Objectives of public awareness:

1. To create awareness among rural and city people about ecological Imbalance, local environment and technological development.

2 To organize meetings, tree plantation programs, group discussion on development, exhibitions.

3.To focus on current environment problems and situations.

4.To train our planners, decision makers, politicians and administrators.

5.To eliminate poverty by providing employment that over comes the basic environmental issues.

METHODS TO CREATE ENVIRONMNTAL AWARENESS

1. Environmental education must be imparted to the students in schools and colleges.

2. Media like TV Radio and cable net work can educate the people on environmental issues through Cartoons, documentaries, street plays.

3. Cinema about environmental education should be prepared and screened in theatres compulsorily .This films may be released with tax free to attract the public.

4.All the news papers and magazines must publish the environment related problems.

5.Special audio visual and slide shows should be arranged in public places.

6.Voluntary organizations like NCC, NSS, and ROTRACT Club should be effectively utilized for creating environmental awareness.

7.Arranging competitions like story and essay writing painting competition on environmental issues for student as well as public.Attreactive prizes should be awarded for the best effort.

8.Public leaders cine actors and popular social reformers can make an appeal to the public about the urgency of environmental protection.

UNIT V   HUMAN POPULATION AND THE ENVIRONMENT

Population Growth, Variation Among Nations – Population Explosion – Family
Welfare Programme – environment and Human Health – Human Rights – Value
Education – HIV /AIDS – Women and Child Welfare – Role of Information
Technology in Environment and Human Health – Case Studies.
Field Study of Local Area to Document Environmental assets –
River/Forest/Grassland/Hill/ Mountain.
Field Study of Simple Ecosystems – Pond, River, Hill Slopes, etc
Field Study of Local Polluted Site – Urban/Rural/Industrial/Agricultural

Human population and the Environment

Population:- Group of individuals belonging to the same species which live in a given
area at given time.

Population density:- Number of individuals of the population per unit area ® per unit-
volume.

Parameters effecting population:-

Birthrate (OR) Nationality:- Number of live births per 1,000 people in a population in a
given year.

Death Rate (OR) Mortality:- Number of deaths per 1000 people in a population in a
given year

Immigration:- It denotes the arrival of individuals from neighboring population.

Emigration:- It denotes the disposal of individuals from the original population to new
areas.

Rate = $\dfrac{\text{Number of births}}{\text{Number of years}}$

Mortality = $\dfrac{\text{orn of babies died}}{\text{er of babies born x Number of year}}$

h rate = $\dfrac{\text{Change of population}}{\text{Number of year}}$

Population Growth :- Results from the difference between the rate of birth and death. In 1980 the global population was about 1 billion people. In 1930 it reached 2 billion. In 1975 it reached 4 billion with in 45 years. Now the population in 6 billion. It reaches 10 billion by 2050 as per the world Bank calculation.

Causes:- 1. Due to decrease in death rate and increase in birth rate.

2.Availability of antibiotics, immunization increased food production, clean water and air, decreases the famine related deaths and infant mortality.

3.The poverty and illiteracy lead controlled growth of population.

4.Child Marriages

5.People's superstitions. People believe that it is because of God's grace.

Characteristics of P.G.:-

Exponential growth:- Population growth occurs exponentially live 10, 10^2, 10^3, 10^4 etc., Which shows the dramatic increase in global population in the past 160 years.

Doubling Time:- Time required for the population to double its size at a constant annual rate. It is calculated as follows:-

Td = 70 / r When r = annual growth rate

If a ration has 2 % annual growth its population will double in 35 years.

Infant Mentality:-

Percentage of infant died out of those born in one year. This rate is decreased in the last 50 years. This differs widely in developing and developed countries.

Total fertility rates (TFR):

Average number of children delivered by a woman in her life time. The TFR varies from 2 in developed to 4.7 in developing countries.

This ratio should be fairly balance in the society.

Male – female ratio has been upset in many countries including China - India. In china the ratio of girls and boys is 100 – 140.

Demographic transition:

P.G. is redacted to economic development. The birth rate and death rate full due to improved living conditions. This results in low population growth. This pheromones in called demographic transition.

