), muscles small and flabby, pale or sallow skin, too little or too much subcutaneous fat, dull or reddened eyes, lustreless and rough hair, poor appetite, lack of vigour and endurance for work and susceptibility to infections. Poor nutritional status may be the result of poor food selection, irregularity in schedule of meals, work, sleep and elimination.

The WHO (World Health Organization) has defined health as the ‘state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’. Malnutrition means an undesirable kind of nutrition leading to ill-health. It results from a lack, excess or imbalance of nutrients in the diet. It includes undernutrition and overnutrition. Undernutrition is a state of an insufficient supply of essential nutrients. Malnutrition can be primarily be due to insufficient supply of one or more essential nutrients; or it can be secondary, which means it results from an error in metabolism, interaction between nutrients or nutrients and drugs used in treatment.

Over nutrition refers to an excessive intake of one or more nutrients, which creates a stress in the bodily function. Diet refers to whatever you eat and drink each day. Thus it includes the normal diet you consume and the diet people consume in groups (hostel diet). Diet may also be modified and used for ill persons as part of their therapy (therapeutic diets). Nutritional care is the use of nutritional knowledge in planning meals and the preparation of these meals in an acceptable and attractive manner to feed people. It involves assessment of the exiting meal patterns and improving these in an acceptable manner. While the nutritional plan may be general for a group of people, the actual execution is individualized to suit the person’s needs and background.

Thus one has to use a lot of ingenuity to succeed in making nutritional care effective in practical terms. Health the word health refers to the condition of the body, good health not only implies freedom from disease, but physical, mental and emotional fitness as well.

### **Functions of Food**

Physiological functions of food. The first function of the body is to provide energy. The body needs energy to sustain the involuntary processes essential for continuance of life, to carry out professional, household and recreational activities, to convert food ingested into usable nutrients in the body, to grow and to keep warm. The energy needed is supplied by the oxidation of the foods consumed.

The foods we eat become a part of us. Thus one of the most important functions of food is building the body. A newborn baby weighing 2.7-3.2 kg can grow to its potential adult size of 50–60 kg if the right kinds and amounts of food are eaten

from birth to adulthood. The food eaten each day helps to maintain the structure of the adult body, and to replace worn out cells of the body. The third function of food is to regulate activities of the body. It includes regulation of such varied activities as:

- Beating of the heart
- Maintenance of the body temperature
- Muscle contraction
- Control of water balance
- Clotting of blood
- Removal of waste products from the body

The fourth function of food is to improve our body's resistance to disease. The Social Functions of Food. Food has always been a central part of our social existence. It has been a part of our community, social, cultural and religious life. Special foods are distributed as a benediction or prasada in the religious functions in homes, temples and churches. Feasts are given at specific stages of life such as birth, naming ceremony, birthdays, marriages, etc. Most of the religious festivals also call for feasts and feeding of specific segments of the population. Certain menus are associated with most of these feasts in each region.

Food has been used as an expression of love, friendship and social acceptance. It is also used as a symbol of happiness at certain events in life, for example, pedhas are distributed to announce success in examinations, or the birth of a baby; laddus are associated with the celebration of Deepavali and marriages, cakes are associated with Christmas and birthdays and tilgul with sankranti the festival of friendship.

As food is an integral part of our social existence, this function is important in daily life. Refreshments served at get-togethers or meetings create a relaxed atmosphere. The menu for such get-together should bring the people together, rather than divide them. This basic aspect should be considered in planning menus for such occasions (Figure 1.2).

The Psychological Functions of Food. In addition to satisfying physical and social needs, food must satisfy certain emotional needs. These includes a sense of security, love and attention. Thus familiar foods make us feel secure. Anticipating needs and fulfilling these are expressions of love and attention. These sentiments are the basis of the normal attachment to the mother's cooking. Sharing of food is a token of friendship and acceptance. In a friendly gathering we try unfamiliar foods and thus enlarge our food experiences. It must be noted that even a nutritionally balanced meal may not be satisfying to the individual, if the foods included are unfamiliar or distasteful to him/her.

With time and repeated experience, strange foods become familiar and new tastes are formed. These aspects are important in food acceptance and must be considered in planning meals, which are not only nutritionally adequate, but also enjoyable for the group for whom they are intended.

### **Functions of Nutrients**

The foods which we use daily include rice, wheat, dal, vegetables, fruits, milk, eggs, fish, meat, sugar, butter, oils, etc. These different foods are made up of a number of chemical components called nutrients. These are classified according to their chemical composition.

Each nutrient class has its own function, but the various nutrients must act in unison for effective action. The nutrients found in foods are — carbohydrates, proteins, fats, minerals, vitamins and water.

Fibre is also an essential component of our diet. The functions of nutrients are given below. Carbohydrates: Starch found in cereals and sugar in sugarcane and fruits are examples of carbohydrates in foods. The chief function of carbohydrates is to provide energy needed by our body.

Those not used immediately for this purpose are stored as glycogen or converted to fat and stored, to be mobilised for energy supply when needed.

**Fats:** Oils found in seeds, butter from milk, and lard from meat, are examples of fats found in foods. Fats are concentrated sources of energy, carriers of fat soluble vitamins and a source of essential fatty acids. If excess fats are taken in the diet,

these are stored as fat reserves in the body. Energy taken in excess of body needs, is stored as fat in the body.

**Proteins:** Casein from milk, albumin in egg, globulins in legumes and gluten in wheat, are examples

of proteins occurring in foods. The main function of protein is the building of new tissues and maintaining and repair of those already built. Synthesis of regulatory and protective substances such as enzymes, hormones and antibodies is also a function of food proteins. About 10 per cent of the total energy is supplied by proteins in the diet. Protein, when taken in excess of the body's need, is converted to carbohydrates and fats and is stored in the body.

**Minerals:** The minerals calcium, phosphorus, iron, iodine, sodium, potassium and others are found in various foods in combination with organic and inorganic compounds. Minerals are necessary for body-building, for building of bones, teeth and structural parts of soft tissues. They also play a role in regulation of processes in the body, e.g., muscle contraction, clotting of blood, nerve stimuli, etc.

**Vitamins:** Fat-soluble vitamins A, D, E and K and also water-soluble vitamins C and B group are found in foods. These are needed for growth, normal function of the body and normal body processes.

**Water:** We get water in foods we eat and a major part from the water we drink as such and as beverages. Water is an essential part of our body structure and it accounts for about 60 per cent of our body weight. Water is essential for the utilisation of food material in the body and also for elimination of food waste. It is a regulator of body processes such as maintenance of body temperature.

All individuals need the same nutrients for the same body function. The only variation is in the amounts of each nutrient required according to age, size, activity, etc. For example, all persons need energy for work, but a man, who carries loads may need more energy than a man, who works in an office at a desk job.

As you know, we get the nutrients from the foods and the beverages we consume. Most foods contain the nutrients in varying amounts. Let us understand the nutrient composition of the foods we use everyday.

**Hygiene** refers to behaviors that can improve cleanliness and lead to good health, such as frequent hand washing, face washing, and bathing with soap and water. In many areas of the world, practicing personal hygiene etiquette is difficult due to lack of clean water and soap. Many diseases can be spread if the hands, face, or body are not washed appropriately at key times.

It is estimated that washing hands with soap and water could reduce diarrheal disease-associated deaths by up to 50%.

A large percentage of foodborne disease outbreaks are spread by contaminated hands. Appropriate hand washing practices can reduce the risk of foodborne illness and other infections.

**Sanitation** is important for all, helping to maintain health and increase life-spans. However, it is especially important for children. Around the world, over 800 children under age five die every day from preventable diarrhea-related diseases caused by lack of access to water, sanitation and hygiene.

### **2.3 Importance of Sanitation for All, Especially Children**

After seeing the success of our hygiene education program, Water for South Sudan plans to launch a pilot sanitation program next year. Sanitation is defined as “the provision of facilities and services for the safe disposal of human urine and feces.” Sanitation differs from hygiene in that it provides the means for people to be hygienic. Hygiene is the ability to participate in “conditions and practices that help to maintain health and prevent the spread of disease.”

The WFSS Hygiene Program has helped South Sudanese villagers learn the importance of maintaining good hygiene by changing behaviors such as hand-washing. Our hygiene team helps villages identify hygiene practices in need of improvement, and helps create a plan to move forward. We have seen how improved hygiene practices can help extend the impact of clean water. Now, it is time for WFSS to take the next step and develop sanitation programs for the people we serve.

Developing a sanitation program in South Sudan is the logical next step for WFSS and will enable us to fully move into the WASH (water, sanitation and hygiene) sector, and will help build better health for those we serve.

Our plans for 2017 include a pilot sanitation project, most likely at a school. Improved sanitation can help maintain school attendance through latrine facilities like this one pictured below. This facility was constructed by UNICEF in Lohanosy, Madagascar, outside of the Lohanosy Primary School.

