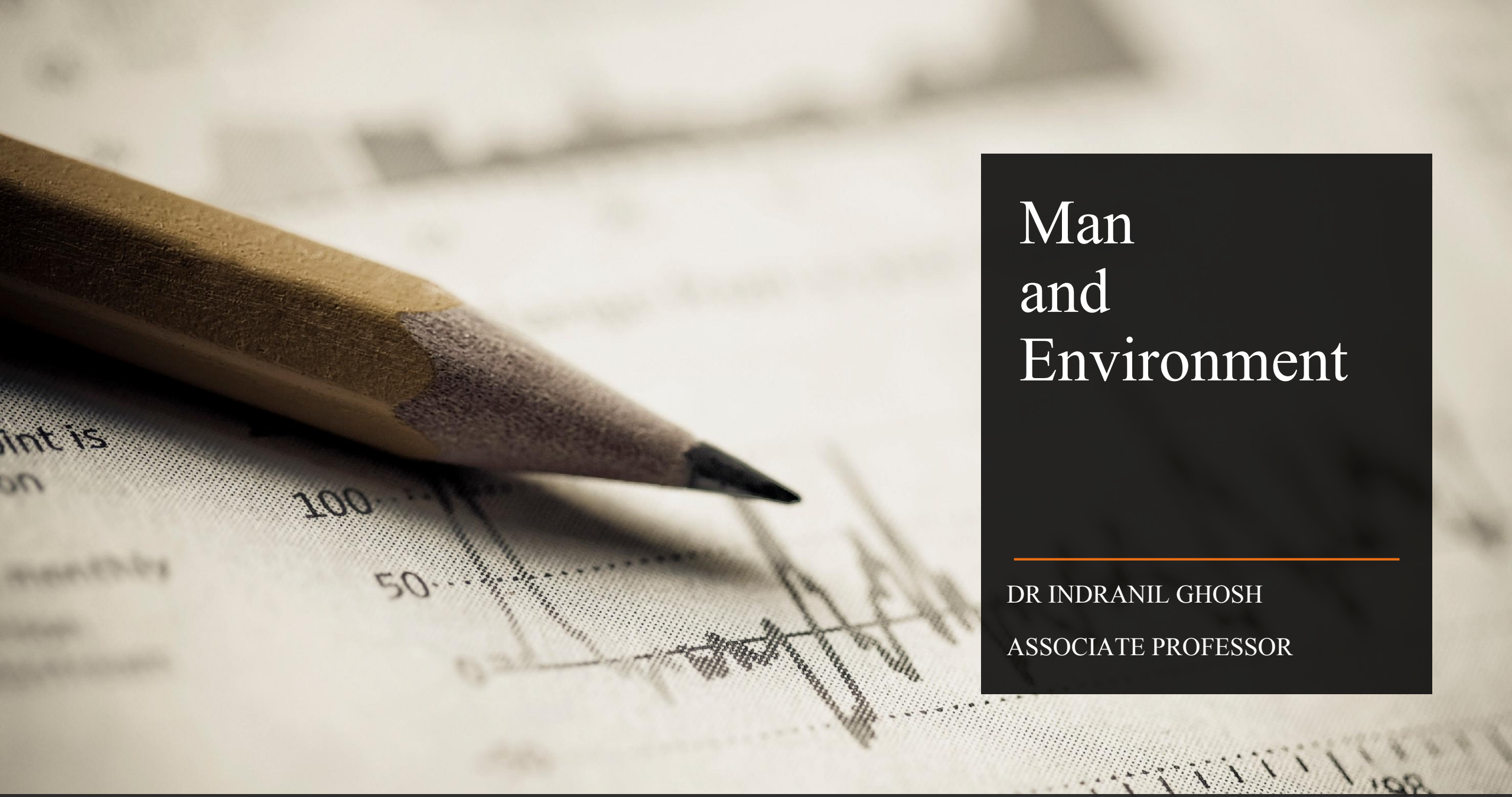

Man and Environment

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Man, Society & Environment and their interrelationship

The relationship between humans and environment has varied from the early periods of human settlement on the earth to the present day. The relationship between environment and human beings has also being varying from place to place at any given period of time. For example, early humans considered the environment to be dominant. They were afraid of lightning and thunder, dense forests, wild animals, vast oceans and large rivers, to name a few.