Variation of population among Nation:

At present the worlds population has crossed 6 billions. Less developed countries (Africa, Asia, S.A) have 80% population while developed countries have only 20%.

In most developed countries like USA, Canada, Australia population increases by less than 1%. But is less developed countries the population increases by more than 1% / year.

Kenya is the fastest population growing countries in the world. When 20 million are residing.

China & India's populate on was above 1000 million in 2000 years. Its share is 1/3 of the world population.

Europe and N.H. accoents for 14% of world population.

Variation of pollution based on Age structure

Age structure of population can be classified into 3 classes.

Pre- productive population (0 – 14 years)

Reproductive population (15 - 44 years)

Post reproductive population (Above 45 years)

Variation of population is now explained based on the above three classes.

Pyramid shaped Variation of population (increase)

Eg. In India, Bangladesh, Ethiopia, Algerian Reproductive population is more in companion to pre reproductive population and post productive population. Hence the population increases.

Bell shaped variation of population:

Eg: In France, USA, UK, Canada etc., pre reproductive population and reproductive population is more (OR) less equal. Hence population growth in stable.

Urn shaped variation of populations

Eg: In Germany, Italy, Sweden,

In Japan pre productive age group population in smaller than the reproductive age group population. In the next 10 years. The number of people in reproductive age group less than before resulting in decrease of population.

Population Explosion:

The enormous increase in population due to low death rate and high birth rate is called as population expansion.

Doubling time: The number of years needed for a population to double in size. The doubling time varies from country to country.

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Population growth is higher in less developed countries.

Cause of population explosion:

1.Invention modern medical facilities, reduces the death rate and increases birth rate, which leads to population explosion.
2.Increase of life expectancy is another important reason for population explosion. Eg:- In 1956, the average life expectancy of the human beings was 40 years. But now it is 61 years.
3.Illiteracy is one of the reasons for the population wxplosion.

Effect of population explosion (OR) environmental and social impacts of growing population

Poverty:

1. Population explosion leads to environmental degradation.

2.Population explosion causes over exploitation of natural resources. Hence there will be a shortage of resources for the futune generation.

3.Increase in population will increases diseases, economic in equity and command wars.

4.Forests, grass lands are under threat.

5.The main reason for the growing unemployment in growing population.

6.Educating vast population is a very big task.

7.Population explosion is the main cause for pollution of air, land, water and noise.

8.Disposal of plastics and wastages is another problem of over population.

9. Scancity of fuel is also due to population explosion.

Family welfare programmes

Family welfare programme was implemented by Govt. of India as a voluntary programme. It is a policy of growth covering human health, family welfare children and women's right.

Objectives:

1.Slow down the population explosion by reducing fertility.

2.Pressure on the environment, due to over exploitation of natural resources is reduces.

Population stabilization Ratio

The ratio is derived by dividing crude birth rate by crude death rate.

Developed countries: The stabilization ratio of developed countries is 1. indicating zero population growth.

Developing countries:

The ratio of developing countries is rearing 3 which in expected to lower down by 2025. Stabilization in developing countries is possible only through family welfare programmes.

Family planning Programme

If provides educational and clinical services that help couple to choose how many children to have and when to have them. Family planning programme provides information on birth spacing birth control and health care for pregnant woman and infants. It also reduced the number of legal and illegal abortions per year and decreased the risk of death from pregnancies.

Objectives:

1. Reduce infant mortality rate to below 30 / 1000 infants.
2. Achieve 100% registration of births, deaths marriage and pregnancies.
3. Encourages late marriages and late child bearing.
4. Encourages breast feeding.
5. Enables to improve woman's health education, employment.
6. Constrain the spnead & Aids / HIV.
7. Prevent and control of communical diseases.

Fertility control methods

Traditional methods

It includes taboos and folks medicine.

Modern methods

It includes birth control techniques like mechanical barriers, surgical methods, chemical pills and physical barriers to implantation. More than 100 contraceptive methods are on trial.

Family planning programme in India

1.In 1952 India started family planning programme.

2.In 1970 Indian govt. forced FP campain all the over country.