Sanitation is a vital piece of health and development around the world. The WFSS sanitation program will help address access to health and education in the world's newest country.

Please join us in helping to bring access to clean water, hygiene and sanitation. To donate, please visit our donate page.

Sanitation is important for all, helping to maintain health and increase life-spans. However, it is especially important for children. Around the world, over 800 children under age five die every day from preventable diarrhea-related diseases caused by lack of access to water, sanitation and hygiene. In addition, diarrhea causes children to lose their appetites, which can lead to malnourishment. Limited access to sanitation has become such a worldwide problem that 1 in every 4 children suffer from stunted growth. This leads to "irreversible physical and cognitive damage."

### **2.3 is sanitation? What is hygiene? Is there a difference?**

Sanitation is the effective use of tools and actions that keep our environment healthy. These include latrines or toilets to manage waste, food preparation, washing stations, effective drainage and other such mechanisms.

Hygiene is a set of personal practices that contribute to good health. It includes things like hand-washing, bathing and cutting hair/nails. Hand-washing is the single most important activity we can all do to encourage the stop of disease.

The difference is subtle but important. While both sanitation and hygiene are related, we must be taught both effective tools and effective behaviors to protect our health. Imagine how important these can be in places without a toilet or where hand washing has never been learned!.

### **The five main employment types are:**

- 1) Permanent or fixed-term employees.

- 2) Casual employees.
- 3) Apprentices or trainees – employees.
- 4) Employment agency staff – also called labour hire.
- 5) Contractors and sub-contractors – hired staff.

## **2.5. Aesthetics and Ethics in Everyday Life**

### **Introduction**

I once saw a poster that proclaimed that "Every man should build a house before he dies." The poster attributed it to Plato (\*see endnote). When I was 35, I did it. I designed our house. A great builder helped me build it. Our family has enjoyed the house for many years. Designing a house or even outfitting an apartment or a room of your own in which to live is certainly a time to become philosophical. It is a time to consider ones beliefs about the constructed environment. Whether we rent, purchase, or build a place to live, we reveal our belief system by the choices we make. Two important branches of philosophy, aesthetics and ethics, often come home to visit each other during the choices we make when designing the place in which we live.

What are the paradigms we use to decide on lifestyle issues? How does art help with our basic human needs for food, shelter and clothing?

In our calling as teachers, what are the issues we should raise with children to build their awareness of art and aesthetics? What is useful for the visual choices they will make in everyday life no matter what they elect to do vocationally? Most may not design and build, but everybody selects shelter, food, clothing, transportation, and so on. These are basic to life. As such, they are basic to education. In our culture, designers are driven by what sells. The masses (people from our classrooms) determine the look and meaning of the material culture by their choices.

Every consumer is artistic with innate needs for aesthetic fulfillment. Unfortunately, there is very little discussion and debate in our schools to inform these needs. It is estimated that 80% of the constructed environment is made unselfconsciously. Most design and construction is done habitually with no



thinking about the meaning, symbolism, and effects on society produced by what is made (Jencks).

We can help children develop the thinking, questioning, and designing skills to give them the power to be agents for good in society. As teachers we can sensitize our students and help them learn skills to be agents for good. As teachers, as Christians, or simply as members of the human race it is our birthright, our privilege and obligation to do what we can to improve the conditions in which people live.

### **SIX ETHICAL and AESTHETIC QUESTIONS**

The arguments and the differences of opinions come when we start to make selections and design applications to meet these needs. As soon as we do something or make something to fulfill our basic needs we are saying something about our values and our beliefs. What are the values related to our basic needs that are played out in our everyday decisions? When we discuss values we find a continuum of opinions and arguments.

#### **1. All cultures value both individuality and conformity .**

These are conflicting values. The question is, how much individualism is good and how much conformity is good? How do our design decisions reflect both these needs? Mass produced items tend to show conformity in our culture in spite of the fact that individual freedom of choice is highly valued in our tradition. In many tribal cultures hand crafted items could show individuality, but are often conformist because group identity is most important (Chapman pp. 112 - 113).

What can teachers do to challenge students to create and/or select identity symbols for group identity in our culture? Do our students realize the ways in which they are showing individual identity and conformity? What are the pros and cons of neighborhoods where all houses are nearly identical? How much control should neighbors place on each other's aesthetic choices?

#### **2. We value permanence and tradition, but we also value creativity, change, improvement, and relevance to the time in which we live. How do our design choices reflect both these concerns? What are the cultural reasons for our choices? How can we teach about this?**

3. We know that meeting human needs consumes resources, but we also value caring for resources.

We have value conflicts between the economic and status seeking motivations for consumption and the ethics of conservation. What can we do to help children learn to care and preserve things? How they learn the importance of caring about resources? Can they learn that natural resources in many cultures are not something to use up, but something we borrow from future users?

What can we teach about the compatibility of aesthetics and conservation? Does recycling automatically mean clutter and messy boxes in the school hallways, or are there beautifully designed solutions to encourage even diehards to recycle? Can we discuss selecting goods that last longer to cut down on consumption? What designs will endure and which will go out of date? How can we tell in advance? How many things do we make or acquire with the idea of it being so valuable that it can serve for more than one generation?

4 . Single use vs. multiple use spaces.

What are the design and architectural decisions here? Maybe schools that serve lunch in multi-use gymnasium/cafeterias (cafetorium) are engendering an animalistic feeding frenzy attitude toward eating. It often has noisy hard surface acoustics. It is an inappropriate and inhumane unattractive place to eat. When good design is applied to eating we change mealtime from the animal level of biological feeding to the esthetic experience of dining. Mealtime changes from stuffing the face to a holistic fulfilling experience including the social, sensory, and aesthetic experiences unique to the best our cultures have to offer (Chapman p. 111).

Economic reasons for multiple use space can be weighed against the option of smaller, more intimate spaces used over longer periods of time to accommodate the same number of diners. It saves labor if staff does not have to set up tables for every meal. In cold or rainy weather, a school gymnasium is needed as a lunch hour recreational and physical fitness facility.

In a home, how important is mealtime as social time, as family time, and so on? Is the design of a kitchen with bar arrangement as conducive to family interaction as a table or booth with seating all around?

Think about a dinner party with half dozen or so close friends eating in a fine dining room. Compare it with a typical school or even many family mealtime routines. Good architecture provides spaces where strangers interact to become friends.

5. Today there is a serious integrity problem with much of our constructed and manufactured design. We live in plasticland of contradictory and untruthful visual relationships.

We can easily purchase Early American or Colonial furniture finished with plastic laminates that are so realistic that some can't be recognized as fake (Chapman pp. 97 and 103). How can we expect children to value honesty when their schools, homes, and churches are being furnished and built out of visual lies? Children growing up in an environment of pretense are being conditioned to excuse and rationalize fakery as quality on the basis of a quality surface appearance while its heart is actually plastic or sawdust.

Plastic can be given design that does not need to look like another material to be beautiful. Good designers can make beautiful texture, color, shape and form from plastic without faking another material to do so. No matter how humble the material, shouldn't honesty be considered more beautiful than pretense in our material environments? Children need art lessons that critique their environments in terms of truth and lies.

6. The sixth ethical and aesthetic principle deals with beauty. Does a constructed object such as a home, a school, a campus, a shopping center, a strip mall, an industrial park, etc., leave a place more aesthetically pleasing than it was before the "development" was constructed? Is the place more beautiful or uglier?

If it is more beautiful, how sustainable is it? We know that nature sustains itself beautifully. What then can we design that is as beautiful and sustainable as nature? How much are we willing to commit to maintenance and preservation of constructed beauty?

How can children become involved in caring for things and protecting the beauty of things? Can teachers ask them to consider the aesthetic costs and the economic benefits of commercial and industrial development in their communities? Can they be asked to critique their community's signage ordinances? Can they write letters and make posters to learn to express their concerns about public policies and community zoning ideas?

### **Conclusion and some thoughts about learning to care.**

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We often hear that we should, "use things and care for people." This is half-true. If we furnish our houses and schools with only indestructible, childproof, throwaway, and discardable objects; it teaches children to be careless in the use of things. On the other hand, if they use beautiful objects and something of value is damaged, a teachable moment occurs. Grief is expressed and real values are learned. Children learn about caring. When children learn to care for things, caring becomes habitual. It is extended to people. Art and craft lessons can teach children to care for things as well as for those around them. For a classroom to have examples of finely crafted items fosters an attitude of caring.

From the Christian Gospels we have a beautiful example of caring for Christ when a woman broke the expensive perfume in Christ's honor. It was an aesthetic experience unappreciated as a waste of resources by the disciples, but clearly endorsed and blessed by Christ. It is clear that all our needs are not met by bread (practical things) alone. Caring is often expressed through aesthetic means.