Factors responsible for the distribution of population

The main factors which affect the distribution of population and human settlement are:

1) Relief of Land

2) Climate

3) Soil

4) Mineral Deposits

5) Water Supply

Population Growth

Usually the difference between the birth rate and death rate of the population is called '**population growth rate**'.

But sometime rate of migration is also added to it to get the actual population growth.

The population growth may be of two types-

(i) Exponential growth: The exponential population growth is the rate of change of population with time which is directly proportional to the population itself.

(ii) Logistic growth: Growth of population depends on the supply of natural resources to them. With the finite or limited natural resources, a species can not support any population beyond a certain size. This type of growth is called '**logistic growth**'.

Exponential Growth of Population

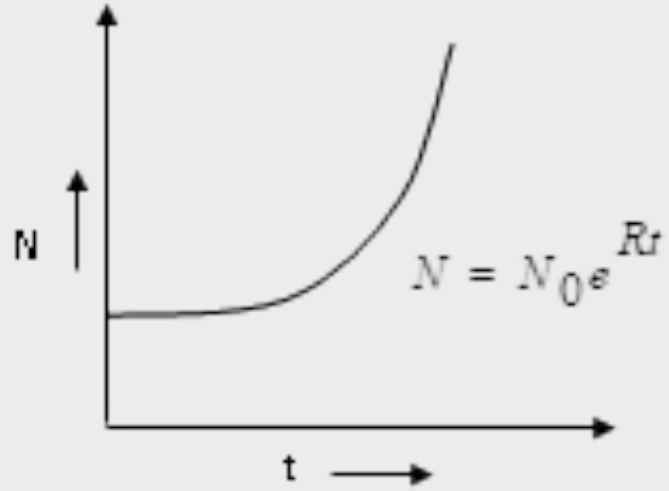

Fig: 1.2 Graph of Population Vs Time in exponential growth

Logistic Growth of Population

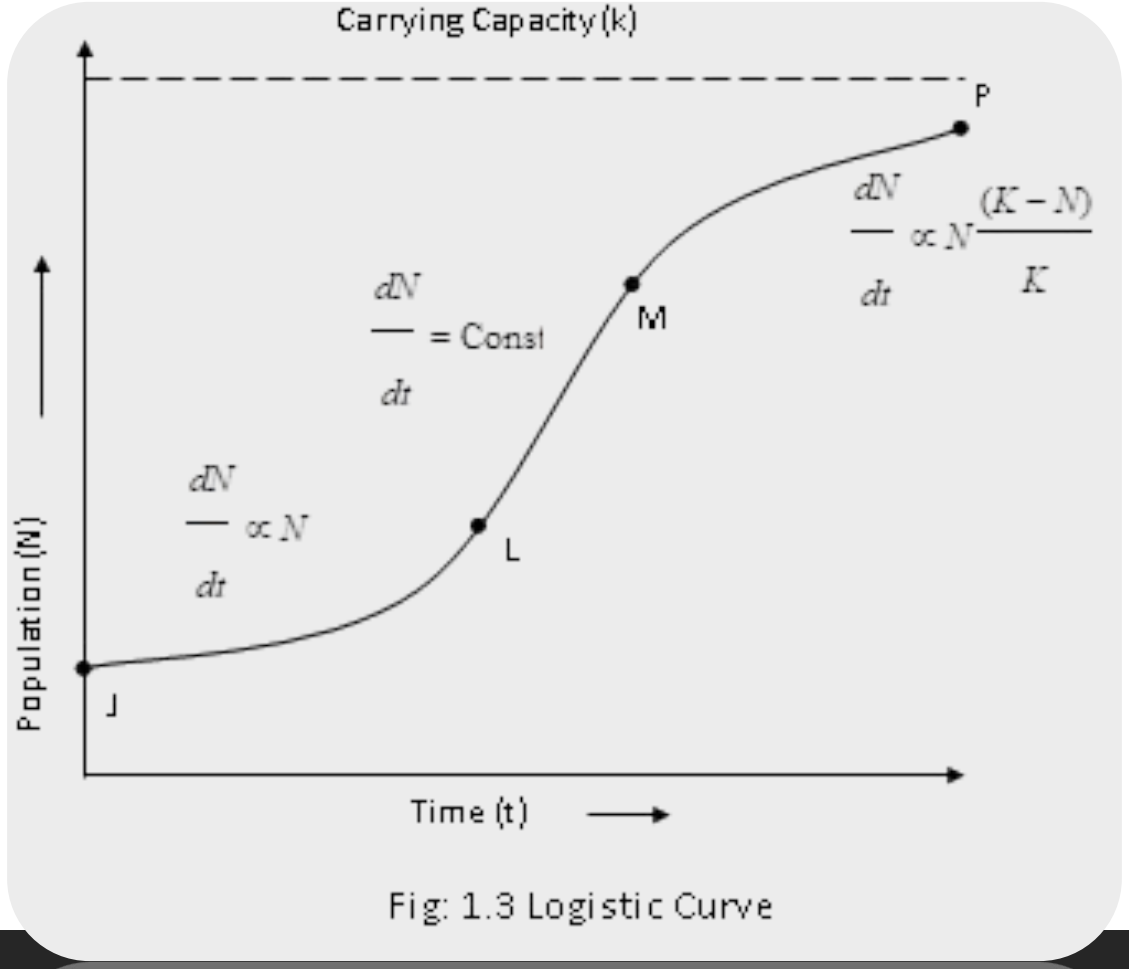

Fig: 1.3 Logistic Curve

Importance of population study in Environmental Science

Population study is concerned not only with the population variables but also with the relationship between population variables such as social, economic, political, biological, genetic, geographical and interrelationship between those variables. It includes both qualitative and quantities aspects of human population.

Resource

A substance or non-substance which has specific functions and can be utilized to meet the needs of people at a definite time and place is called as resource.

Classification of Resource

On the basis of the nature of Resource, it can be classified as-

(a) Natural resource (air, water, minerals etc.)

(b) Human resource (population, population density etc.)

(c) Cultural resource (knowledge, education etc.)

On the basis of permanency and exhaustibility of resource, it can be classified as –

(a) Renewable resource

(b) Non-renewable resource

Renewable and Non-Renewable Resource

Renewable Resource