3.In 1978 govt. legally raized the minimum age of marriage for men from 18 to 21 and for women 15 to 18 years.

4.In 1981 census report showed there is no drop in population. Hence funding for FP programme has been increased.

Environment & human Health

Healthy person:- Physically fit person with out suffering any disease is called a healthy person.

Disease:- Harmful changes in the body's condition by nutritional, biological, chemical (or) psychological factors are called diseases.

Important Hazards and their health effects refer – bort

Chemical Hazards and their health effects refer T.B.

Biological Hazards and their health effects Refers T.B.

Preventive measures:

1.Always wash your hand before eating.

2.Cut short and clean your nails systematic.

3.Drinking chemically treated and filtered water.

4.Eat food always in hot condition.

5.Wash the vegetables and fruits a with clean water before cooking.

6.Avoid plastic containers and Al vessels.

7.Do physical exercise to have proper blood circulation.

Human Rights

Human rights are the fundamental rights possessed by human beings irrespective caste, nationality, sex & language.

The aim of Govt. is to ensure happiness to the entire citizen with equal rights.

Under the Indian constitution the following fundamental rights have been guaranteed to human beings.

1.Human right to freedom

2.Human right to property

3.Human right to freedom of religion.

4.Human right to culture and education.

5.Human right to constitutional remedies

6.Human right to Equality

7.Human right to against exploitation.

8.Human right to food and environmental

9.Human right to health

1.   Human rights to freedom

Every citizen has the freedom to express his view freely.

Citizen can assemble at any place to express their views.

Freedom to form unions (or) associations.

Freedom to slant any profession.

Indian Constitution

Indian constitution provides for civil, social, cultural, educational and political rights.

Article 14 – equality before law.

Article -15

Prohibits discrimination on the ground of race, religion caste, sex (or) place of birth.

Article 16

Provides equal opportunity for all citizens in regarding to employment.

Article 19

Provides for freedom of speech and expression, forming association and union.

Article – 20

Protection from connection except in accordance with the law of the land.

Article – 22 – lays down the rights of a person in custody.

Article – 24 – prohibits exploitation of labour children.

Article – 25 – grantees freedom to profess, practice and propagate a religion of one's choice.

Value education

Education is nothing but learning through which knowledge about a particular thing can be acquired with the help of our knowledge and expedience we can identify our value to understand ourselves and our relationship with other and their environment.

Types of Education:

Format Education:- (In this all leaning process are self related). All people will read write, will get good jobs and take with any problem with the help of formal education.

Value Education:- It is an instrument used to analyse our behavior and provide proper direction to our youth. It teacher the youth the distinction between right & wrong, to be helpful loving, generous and tolerant.

Eg:- If a person is highly, Qualified and well settled in life, something he does not know how to behave with his environment.

Value based environmental education

The provides knowledge about the principle of ecology, fundamental of environment and biodiversity. It creates sense of duty to care for natural resources and to mange them in sustainable key.

Objectives:

1. Improve integral growth of human being.

2. To create altitudes and improvement towards sustainable life style.

3. To increase awareness about our national history, cultural heritage, constitutional rights, national integration.

4. To understand (about the our) natural environment in which how land, air and water are interlinked.

5. To know about various living and non living organism and their interaction with the environment.

Types of values:

1. Universal values (or) social values:

These values tells about the importance of the human conditions. These are reflected in life, joy, love, tolerance, truth etc.

2. Cultural values:

These values various with respect to time and place. These are concerned with rights & wrong, good & bad true & false and behavior of human beings. It is reflected in language, education, law, economics, philosophy etc.

3. Individual values:

These are personal principles and the result of individual personality and experience parents & teachers are the main key to shape and individual values. It is reflected in individual goods, relationship, commitments.

4. Global values:

Human civilization is a part of the planet. Nature and natural pheromone on the earth are interconnected and inter-linked with special bonds of harmony. If this harmony disturbed any where leads to catastrophic results due to ecological imbalance.

Aids / HIV – Discover in 1983. Source of the virus is not beer identified spread through African monkey. Through vaccine program – spread by small pox vaccine programme of Africa. Hepatitis – B Viral vaccine legmy and new York.