**Aesthetics is the study of beauty. Beauty is important in life because it is representative of our values. Values are beautiful because they define our actions through life. ... With ethics we are able to define the nature of our values and allow them to shape us into the essential goodness that we have within ourselves**

Ethical living is the philosophy of making decisions for daily life which take into account ethics and moral values, particularly with regard to consumerism, sustainability, environmentalism, wildlife and animal welfare. At present it is

largely a personal choice, and not an organized social movement. ethical. For someone who is honest and follows good moral standards, use the adjective ethical. ... Ethical comes from the Greek ethos "moral character" and describes a person or behavior as right in the moral sense - truthful, fair, and honest.

**Ethical** comes from the Greek ethos "moral character" and describes a person or behavior as right in the moral sense - truthful, fair, and honest. Sometimes the word is used for people who follow the moral standards of their profession. An ethical lawyer or doctor does not try to take advantage of the client or patient's unfortunate situation. If something has happened and you are not sure what the right thing to do is, you are having an ethical dilemma.

## **2.6 The Physical Quality of Life Index (PQLI)**

**The Physical Quality of Life Index (PQLI)** is an attempt to measure the quality of life or well-being of a country. The value is the average of three statistics: basic literacy rate, infant mortality, and life expectancy at age one, all equally weighted on a 0 to 100 scale.

### **What factors determine quality of life?**

**Overview.** Quality of life is the general well-being of individuals and societies, outlining negative and positive features of life. It observes life satisfaction, including everything from physical health, family, education, employment, wealth, safety, security to freedom, religious beliefs, and the environment.

### **What factors determine quality of life?**

Overview. Quality of life is the general well-being of individuals and societies, outlining negative and positive features of life. It observes life satisfaction, including everything from physical health, family, education, employment, wealth, safety, security to freedom, religious beliefs, and the environment.

### **What is the life expectancy in 2019?**

Compare this to the worldwide life expectancy for babies born in 2019: 75 years for women and 70 years for men. Of continents worldwide, North America ranks first in terms of life expectancy of (76 years for men and 81 years for women).

## **Demographic scenario of India**

India has more than 50% of its population below the age of 25 and more than 65% below the age of 35. It is expected that, in 2020, the average age of an Indian will be 29 years, compared to 37 for China and 48 for Japan; and, by 2030, India's dependency ratio should be just over 0.4.

## **What is health promotion in the community?**

Health promotion is the process of improving and protecting the health of the public, including individuals, populations, and communities. Health promotion and disease prevention can be achieved through planned activities and programs that are designed to improve population health outcomes.

**If you want to minimize your risk of infection and also enhance your overall health, follow these basic personal hygiene habits:**

- 1) *Bathe regularly. Wash your body and your hair often. ...*
- 2) Trim your nails.
- 3) Brush and floss.
- 4) Wash your hands.
- 5) Sleep tight.

## **2.7. IMPACT OF DEVELOPMENY OF FAMILY LIFE ON SOCEITY,CULTURE AND PERSONALITY**

Family is also very important to how a person develops because even within culture, a family forms its own unique culture, that is, its family culture. ... All of these factors influence how a person behaves towards other family members and towards others in society and are based off what they are taught by their families.

## **How does culture influence children's development?**

Children growing up in different cultures receive specific inputs from their environment. For that reason, there's a vast array of cultural differences in children's beliefs and behaviour. Language is one of the many ways through which culture affects development.

The effects of family and culture can substantially influence one's personality, behaviours, beliefs and values, which correlates positively to the life experiences in

part 1. Research has shown the significance of family interactions on stress levels, personality and behavioural traits on younger individuals. The young ones imitate the elders as they have yet to be independent and this process is considered to be an aspect of evolution, via increasing fitness. Environmental factors such as biological and social-cultural can also influence a child's personality. The culture one grows up in can affect their happiness, morality, mortality, behaviour and, once again, personality.

## Unit 3

### Planning for population control

**India's population policy- population control: role of society, public opinion- family planning, family welfare programmes in India-responsibilities of family and individuals-a small family unit for healthier, happier and better homes-population Equilibrium- Measures of control- Clinical and educational approach.**

### **3.1 India's population policy**

#### **National Population Policy**

As per the latest World Population Prospects released by United Nations (revision 2015), the estimated population of India will be 1419 million approximately whereas China's population will be approximately 1409 million, by 2022. In spite of the perceptible decline in Total Fertility Rate (TFR) from 3.6 in 1991 to 2.3 in 2013, India is yet to achieve replacement level of 2.1. Twenty four states/UTs have already achieved replacement level of TFR by 2013, while states like UP and Bihar with large population base still have TFR of 3.1 and 3.4 respectively. The other states like Jharkhand (TFR 2.7), Rajasthan (TFR 2.8), Madhya Pradesh (TFR 2.9), and Chhattisgarh (TFR 2.6) continue to have higher levels of fertility and contribute to the growth of population.

The National Population Policy 2000 is uniformly applicable to the whole country. In pursuance of this policy, Government has taken a number of measures under Family Planning Programme and as a result, Population Growth Rate in India has reduced substantially which is evident from the following:-

- i.) The percentage decadal growth rate of the country has declined significantly from 21.5% for the period 1991-2001 to 17.7% during 2001-2011.
- ii. Total Fertility Rate (TFR) was 3.2 at the time when National Population Policy, 2000 was adopted and the same has declined to 2.3 as per Sample registration Survey (SRS) 2013 conducted by the Registrar General of India.

As the existing NPP-2000 is uniformly applicable to all irrespective of religions and communities etc., therefore no proposal is under consideration of the



Government to formulate new uniform population policy. The steps taken by the Government under various measures/programme are given below:-

2.Enumerate the planning for population control.?

**National Family Welfare Programme** India launched the National Family Welfare Programme in 1951 with the objective of "reducing the birth rate to the extent necessary to stabilize the population at a level consistent with the requirement of the National economy. The Family Welfare Programme in India is recognized as a priority area, and is being implemented as a 100% Centrally sponsored programme. The national family planning program was launched in 1951, and was the world's first governmental population stabilisation program. By 1996, the program had been estimated to have averted 16.8 crore births.

**Evolution of Family Welfare Program** The approach under the programme during the First and Second Five Year Plans was mainly "Clinical" under which facilities for provision of services were created. However, on the basis of data brought out by the 1961 census, clinical approach adopted in the first two plans was replaced by "Extension and Education Approach" which envisaged expansion of services facilities along with spread of message of small family norm.

In the IV Plan (1969-74), high priority was accorded to the programme and it was proposed to reduce birth rate from 35 per thousand to 32 per thousand by the end of plan. 16.5 million couples, constituting about 16.5% of the couples in the reproductive age group, were protected against conception by the end of IVth Plan. The objective of the V plan (1974-79) was to bring down the birth rate to 30 per thousand by the end of 1978-79 by increasing integration of family planning services with those of Health, Maternal and Child Health (MCH) and Nutrition, so that the programme became more readily acceptable.

The years 1975-76 and 1976-77 recorded a phenomenal increase in performance of sterilisation. However, in view of rigidity in enforcement of targets by field functionaries and an element of coercion in the implementation of the programme in 1976-77 in some areas, the programme received a set-back during 1977-78.

As a result, the Government made it clear that there was no place for force or coercion or compulsion or for pressure of any sort under the programme and the programme had to be implemented as an integral part of "Family Welfare" relying solely on mass education and motivation. The name of the programme also was changed to Family Welfare from Family Planning. In the VI Plan (1980-85), certain long-term demographic goals of reaching net reproduction rate of unity were envisaged.

The Family Welfare Programme during VII five year plan (1985-90) was continued on a purely voluntary basis with emphasis on promoting spacing methods, securing maximum community participation and promoting maternal and child health care. The Universal Immunization Programme (UIP) was launched in 1985 to provide universal coverage of infants and pregnant women with immunization against identified vaccine preventable diseases and extended to all the districts in the country. The approach adopted during the Seventh Five Year Plan was continued during 1990-92. For effective community participation, Mahila Swasthya Sanghs (MSS) at village level was constituted in 1990-91.

MSS consists of 15 persons, 10 representing the varied social segments in the community and five functionaries involved in women's welfare activities at village level such as the Adult Education Instructor, Anganwari Worker, Primary School Teacher, Mahila Mukhya Sevika and the Dai. Auxiliary Nurse Midwife (ANM) is the Member-Convenor. From the year 1992-93, the UIP has been strengthened and expanded into the Child Survival and Safe Motherhood (CSSM) Project. It involves sustaining the high immunization coverage level under UIP, and augmenting activities under Oral Rehydration.