The resources, which are capable of **natural regeneration** into useful products within a time span relevant to man, are called renewable resource. These resources are potentially renewable and could be indefinitely available, provided their capacity to regenerate is not damaged by natural or human activities. Once degraded beyond a certain critical point, a renewable resource may never recover.

e.g., Clean air, clean water, soil, flora, fauna etc.

Non-Renewable Resource

The resources which are available only in finite quantities or else the rate of regeneration is so slow that they must be regarded as available only in fixed quantities, are called non-renewable resources.

e.g., Coal, minerals oil etc.

Resistance

A substance or non-substance, which creates disturbance at the time of formation of resources, is considered as **resistance**. It is also classified into three different classes –

i) **Natural resistance** (e.g., cyclone, flood etc.)

ii) **Human resistance** (e.g., war, over population, low population etc.)

iii) **Cultural resistance** (e.g., superstition, illiteracy etc.)

Neutral Stuff

There are many articles in the world, which are neither resources nor resistances. These articles are known as neutral stuff.

Impacts of Population Growth on Resource

The growth of population and development of human society requires natural resources. In an ecosystem the interaction between the living organisms and the physical environment like land, water, soil, air etc. is going on. But, for all practical purposes land is limited; water though replenishable over a period of time, can also become scare. Air is seemingly inexhaustible but become unusable due to severe deterioration of its quality through drastic change in its composition. All these may be attributed to the population growth.

The main and immediate priorities for mankind are to provide food for the society. As the population in the society increased and its diversified demand grew, new plant and animal species had to be located and cultivated. To meet the collective requirements, sometimes human beings exploiting his living resources-both flora and fauna.