World scenario

90% from developing countries. 13% of world's population live is Africa. Almost all states & African countries were affecters HIV. India ranks 2nd in the world with 5 million affects people.

Scenario in India:

Large number of infected people are in Maharastra & Tamil Nadu followed by Delhi, UP, Karnataka & Goa. Till sept. 2003 24,667 cases are found in Tamil Nadu.

Smog:- Mixture of smoke from coal combustion and fog in suspended droplets form photochemical smog cause irritation to eyes and lungs (ii) many damage plants (iii) Irritation to nose & throat (iv) asthma

Role of IT in Environment

IT plays a vital role in the field of environment education. IT means collection, processing, storage and dissemination of information. The internet facilities, information through satellites,www and geographical information provides up to date information on various aspects of environment, weather.

Remote sensing

It refers to any method which can be used to gather information about an object without coming in contact with it. Gravity, magnetic, electro magnetic forces could be used for remote

sensing. Remote sensing covers various disciplines from laboratory testing to astronomies. Now remote sensing is used to denote identification of earth feathers by detecting the characteristic electro magnetic radiation. That is reflected by the earth.

Components of a remote sensing system

The system consists of a **sensor** to collect radiation. Other important parts are a **platform**, an **aircraft**, a **balloon, rocket and satellite.**

The information received by the sensor is suitably manipulated and transported back to earth. The data's are reformed and processed on the ground to produce photographs, computer compatible magnetic taps and digital storage medium.

Applications

1 Agriculture: In India agriculture provides livelihood of 70% of population and contributes to about 35% of net nation product. We require optimal management of land and water resources along with high yielding variety seeds, fertilizer input.

Remote sensing can provide valuable information for land and water management.

2. Forests: Remote sensing provides information clearly on the type, density and extent of forest cover, wood volume and biomass, forest fire, encroachment etc.

3.   Land cover: Spatial information on land is required at different scales depends upon use remote sensing data is converted to map. The spatial resolution plays a role on the scale of mapping.

4.   Water resources: Remote sensing data has been used in many application related to surface water body mapping, ground water targeting, wet land, flood monitoring, reservoir sedimentation, water quality monitoring etc. One of the most simple applications is inventorying surface water body.

DATABASE

It is the collection of inter related data on various objects. In the computer the information of database is arranged in a systematic manner.

Applications: I The ministry of environment and forest. They are compiling database on various biotic components. Database is also available for diseases likes HIV | AIDS. Malaria, Fluorosis.

National Management Information System (NMIS) : They compile database on R & D Projects along with information about research scientists and personnel involved. Environmental Information System : It functions in 25 centres all over the country.

They generate net work of database in areas like pollution control, remote sensing, biodiversity, and desertification.

GEOGRAPHICAL INFORMATION SYSTEM (GIS)

It is a technique of superimposing various thematic maps using digital data on large Number of inter related aspects.

Applications: Different thematic maps having digital information on water resources,

Soil type, forest land, crop land, grass lands are superimposed on a layered form in computer using soft ware.

Interpretation of polluted zones, degraded lands can be made on GIS base.
3. GIS can be used to check unplanned growth and related environmental problems.

SATELLITE DATA:

It helps in providing correct and reliable information forest cover

Provides information of monsoon, ozone layer depletion Smog etc.

Helps in discovering reserves of oil, minerals.

WWW:

More current data is available on www on line learning centre.

Www .mhhe.com \ environmental science.

Multimedia Digital content manager (DCM) in the form of CD ROMS.

Application of computers in the field of Environment & human health:

1.Unknown parameters can be stimulated by computer techniques

2.EIA(Environmental Impact Assessment) problems can be analyzed

3.Inventories of emission sources are compiled and maintained

4.Net-work analysis, statistical analysis and the status of environmental pollutions can be high lighted

5.Comprehensive administrative system can be developed by using computer network techniques.

6.Remote sensing-Graphical Interface System are useful for coral reef mapping and ocean resources. They are also useful to access the loss of biodiversity/hot spots etc.