Therapy, prophylaxis for control of blindness in children and control of acute respiratory infections. Under the Safe Motherhood component, training of traditional birth attendants, provision of aseptic delivery kits and strengthening of first referral units to deal with high risk and obstetric emergencies were being taken up. To impart new dynamism to the Family Welfare Programme, several new initiatives were introduced and ongoing schemes were revamped in the Eighth Plan (1992-97).

Realizing that Government efforts alone in propagating and motivating the people for adaptation of small family norm would not be sufficient, greater stress has been laid on the involvement of NGOs to supplement and complement the Government efforts. Reduction in the population growth rate has been recognized as one of the priority objectives during the Ninth & Tenth Plan period. The strategies are: i) To assess the needs for reproductive and child health at PHC level and undertake areas specific micro planning. ii) To provide need-based, demand-driven, high quality, integrated reproductive and child health care reducing the infant and maternal morbidity and mortality resulting in a reduction in the desired level of fertility.

**Contraceptives** The National Family Welfare Programme provides the following contraceptive services for spacing births: a) Condoms b) Oral Contraceptive Pill c) Intra Uterine Devices (IUD) Whereas condoms and oral contraceptive pills are being provided through free distribution scheme and social marketing scheme, IUD is being provided only under free distribution scheme. Under Social Marketing Programme, contraceptives, both condoms and oral pills are sold at subsidized rates.

In addition, contraceptives are commercially sold by manufacturing companies under their brand names also. Govt. of India does not provide any subsidy for the commercial sale.

**COPPER-T Cu-T** is one of the important spacing methods offered under the Family Welfare Programme. Cu-T is supplied free of cost to all the States/UTs by Govt. of India for insertion at the PHCs, Sub-centres and Hospitals by trained Medical Practitioners/trained Health Workers. The earlier version of Cu-T 200 'B' (IUDs) has been replaced by Cu-T 380-A from 2002-03 onwards which provides protection for a longer period (about 10 years) as against Cu-T 200 'B' which provided protection for about 3 years only.

**Emergency Contraceptive Pill (ECP)** This programme was introduced under Family Welfare Programme during 2002-03. The emergency contraceptive is the method that can be used to prevent unwanted pregnancy after an unprotected act of sexual intercourse (including sexual assault, rape or sexual coercion) or in

contraceptive failure. Emergency Contraceptive is to be taken on prescription of Medical Practitioners.

Terminal Methods Under National Family Welfare Programme following Terminal/ Permanent Methods are being provided to the eligible couples.

A) TUBECTOMY i) Mini Lap Tubectomy ii) Lapro Tubectomy Laparoscopic sterilization is a relatively quicker method of female sterilization.

B) VASECTOMY i) Conventional Vasectomy ii) No-Scalpel Vasectomy It is one of the most effective contraceptive methods available for males. It is an improvement on the conventional vasectomy with practically no side effects or complications.

This new method is now being offered to men who have completed their families. The No-Scalpel Vasectomy project is being implemented in the country to help men adopt male sterilization and thus promote male participation in the Family Welfare programme.

### **3.1 What do you know about India's Population Policy?**

#### **3.1 There are three types of objectives of National Population Policy (NPP) 2000:**

##### **1. The Immediate Objective:**

The immediate objective is to address the unmet needs for contraception, health care infrastructure and health personnel and to provide integrated service delivery for basic reproductive and child health care.

##### **2. The Medium Term Objective:**

The medium term objective is to bring the Total Fertility Rate (TFR) to replacement level by 2010 through vigorous implementation in inter-sectorial operational strategies.

##### **3. The Long Term Objective:**

The long term objective is to achieve a stable population by 2045 at a level consistent with the requirements of sustainable economic growth, social development, and environment protection.

**Targets:**

The following are the targets of National Population Policy:

1. Achieve zero growth rate of population by 2045.
2. Reduce infant mortality rate of below 30 per thousand live births.
3. Reduce maternal mortality ratio of below 100 per 1, 00,000 live births.
4. Reduce birth rate to 21 per 1000 by 2010.
5. Reduce total fertility rate (TFR) to 2.1 by 2010.

National Socio-Demographic Goals for 2010:

**Family Welfare Schemes**

The Ministry of Health and Family Welfare has a number of schemes to cover the under-privileged sections of society and help them with maternity, post and neonatal healthcare and family planning. These include the Janani Suraksha Yojana, Rehabilitation of Polio Victims and several financial assistance schemes for surgery and other health problems. Counseling centres are also available across the country as part of the government sponsored family welfare schemes.

**Some of the Important Family Welfare Schemes Are Listed Below:**

- National Family Welfare Programme: India launched the National Family Welfare Programme in 1951 with the objective of "reducing the birth rate to the extent necessary to stabilise the population at a level consistent with the requirement of the National economy. The Family Welfare Programme in India is recognised as a priority area, and is being implemented as a 100% centrally sponsored programme.

National Population Policy:

The National Population Policy, 2000 affirms the commitment of government towards voluntary and informed choice and consent of citizens while availing of reproductive health care services and continuation of the target free approach in administering family planning services.

### **National Rural Health Mission:**

The National Rural Health Mission (200512) seeks to provide effective healthcare to rural population throughout the country with special focus on 18 states, which have weak public health indicators and/or weak infrastructure. The mission aims at effective integration of health concerns with determinants of health like sanitation and hygiene, nutrition and safe drinking water through a District Plan for Health.

- **Urban Family Welfare Schemes:** This Scheme was introduced following the recommendation of the Krishnan Committee in 1983. The main focus was to provide services through setting up of Health Posts mainly in slum areas. The services provided are mainly outreach of RCH services, preventive services, First Aid and referral services including distribution of contraceptives.
- **Sterilization Beds Scheme:** A Scheme for reservation of Sterilization beds in Hospital run by Government, Local Bodies and Voluntary Organisations was introduced as early as in the year 1964 in order to provide immediate facilities for tubectomy operations in hospitals where such cases could not be admitted due to lack of beds etc. But later with the introduction of the Post Partum Programme some of the beds were transferred to Post Partum Programme and thereafter the beds were only sanctioned to hospitals run by Local Bodies and Voluntary Organisations.

### **Reproductive and Child Health Programme:**

The Reproductive and Child Health Programme was launched in October 1997 incorporating new approach to population and development issues, as exposed in the International Conference in Population and Development held at Cairo in 1994. The programme integrated and strengthened in services/interventions under the Child Survival and Safe Motherhood Programme and Family Planning Services and added to the basket of services, new areas on Reproductive Tract/Sexually Transmitted infections.

### **3.1 population control: role of society, public opinion-**

Public opinion consists of the desires, wants and thinking of the majority of the people. It is the collective opinion of the people of a society or state on an issue or

problem. This concept came about through the process of urbanization and other political and social forces.

Critically examine the measures taken by both central and State Government to control the population.

On-going interventions:

- 1) More emphasis on Spacing methods like IUCD.
- 2) Availability of Fixed Day Static Services at all facilities.
- 3) A rational human resource development plan is in place for provision of IUCD, minilap and NSV to empower the facilities (DH, CHC, PHC, SHC) with at least one provider each for each of the services and Sub Centres with ANMs trained in IUD insertion.
- 4) Quality care in Family Planning services by establishing Quality Assurance Committees at state and district levels.
- 5) Improving contraceptives supply management up to peripheral facilities.
- 6) Demand generation activities in the form of display of posters, billboards and other audio and video materials in the various facilities.
- 7) National Family Planning Indemnity Scheme' (NFPIS) under which clients are insured in the eventualities of deaths, complications and failures following sterilization and the providers/ accredited institutions are indemnified against litigations in those eventualities.
- 8) Compensation scheme for sterilization acceptors - under the scheme MoHFW provides compensation for loss of wages to the beneficiary and also to the service provider (& team) for conducting sterilisations.
- 9) Increasing male participation and promotion of Non Scalpel Vasectomy.
- 10) Emphasis on Miniap Tubectomy services because of its logistical simplicity and requirement of only MBBS doctors and not post graduate gynecologists/surgeons.

11) Accreditation of more private/NGO facilities to increase the provider base for family planning services under PPP.

12) Strong political will and advocacy at the highest level, especially, in States with high fertility rates.

#### New Interventions under Family Planning Programme

1) Scheme for Home delivery of contraceptives by ASHAs at doorstep of beneficiaries: The govt. has launched a scheme to utilize the services of ASHA to deliver contraceptives at the doorstep of beneficiaries.

2. Scheme for ASHAs to ensure spacing in births: The scheme is operational from 16th May, 2012, under this scheme, services of ASHAs to be utilised for counselling newly married couples to ensure delay of 2 years in birth after marriage and couples with 1 child to have spacing of 3 years after the birth of 1st child.

ASHAs are to be paid the following incentives under the scheme:-

a.Rs. 500/- to ASHA for ensuring spacing of 2 years after marriage.

b.Rs. 500/- to ASHA for ensuring spacing of 3 years after the birth of 1st child.

c. Rs. 1000/- in case the couple opts for a permanent limiting method up to 2 children only. The scheme is being implemented in 18 States of the country (8 EAG, 8 NE Gujarat and Haryana).