Sustainable Development

Sustainable development is a development, which **meets the needs of current generation** without **jeoparadising** the **needs of the future generation**.

There are three basic components of sustainable development –

a) Economic System
b) Social System
c) Environmental System.

Interaction between components of Sustainable Development

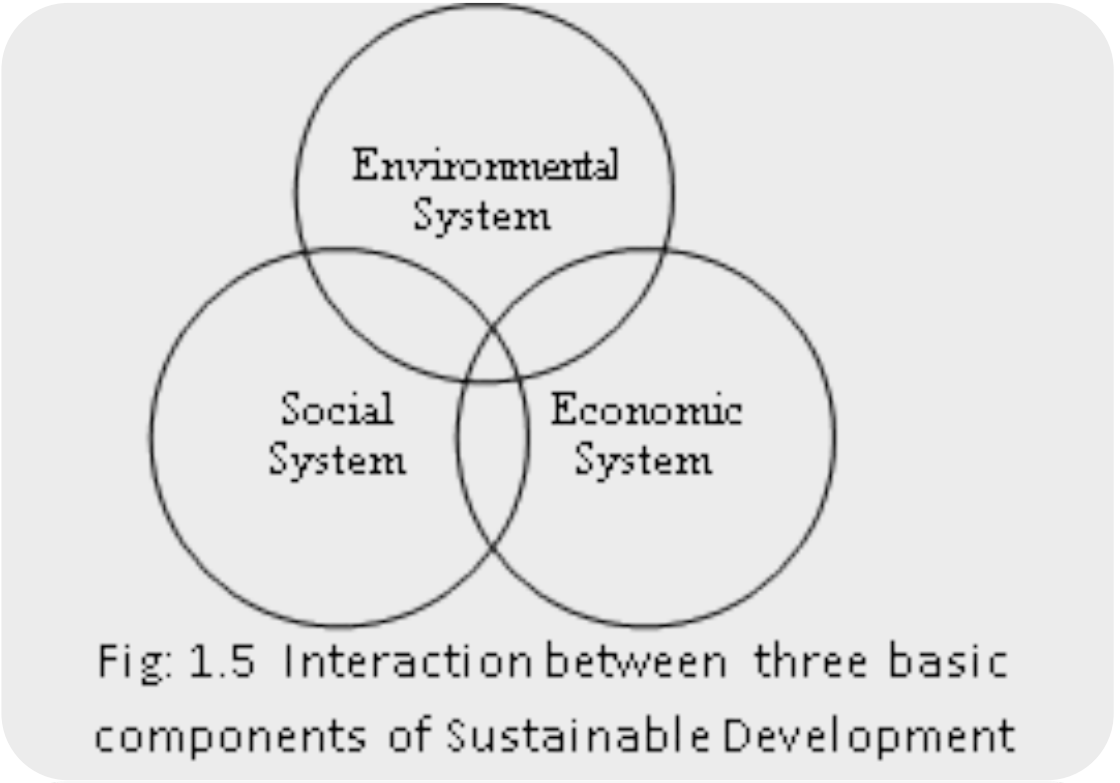

Fig: 1.5 Interaction between three basic components of Sustainable Development

Objectives of Sustainable Development

Usually, there are two objective of sustainable development –

a) Improvement of **life style** of human beings.

b) **Protection** of **environment**

Environmental Degradation

Environmental degradation is a **complex process** through which the natural environment is compromised in some way, reducing biological diversity and the general health of the environment. This process can be entirely natural in origin, or it can be accelerated or caused by human activities.