3. Boost to spacing methods by introduction of new method PPIUCD (Post-Partum Intra Uterine Contraceptives Device.

4. Introduction of the new device Cu IUCD 375, which is effective for 5 years.

5. Emphasis on Postpartum Family Planning (PPFP) services with introduction of PPIUCD and promotion of minilap as the main mode of providing sterilisation in the form of post-partum sterilisation to capitalise on the huge cases coming in for institutional delivery under JSY.

Assured delivery of family planning services for both IUCD and sterilisation.



6. Compensation for sterilisation acceptors has been enhanced for 11 High Focus States with high TFR.

7. Compensation scheme for PPIUCD under which the service provider as well as the ASHAs who escorts the clients to the health facility for facilitating the IUCD insertion are compensated.

8. Scheme for provision of pregnancy testing kits at the sub-centres as well as in the drug kit of the ASHAs for use in the communities to facilitate the early detection and decision making for the outcome of pregnancy.

9. RMNCH Counselors (Reproductive Maternal New Born and Child Health) availability at the high case facilities to ensure counseling of the clients visiting the facilities.

10.Celebration of World Population Day 11th July & Fortnight: The event is observed over a month long period, split into fortnight of mobilization/sensitization followed by a fortnight of assured family planning service delivery and has been made a mandatory activity from 2012-13 and starts from 27th June each year.

11. FP 2020- Family Planning Division is working on the national and state wise action plans so as to achieve FP 2020 goals. The key commitments of FP 2020 are as under :

12) Increasing financial commitment on Family Planning whereby India commits an allocation of 2 billion USD from 2012 to 2020.

13) Ensuring access to family planning services to 48 million (4.8 crore) additional women by 2020 (40% of the total FP 2020 goal).

14) Sustaining the coverage of 100 million (10 crore) women currently using contraceptives. Reducing the unmet need by an improved access to voluntary family planning services, supplies and information. In addition to above, Jansankhya Sthirata Kosh/National Population Stabilization Fund has adopted the following strategies as a population control measure:-

Prerna Strategy:- JSK has launched this strategy for helping to push up the age of marriage of girls and delay in first child and spacing in second child the birth of children in the interest of health of young mothers and infants. The couple who

adopt this strategy awarded suitably. This helps to change the mindsets of the community.

**Santushti Strategy:-** Under this strategy, Jansankhya Sthirata Kosh, invites private sector gynaecologists and vasectomy surgeons to conduct sterilization operations in Public Private Partnership mode. The private hospitals/nursing home who achieved target to 10 or more are suitably awarded as per strategy.

**National Helpline:-** JSK also running a call centers for providing free advice on reproductive health, family planning, maternal health and child health etc

**Advocacy & IEC activities:-** JSK as a part of its awareness and advocacy efforts on population stabilization, has established networks and partnerships with other ministries, development partners, private sectors, corporate and professional bodies for spreading its activities through electronic media, print media, workshop, walkathon, and other multi-level activities etc. at the national, state, district and block level.

### **3.4 Family Welfare Schemes**

The Ministry of Health and Family Welfare has a number of schemes to cover the under-privileged sections of society and help them with maternity, post and neonatal healthcare and family planning. These include the Janani Suraksha Yojana, Rehabilitation of Polio Victims and several financial assistance schemes for surgery and other health problems. Counseling centres are also available across the country as part of the government sponsored family welfare schemes.

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and Family Planning Services and added to the basket of services, new areas on Reproductive Tract/Sexually Transmitted infections.

### **3.6 a small family unit for healthier happier and better homes**

#### **3.6 Bring out the strength and limitations of a small family norm.**

A small family is not only necessary to keep ecological hazards and other economic problems at bay, but it is also essential to guarantee a better quality of life.

A small family promises well-nourished and healthy family affiliates. Furthermore, children in a small family will get more love and concentration from their parents.

Generally, a family is a group, which is made up of two parents and their kids living jointly as a unit. It also consists of all the successors of a common precursor. In general, a family is a social unit of two or more individuals, related by marriage, blood, or adoption and having a common pledge to the mutual relationship.

A family can be classified as joint family, undivided family, nuclear family, small family, etc. A joint family, which is also referred to as an undivided family, is an extended family system prevalent all through the Indian subcontinent, chiefly in India, consisting of several generations living in identical family, all bound by the common affiliation. A nuclear family consists of parents and one or more kids living together.

#### **What is a small family?**

A small family (also nuclear family) is a group of people, which is made of parents and one or two kids. Nowadays, most newly wedded couples plan to have only one or two kids when compared with three or more children in olden days. The reasons for this change include a drift toward later marriage, more effective contraception methods, more stress on careers for women, and the growing cost of nurture and educating kids.

#### **Benefits / Advantages of a small family**

Dominant civilizing norms habitually influence couples in their option of family size. Depending on the background, this option can be traced to cultural, religious, or socioeconomic reasons, like the necessity for support in old age. However, it is established that a family with two or fewer kids provides several benefits to both the children and the parents. Here are the top 10 benefits of a small family.

### **1. Better life quality for children**

Kids of smaller families get more attention to higher quality from their parents, causing higher achievements. Kids with one or no siblings can perform better in edification, as parents hold a restricted amount of emotional and economic resources these happen to be diluted, meaning their quality diminishes as the number of kid increases.

### **2. Amplified economic success**

Children with fewer siblings are capable of attaining amplified economic success and communal positions. Furthermore, the decision to limit the size of a family can be understood as a strategic option to perk up the socioeconomic success of kids and grandkids in modern societies.

### **3. Better life quality for parents**

Parents are greatly benefitted by a small family. The expenditure, such as of supporting a kid from cradle to university, such as school books, uniforms, trips, provisions, university fees, etc., is greatly reduced. Moreover, fewer kids create a more controllable impact on family finances, thus relieving strain and emotional pressure levels.

### **4. Less pressure on family budgets**

Parents of a small family experience less pressure on family budgets, making them to make both ends meet easily, and to make them doing essential shopping without any difficulty by buying quality products.

### **5. Maximum level of happiness**

The levels of happiness are maximized when the number of kids is limited to two for each family. Those who turn into a parent at their young age, which is

habitually related to having a bigger family, reported descending happiness trajectories, whereas happiness levels were maximized when parents were older and had previously acquired financial and educational resources.

## **6. Less strain for mothers**

Mothers with one or two children experience less strain when compared to those having two or more children. This allows mothers to pay more attention to the welfare of their children.

## **7. A small family is an ecologically sustainable option**

The size of a family plays a vital role in preventing and highlighting climate change. Actually, it may be the solitary campaign for ecologically friendly lifestyles, which really counts. Considering further influences impacts of climate change, such as the loss of certain species, a small family makes even more ecological sense.

## **8. Smaller families are inclined to have optimistic effects on the life of a woman.**

Women are usually responsible for child rearing activities. A smaller number of kids would offer women additional time to develop individually and professionally. Smaller families could boost the empowerment of women, together with men, assuming more responsibility. Moreover, women who bear their first kid at their 30s tend to have fewer kids are better off professionally and economically, as well as in terms of welfare.

## **9. Condensed health risk**

Parents are much benefitted with a small family, which include abridged expenses on food, additional time to devote to leisure or work, increased caring attention per kid, and condensed health risk.

## **10. Higher levels of education**

Young individuals are more probable to attain higher levels of education if their family is restricted to one or two kids. While socioeconomic factors are

pertinent, family size has a considerable impact on the encouragement and attention children get at home.

**g) What extension activates will you adopt in creating awareness of population?**

a) Prevent and control communicable diseases.

b) Promote small family norms.

c) India launched the National Family Welfare Programme in 1951 with the objective of "reducing the birth rate to the extent necessary to stabilize the population at a level consistent with the requirement of the National economy.

d) Reduce death rate.

e) Reduce birth rate, literature. Unemployment problem.

Extension is an informal educational process directed toward the rural population. This process offers advice and information to help them solve their problems. Extension also aims to increase the efficiency of the family farm, increase production and generally increase the standard of living of the farm family.

### **3.7 What do you know about Population Equilibrium?**

#### **3.7 population equilibrium**

The Hardy-Weinberg equilibrium is a principle stating that the genetic variation in a population will remain constant from one generation to the next in the absence of disturbing factors. For instance, mutations disrupt the equilibrium of allele frequencies by introducing new alleles into a population.

**What conditions are required for a population to come into genetic equilibrium?**

Five conditions are required in order for a population to remain at Hardy-Weinberg equilibrium: A large breeding population. Random mating. No change in allelic frequency due to mutation.

**Is it common for a population to be in equilibrium?**

The allele frequencies in a population will remain constant unless one or more factors cause these frequencies to change. Is it common for a population to remain in genetic equilibrium? ... Yes, for some populations and in rare conditions for long periods of time.

### **What are the 5 principles of the Hardy Weinberg equilibrium?**

**Key points:** When a population is in Hardy-Weinberg equilibrium for a gene, it is not evolving, and allele frequencies will stay the same across generations. There are five basic Hardy-Weinberg assumptions: no mutation, random mating, no gene flow, infinite population size, and no selection.

### **Why is Hardy Weinberg equilibrium important?**

The Hardy-Weinberg model can also be applied to the genotype frequency of a single gene. Importance: The Hardy-Weinberg model enables us to compare a population's actual genetic structure over time with the genetic structure we would expect if the population were in Hardy-Weinberg equilibrium (i.e., not evolving).

### **What is population equilibrium?**

Genetic equilibrium describes the condition of an allele or genotype in a gene pool (such as a population) where the frequency does not change from generation to generation. Genetic equilibrium describes a theoretical state that is the basis for determining whether and in what ways populations may deviate from it.

## **3.8 The measures of control for population control.**

### **STEPS TO CONTROL POPULATION IN INDIA**

The Government of India, politicians, policy makers should initiate a bold population policy so that the economic growth of the country can keep pace with the demands of a growing population. Major steps which have been already implemented but still need to be emphasised more to control population. Increasing the welfare and status of women and girls, spread of education, increasing awareness for the use of contraceptives and family planning methods, sex education, encouraging male sterilisation and spacing births, free distribution of contraceptives and condoms among the poor, encouraging female



empowerment, more health care centres for the poor, to name a few, can play a major role in controlling population.

India's strengths in the global world in various fields cannot be ignored, whether in science & technology, medicine and health care, business and industry, military, communication, entertainment, literature and many more. Experts are hopeful that by increasing public awareness and enlisting strict population control norms by the Government will definitely lead the way for the country's economic prosperity and control of population.

Population of India is quite large and rapidly increasing. One percent growth rate means an addition of 1 crore people every year but actually speaking 2 crore persons are being added every year.

So effective population control measures is the need of the hour. We know that birth rate is mainly responsible for rapid population growth.

Hence measures which can reduce the birth rate should be adopted. These measures can be classified into 3 heads.

## **Measure of Population Control**

### **A. Social Measure:**

Population explosion is a social problem and it is deeply rooted in the society. So efforts must be done to remove the social evils in the country.

#### **1. Minimum age of Marriage:**

As fertility depends on the age of marriage. So the minimum age of marriage should be raised. In India minimum age for marriage is 21 years for men and 18 years for women has been fixed by law. This law should be firmly implemented and people should also be made aware of this through publicity.

#### **Raising the Status of Women:**

There is still discrimination to the women. They are confined to four walls of house. They are still confined to rearing and bearing of children. So women should be given opportunities to develop socially and economically. Free education should be given to them.

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**3. Spread of Education:**

The spread of education changes the outlook of people. The educated men prefer to delay marriage and adopt small family norms. Educated women are health conscious and avoid frequent pregnancies and thus help in lowering birth rate.

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**4. Adoption:**

Some parents do not have any child, despite costly medical treatment. It is advisable that they should adopt orphan children. It will be beneficial to orphan children and children couples.

**5. Change in Social Outlook:**

Social outlook of the people should undergo a change. Marriage should no longer be considered a social binding. Issueless women should not be looked down upon.

**6. Social Security:**

More and more people should be covered under-social security schemes. So that they do not depend upon others in the event of old age, sickness, unemployment etc. with these facilities they will have no desire for more children.

**B. Economic Measures:****The following are the economic measures:****1. More employment opportunities:**

The first and foremost measure is to raise, the employment avenues in rural as well as urban areas. Generally in rural areas there is disguised unemployment. So efforts should be made to migrate unemployed persons from rural side to urban side. This step can check the population growth.

## **2. Development of Agriculture and Industry:**

If agriculture and industry are properly developed, large number of people will get employment. When their income is increased they would improve their standard of living and adopt small family norms.

## **3. Standard of Living:**

Improved standard of living acts as a deterrent to large family norm. In order to maintain their higher standard of living people prefer to have a small family. According to A.K. Das Gupta those who earn less than Rs. 100 per month have on the average a reproduction rate of 3.4 children and those who earn more than Rs. 300 per month have a reproduction rate of 2.8 children.

## **3.Urbanisation:**

It is on record that people in urban areas have low birth rate than those living in rural areas. Urbanisation should therefore be encouraged.

## **C. Other Measures:**

**The following are the other measures:**

### **1. Late Marriage:**

As far as possible, marriage should be solemnized at the age of 30 years. This will reduce the period of reproduction among the females bringing down the birth rate. The govt. has fixed the minimum marriage age at 21 yrs. for males and 18 yrs. for females.

### **2. Self Control:**

According to some experts, self control is one of the powerful methods to control the population. It is an ideal and healthy approach and people should be provided to follow. It helps in reducing birth rate.

### **3. Family Planning:**

This method implies family by choice and not by chance. By applying preventive measures, people can regulate birth rate. This method is being used extensively; success of this method depends on the availability of cheap contraceptive devices for birth control. According to Chander Shekher, “Hurry for the first child, Delay the second child and avoid the third.”

### **Recreational Facilities:**

Birth rate will likely to fall if there are different recreational facilities like cinema; theatre, sports and dance etc. are available to the people.

### **5. Publicity:**

The communication media like T.V., radio and newspaper are the good means to propagate the benefits of the planned family to the uneducated and illiterate persons especially in the rural and backward areas of country.

### **6. Incentives:**

The govt. can give various types of incentives to the people to adopt birth control measures. Monetary incentives and other facilities like leave and promotion can be extended to the working class which adopts small family norms.

### **7. Employment to Woman:**

Another method to check the population is to provide employment to women. Women should be given incentive to give services in different fields. Women are taking active part in competitive examinations. As a result their number in teaching, medical and banking etc. is increasing rapidly. In brief by taking, all these measures we can control the growth of population.

### **3.9 Clinical and educational approach.**

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How clinical approach is helpful for population control?

- 1) Delayed Marriages.
- 2) Medical Facilities.

- 3) Legislative Actions.
- 4) Providing Incentives.
- 5) Spread Awareness.
- 6) Women Empowerment. .
- 7) Eradicate Poverty. .
- 8) Education.

Terminal Methods Under National Family Welfare Programme following Terminal/ Permanent Methods are being provided to the eligible couples.

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**B) VASECTOMY** i) Conventional Vasectomy ii) No-Scalpel Vasectomy It is one of the most effective contraceptive methods available for males. It is an improvement on the conventional vasectomy with practically no side effects or complications.

This new method is now being offered to men who have completed their families. The No-Scalpel Vasectomy project is being implemented in the country to help men adopt male sterilization and thus promote male participation in the Family Welfare programme.

### **Educational approach**

Education plays an important role in influencing fertility. In countries where the percentage of literates is high, fertility is low. That is why the birth rate is low in developed countries. The educated couple prefers a very small family.

It understands the use and importance of various family planning devices. Moreover, the span of child-bearing is reduced considerably in the case of a girl who receives education for a number of years and marries at a ripe age.

Population Policy: Population Policy of India

India launched its family planning programme in 1951 as part of the First Five-Year Plan, and became the first country in the world to have a state-sponsored population programme.

Family planning was recognised officially in order to safeguard the health and welfare of mothers and children. The programme was also aimed at aiding the national economy by reducing the birth rate concurrently with the death rate in order to stabilise the population.

There was not much progress for the next ten years. The health infrastructure, which formed the delivery system for the family planning programme, was still developing. The choice of contraceptives was limited to a few barrier and chemical methods, and natural methods like the rhythm method and coitus interrupts. Sterilisation for males and females was still not a popular contraceptive choice.

The programme got a tremendous boost with the creation of a separate Department of Family Planning in the health ministry in 1966. An extension approach was adopted, as against the 'clinic approach' of the previous two plans, to increase the outreach of services and improve awareness and knowledge about family planning among the masses.

There was a significant shift in the strategy of the government under the Fifth Five-Year Plan (1974-79). Several important policy decisions were taken and action initiated to give the family planning programme a greater thrust and a new direction. Maternal and child health services were made part of the programme.

A landmark in the population policy of the country was the draft statement of Population Policy, issued in the Parliament in 1976, expressing the government's determination to control population growth. Increasing the legal age of marriage (from 15 to 18 years for girls and from 18 to 21 years for boys), freezing the population at the 1971 level until 2000 for the purpose of legislature elections, and devolution of Central assistance to states for development were some important decisions taken by the government following the 1976 draft population policy statement.