Sources of Environmental Pollution

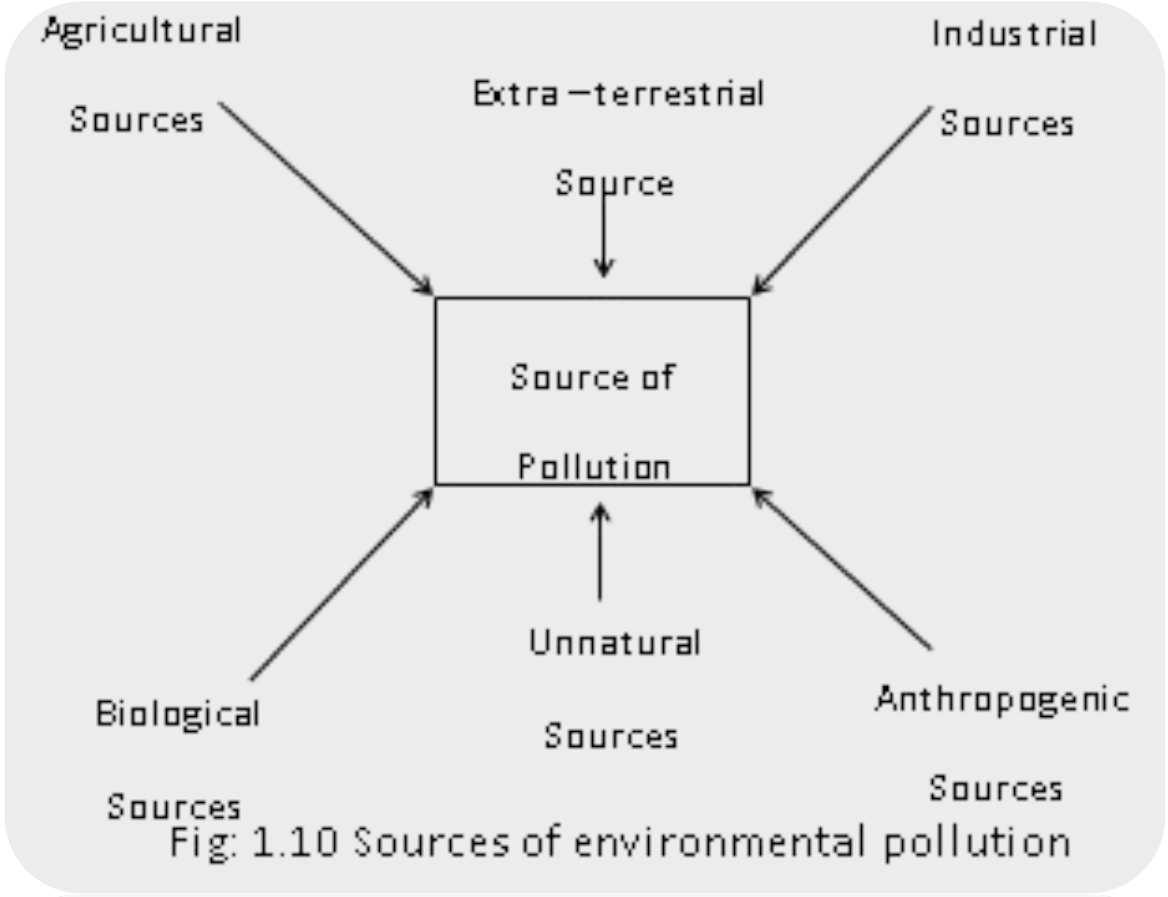

Fig: 1.10 Sources of environmental pollution

Factors responsible for Environmental Degradation

The environmental degradation mainly depends upon the three factors:

i) **Population (P)**: Increase in population size reduces the resource availability to per person due to over exploitation of it. This leads to environmental degradation.

ii) **Affluence (A)**: Both rich and poor people are responsible for degradation of environment for the different reasons. Rich people overuse and misuse the natural resources which lead to different type of pollution. On the other hand poor people exploit the resources for their socio economic needs.

iii) **Technology (T)**: Use of new technology, industrialization, urbanization consume more natural resources and degrade the environmental quality.

Thus the Environmental degradation is evaluated as-

Environmental Degradation= f (P, A ,T)

Control of Environmental Degradation

(i)	Reduction at source.
(ii)	Separation & recycling of high value waste.
(iii)	Specific waste treatment strategies for particulate matters in air, solid waste and waste water.
(iv)	Identifying and evaluating alternative strategies.
(v)	Apply the waste management economy.

Man Responsible for Environmental Degradation