The 1976 population policy was completely at variance with the earlier population policy of the government. In the past, it was believed that development and

education would themselves restrict the rate of population growth, while the government's own programme was restricted to family planning, by way of motivating people to accept family planning and providing clinical facilities and other services to its acceptors.

The 1976 policy statement, however, noted: To wait for education and economic development to bring out a drop in fertility is not a practical solution. The very increase in population makes economic development slow and more difficult to achieve. The time factor is so pressing, and the population growth so formidable, that we have to get out of the vicious circle through a direct assault upon this problem as a national commitment.”

During the Emergency period (1975-77), coercion and pressure were used in implementing the family planning programme. The Central assistance of 8 per cent was linked with the family planning performance. For the first time the Union government allowed some states to initiate legislation for compulsory sterilisation. The policies, however, discredited the entire family planning programme, and the experiment of the government to implement the so-called bold measures for lowering the birth rate in a relatively short period ended in a fiasco.

In 1977, the new government ruled out the use of force and coercion, and the family planning programme was renamed as the ‘family welfare programme’.

During the Sixth Five-Year Plan (1980-85), population control was specifically mentioned as one of the plan objectives, and integrated in the twenty-point programme.

After the Seventh Plan (1985-90) was finalised, a revised strategy was adopted for the family planning programme. It emphasised on increasing the minimum age for marriage of women, making them literate, enhancing their status by increased economic and employment “opportunities, improving the health of mothers and children, greater coordination and linkages with poverty alleviation programmes and greater involvement of the NGOs in the family planning programmes.

Under the Eighth Plan (1992-97), human development was adopted as the ultimate goal and population control was listed as one of the priorities. The Plan undertook a different approach and there was a complete shift towards indirect measures.

## UNIT 4

**Historical background - introduction of population at various levels; schools, college, Teacher education institution - need of curriculum development in population education- problems in curriculum development – need of research in population education- Role of different agencies and organizations home, school, community, government-role of mass media-different strategies of teaching of population education.**

### **4.1 Population Education in Schools-An Introduction**

Population Education as defined by the United Nations Fund for Population. Activities (UNFPA, 1998) is the process of helping people understand the nature, causes and implications of population process as they affect, and are affected by individuals, families, communities and nations. It focuses on family and individual decisions influencing population change at the micro level as well as on broad demographic changes. Population education addresses such issues as rapid population growth and scarce resources as well as population decline in light of increasingly elderly population.

Population education equips students with the factual knowledge about population dynamics required to understand the nature and magnitude of the burden imposed by both declining and rapid population growth. Population education is not sex education or family planning education nor birth control but helps us to investigate and explore the interaction between population and education. Population education helps and enables us to be aware of the process and consequences of population growth on the quality of lives and the environment. The child gets an opportunity to investigate and explore the interaction between the population and their environment. The child also becomes acquainted with the causes and consequences of population increase at the local and national levels. It helps learners to understand that family size is controllable and population limitation can facilitate the development of higher quality of life. It preaches population moderation. Population education is aimed at developing age-appropriate curricula to complement pupils/students' science and social science instruction about human population trends and their impacts on natural resources,



environmental quality and human wellbeing. The United Nations Educational Scientific and Cultural Organization (UNESCO) (1978) outlined the major goals of population education programs as:

- i. Understand and evaluate the prevailing situation in their community and country;
- ii. Explore and appreciate the dynamic forces that have helped to create the present population and the likely future consequences of the trends;
- iii. Make conscious and informed decisions based on their understanding and evaluation of the Population situation;
- iv. Become aware of the relationship between the population issues and problems and the socio-economic development of their communities and nations;
- v. Respond in a rational and responsible manner to population related issues and problems. Population education equips learners with an understanding of the influence of population growth on social, political, economic and cultural life of individuals. Population education is aimed at developing age-appropriate curricula to complement pupils/students' science and social science instruction about human population trends and their impacts on natural resources, environmental quality and human wellbeing. Population education is multidisciplinary in concept and neither provides nor prescribes any contraceptive education or any other measures to limit the size of the population.

Facts like the size or the growth rate of the human population should be in the head of every citizen. Schools should inform students about population issues in order for them to make projections about the future generations.

Malhotra (2010) summarizes the scope of population education thus:

- i. Population education provides learners with a knowledge and understanding of the prevailing population situation in their own country and the world;
- ii. Creates an awareness among learners about the relationship between population situation in their own country and the world;
- iii. Assists us to make conscious, rational and informed decisions regarding family size and population matters in the community and policy adopted by the State;

iv. Equip us with necessary knowledge, skills, attitudes, values to ascertain and evaluate the impact of population change both in terms of the students future welfare and the welfare of their community, nation and the world;

v. Studies the nature, causes, changes, characteristics, composition and distributional aspects of human population; and

### **Scope of Population Education in Schools**

Population Education as per UNESCO is defined as “an educational programme which provided for a study of the population situation in family, community, nation and the world with the purpose of developing in the students, rational and responsible attitudes and behavior towards that situation”. There is a wide scope of Population

#### **Education in schools because:**

1. Schools are the centre's of teaching and learning for young generation.
2. Schools have a traditional of being future oriented.
3. Schools promote social change.
4. Schools are engaged in adopting new innovations and changes.

Population Education includes the following areas of study:

- a. Population dynamics and pattern of population growth.
- b. Developing of basic understanding of the process of human reproduction.
- c. Understanding of health problems associated with child bearing.
- d. Appreciation of the relationship between quality of life for a family and its size.
- e. Appreciation of the significance of population characteristics and policies for socio-economic development.
- f. Familiarity with the population policies and family planning programmes of only own country.

The main problems of imparting population educations in schools are:

1. Confusion in concept.
2. Shortage of qualified and trained teachers in population education.
3. Prejudice of parents.
4. Lack of suitable planning.
5. Lack of coordination among various agencies working in the field of family planning/ welfare and education.

**On schools imparting of Population Education aims to:**

1. To develop among the students a keen insight into the interrelationship between population change and the process of socio economic development.
2. To create among the students and teachers awareness about the population situation in the country and the strategies adopted to meet this critical situation.
3. To create an awareness among students that the present population explosion in our country is the result of speedy birth rate.
4. To develop desirable attitudes and behavior among students and teachers towards the population issues to determine the quality of life.
5. To help students to realize the socio-economic burden involved in bringing up large families usually resulted in deterioration in quality of living.
6. To provide Population Education at its right place in the curriculum of the formal as well as the non formal programme of education.
7. To make curriculum removal a continuous and ongoing process to meet the emerging challenges that confront society from time to time.

The following six major areas have been identified for Population

Education concepts in schools which have been borrowed from social science to biological sciences. They have a wide scope for encompassing most of the concepts related to the Population Education at the school level.

**These are: -**

- a. Population growth (determinants and demographic situation)
- b. Population growth and economic development (consequences)
- c. Population growth and social development (Consequences)
- d. Population, health and nutrition.
- e. Population, biological factors and family life.
- f. Population programme national and international.

At NCERT New Delhi the Population Education cell has developed a draft syllabus on Population Education for different stages. Population Education is not to be treated as a separate subject in the school curriculum but should be integrated with other curricular subjects.

**Major Problems of Population Education**

This article throws light upon the nine major problems of population education. The problems are: 1. Confusion of the Concepts 2. Lack of Variety of Languages 3. Inadequate Curriculum 4. Lack of Proper Planning 5. Lack of Communication 6. Social and Religious Taboos 7. Lack of Trained Teachers 8. Lack of Resources 9. Lack of Research.

**1. Confusion of the Concepts:**

The concepts of population education does not have a satisfactory definition for which it becomes very difficult on the part of the teachers, teacher educators and the educationists to have a clear cut idea about its aims, curriculum, methods of teaching, when to teach etc.

**2. Lack of Variety of Languages:**

Language plays a vital role for propagating the new ideas among the people. As India is a multi-lingual country having 15 official languages and 1652 dialects, it is very difficult to propagate and implement and new programme through different languages.

**3. Inadequate Curriculum:**

Though population education is a new concept, we have not so far developed suitable curriculum and teaching materials for implementation of this programme in different levels of education.

**4. Lack of Proper Planning:**

As population education is comparatively a new area in the field of education it needs proper planning and co-ordination at each level. But lack of proper planning and co-ordination this programme is too difficult to implement.

**5. Lack of Communication:**

The slow progress of population education in India is lack of transport and communication facilities as the large portion of our country is covered with hills and rivers.

**6. Social and Religious Taboos:**

Our traditional society and religion are responsible for the slow progress of population education for which many people do not appreciate the population education programme.

**7. Lack of Trained Teachers:**

To impart instructions on population education some advanced knowledge, skill and training is required for the teachers. It is very difficult on the part of untrained teachers to impart instructions on population education.

**8. Lack of Resources:**

We lack both human and material resources for implementing the new programme of population education.

**9. Lack of Research:**

Population education needs adequate research work for its progress what we lack in India.

## **Role of mass media**

**Use of Mass Media** – Newspaper, Radio, T.V. and A.V aids Newspaper is the most powerful media device through which we can disseminate information related to “population education”. It is most economic and easily accessible to every common man as internet is available everywhere in the country. Its service is quick and within no time it reaches in the hands of millions of people.

A newspaper is equipped with information related to latest development in Population Education through its various columns comprising editorial, essays comments, letters to the editor, stories, cartoons etc. By the help of this device many aspects of Population Education may be circulated for the benefit of the people. It can also cover foreign countries in relation to population education. Newspaper disseminates information about population growth. It can also include its impact on Indian society. It can cover news about epidemic diseases, diseases like STD, AIDS, HIV and communicable diseases.

It is a very powerful media which can attract the people to participate in family welfare programmes.

### **Radio: -**

Radio has reached in every nook and corner of society. In every corner of the country people do have radio. It is most convenient and powerful media through which knowledge of Population Education can be disseminated not only to school going children but to masses at large.

1. 3. Personal contact with the teacher is not possible at all.

2. Learners will be passive listeners.

### **Films:**

Previously films were considered as source of entertainment and pleasure but recently they are used to facilitate the learning process. It has been noticed that the teaching through films makes the learning effective and interesting. The learning

through films is retained in mind by young children for a longer period because at this age their brains are alert and receptive. Mainly there are two types of films.

1. Documentary films

2. Class room films

### **Documentary films:**

These films are used to convey conductive information / factual information.

These films deal with events, circumstances etc. in a factual way e.g. family welfare, child health care.

### **Class room films:**

These films pattern to the topics which teacher deals with in the class viz fertility and education, WHO Poles, Pulse Polio immunization programme. Precautions to be adopted while using films:

1. The teacher should give brief introduction of the film prior to display of the film.
2. The film should full fill the objectives of the lesson.
3. The topic of the films should be in accordance with the syllabus.
4. The teacher is expected to give explanatory comments in between the screening of the film.
5. The important aspects of the film may be replaced.

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## **SCOPE OF POPULATION EDUCATION IN SCHOOLS**

UNESCO defines population Education.” As an educational programme which provide for a study of the population situation in family, community, nation, and the world with the purpose of developing in students, rational and responsible attitudes and behavior towards the situation.”

There is a wide scope of population education in schools, because the schools are the centres of teaching & learning of young generations, the are future oriented, these promote social change and are engaged in adopting new innovation and changes.

### **Population Education includes the following areas of study.**

- a) Population dynamics and patterns of population growth.
- b) Developing the basic understanding of the process of human reproduction.
- c) Understanding of health problems associated with child bearing.
- d) Appreciation of relationship between family size and quality of life.
- e) Population characteristics and social-economic development.
- f) Fanciliarity with population policies and family planning programmes of one’s own country.

**PROBLEMS OF IMPARTING POPULATION EDUCATION IN SCHOOLS:-**

- a) Confusion in concepts
- b) Shortage of qualified & trained teachers in population Education.
- c) Prejudice of parents
- d) Lack of suitable planning
- e) Lack of coordination among various agencies working in the field of family planning/welfare and education.

**AIMS OF POPULATION EDUCATION IN SCHOOLS**

- a) To aware the students about the interrelationship between population changes and the forces of socio-economic development.
- b) To aware the future citizens about the population situation in the country and the strategies adopted to meet the critical situation.
- c) To make the students to know that population explosion in the country is the result of high birth rates and declining death rates in the recent decades.
- d) To make the students understand relationship between family size and quality of life.
- e) To impress upon the students that use of science and technology has helped in bringing down the death rate and same can be utilized in bringing down birth rates.
- f) To help the students to know that the socio-economic burden in bringing up large families usually result in deterioration in quality of life
- g) To provide population education its rightful place in the curriculum of the formal as well as non-formal programme of Education.

## **ACTIVITIES AND PROGRAMMES INVOLVED IN POPULATION EDUCATION FOR SCHOOLS**

- 1) Setting up of population education cell in the state council of Educational Research and training (SCERT) with competent and qualified officers and other supporting staff for efficient implementation of the programme.
- 2) Developing curriculum and text-books for primary, upper primary, secondary and higher secondary classes as well as the pre-primary and secondary teacher training institutions.
- 3) Developing training packages for training teachers and orienting senior supervisory staff for proper implementation of the programme.
- 4) Orienting field officers of education department, to administer, supervise, guide, coordinate, assess and monitor the programme implementation process.
- 5) Train key resource person for launching the programme.
- 6) To train teachers & teacher educators to properly handle the textual as well as the instructional material in the classroom.
- 7) To orient heads of the schools to guide intelligently and supervise the programmes in the schools.
- 8) Developing a suitable monitoring system for the periodic evaluation of the programme.
- 9) Developing exemplary lessons for the school radio and T.V Programmes.
- 10) Conducting research studies on the impact of population education on the attitude Formation.
- 11) Bringing out a news letter on population education to open up a two way communication channel between the population education cell and field workers.
- 12) Organise interstate visits and study tours within the country for mutual exchange of ideas and comparing of notes.
- 13) Translating from English to regional languages.

## PAPULATION EDCATION IN SCHOOLS

The following six major areas have been identified concepts in schools.

- 1) Population growth (determinants and demographic situation)
- 2) Population growth and economic development (consequences)
- 3) Population growth and social development (consequences)
- 4) Population health and nitraton
- 5) Population biological factors & family size
- 6) Population programmes national & international.

The population education is not to be treated as a separate subject but should be integrated with other curricular subject. The draft syllabus in population education at different school levels includes the following topics.

### **Elementary stage:**

- i. Growth of population in cities
- ii. Over crowded situation
- iii. Population and economic development
- iv. Importance of good health
- v. Factors responsible for personal hygienc
- vi. Life in stums
- vii. Control of diseases
- viii. Basic food groups
- ix. Population and biological factors

### **SECONDARY STAGE:**

- i. Population growth

- ii. Population growth & economic development
- iii. Population growth and social development
- iv. Health nutrition and population growth
- v. Stages of growth.

## HIGHER SECONDARY STAGE

- I. Population growth
- II. Population growth and economic development
- III. Health nutrition & population growth
- IV. Population growth & social development
- V. Population growth and Biological factors.

### **CORRELATING SCHOOL SUBJECTS WITH POPULATION EDUCATION PROGRAMMES:**

Population Education is not to be treated as a separate subject, but should be integrated with other curricular subjects. A glimpse of the different curricular subjects in relation to population education as;

- a) Languages: - Materials in the form of stories, essays can be incorporated in language text books in mother tongue, regional languages, Hindi, English related to population problems.
- b) Mathematics: - Problems relating to population growth can be taken up by way of percentage, bar, line, pie graphs etc.
- c) Science and Health Education:- Problems relating to fertility, reproduction, family planning etc can be studied in sciences and health education.
- d) Social studies: - Statistics on population growth, material on the impact of population explosion and socio economic development of the nation should find place in social studies.

## **ROLE OF TEACHER**

- 1) The teacher should be a great reader, interested in getting information and keep his knowledge up to date.
- 2) He should have spirit of Inquiry and spirit of scientific investigation
- 3) He should suggested different sources of information to the student and cultivates in them the habit of reading books.
- 4) He should be expert in the art of asking questions and should have friendly attitude towards his pupils
- 5) He should encourage students to ask questions
- 6) He should encourage mental activity in the children
- 7) He should maintain democratic atmosphere in the classroom
- 8) He should be able democratic atmosphere in the classroom
- 9) He should be able to devise problems of inquiry for different categories of pupils.

He should be patient enough to observe the activities of learners.

## **MERITS**

Inquiry methods helps in stimulating thinking

- i. It develops power of reasoning and imagination
- ii. It helps to improve knowledge
- iv. It helps in developing good study habits
- iii. The problem is solved by the joint efforts of many students. This develops unity cooperation and tolerance among them.
- iv. The students learn to be self-reliant and self dependence
- v. Discussion helps to develop the power of expression of the students
- vi. This method helps the teacher to know in detail his pupils. The teacher comes to know about the level of educational attainment of the pupils and accordingly guides.
- vii. It helps in the maintenance of discipline. This students remain busy to find answer to their own problem
- viii. Knowledge is easily assimilated as a result of purposeful activity

- ix. It develops the potential of critical judgement
- xii. It helps a learner to act in a new situation
- xiii. The students are active participants in the act of learning and not passive listeners to the lectures of the teacher.

### **DEMERITS**

- i. It involves only mental activity and no physical activity
- ii. This method is not suitable for lower classes, where students lack sufficient background information
- iii. It is time consuming and syllabus cannot be completing by applying this strategy
- iv. It is due & monotonous
- v. This is lack of adequate llibrarier in our system