

Lesson - 1

# Geography as a Subject

We are under the influence of geography right from our birth and remain so until our death. Every aspect of our life is linked to geography and its different components. Our universe is multi-dimensionally filled with lots of mysteries. Universe which is an epitome of wholeness is still unknown to us.

Universe creates a picture along with gravitational force and other forces which are working within gases, dust particles, millions of stars and their planets, within billion of milky ways and galaxies. When, how and who created these mysterious pictures? What is its shape structure and size are some of the questions that are being constantly sought by human beings. In the entire universe, our milky way or spiral shape Mandakini consists of uncountable stars. Our solar system is a tiny part of this milky way which consists sun and its planets, satellites, meteoroids, asteroids and comets. According to scientists the age of the universe and solar system is estimated to be 14 billion years and 10 billion years respectively and our earth is around 4.6 billion years old. Life began on earth in water, in form of marine vegetation and microscopic organisms, then began the structure of the atmosphere resulting in formation of oxygen and its proportion in atmosphere reached upto 21% and gradually life in form of vegetation and living creatures developed on the earth.

Human beings were the last to emerge on the earth. Its estimated that they appeared about 20 lakhs years ago. Human species who were a native of forest, evolved themselves into civilizations and paved the path of the present development. During

this stage of development humans discovered fire and invented wheel, which served as a mile stone in their development. At every stage of development nature played a role of a friend, nurtured them as a mother and guided them. Human beings utilized the resources according to their needs, choices and capacities. Human proved themselves as the most intellectual species in transforming the earth.

All the activities, events, processes on the earth are due to mutual relationships that are studied in geography. Earth's surface is the base of geography, which is very vivid.

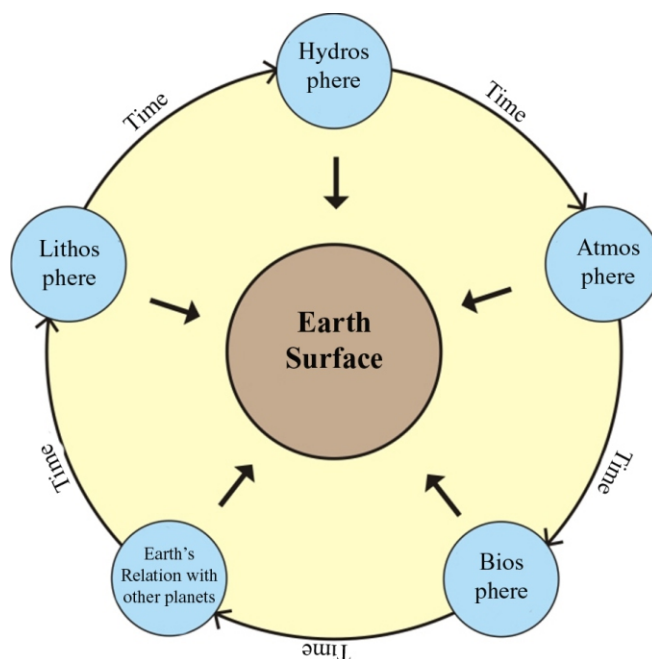


Fig.1.1 : Geography as interdisciplinary and integrated science

A pure organized, logically analyzed and descriptive explanation of earth's surface, which is full of various manifestations is what defines geography. Modern geography developed in an interdisciplinary form which included the combined study of physical, human and social sciences. The subject matter of these sciences keeps interchanging and creates a deep impact, simultaneously.

### Meaning and Definition

The word 'Geography' is an English word which is derived from Greek word 'Geography' meaning 'description of the earth'. The word 'geography' was first used by a Greek scholar Eratosthenes in 276-194 B.C. Later Geography, was recognized as the science of earth, on global level. Greeks and Romans proposed the shape of the earth to be either 'flat' or 'saucer shape' whereas Indian astronomical literature often referred all the celestial bodies to be round in shape. This is the reason why its also named as 'Bhugol' in Hindi.

Geography is the study of earth's surface, Space, Variable characters, distribution and spatial relations are studied as the 'World of Man'. Earth's surface is the base where physical human activities and the inter activities takes place. All the activities keep on changing with 'time' and 'place'. The true meaning of the word earth's surface has a very wider scope, which includes Lithosphere, Atmosphere, Biosphere, effect of sun and moon and geological explanation of movements of the earth.

The canvas of the earth is vast, there have been constant changes in the definition and nature as the time change. Its extension has merged out of local spatial characteristics, distribution of patterns, regional and behavioural science of society. Its difficult to delimit its scope in a narrow definition but still **some scholars have made successful attempts**. Some of the best definitions which truly reflects the meaningful structure for society are as follows-

A simple definition in dictionary is 'Geography is a science of man and its mutual relationship with earth's surface. Geologists Varnius, Emanuel Kant and John and George Froster (Father and Son) have presented it in empheritical and scientific form. In which it means to acquire geographical knowledge that comes through, surveys, experiments, newly invented

tools, and comparative study.

In the series of this acquisition of geographical knowledge geographers Humbolt and Ritter of 19th century worked continuously and extended geography as 'Modern Geography. Both the geographers emphasized on 'uniformatism in geography, in which earth is considered as a unit and laid more emphasis on harmony. Humbolt advocated about geography as serial study whereas Ritter favoured regional concept of geography and accepted the harmonious characteristics of earth and presented it as a home of human beings. In the same century German Geography Richtofen and Hettner expressed Geography as a science of differentiation and unique characteristics. They also laid emphasis on spatial relationship.

Richard Heartshorne a geographer in USA in 1959 defined geography as "geography is concerned to provide accurate, orderly, and rational description and interpretation of the variable character of the earth's surface".

This definition truly describes geography in its scientific nature and presents its variable characters in more descriptive form.

Petter Haggett, a british geographer in 1975 describes geography as a study of spatial and mutual relationships among human beings and earth's surface Geography emerged as a sensitive scientific study of variable characters of earths surface. With this humanistic concept of geography constantly developed and it emerged as anthropogenic geographical descriptive science.

Since 1990, geographical knowledge was extensively used in social, cultural, economical and political regions and in the implementation of public policies. This made geography more practical in nature and is been presently seen as human welfare science.

Geography is now considered to provide solution to all human problems, through geographical knowledge. In this way "Geography is an organized, welfare science of variable characters on the earth's surface". This science quenches the thirst of curiosity of human beings and shows the path to future development.

The scope of geography is so vast and attractive that it encompasses the science of entire life. It includes the physical humanistic aspects and its adjustment. The study of physical geography

includes, climate, topography, geomorphology, soils, oceans and vegetation and its natural subject matter includes human and his activities concept of region, historical aspect, population study, habitat, political, agriculture mining, entertainment, transportation, health and sanitation, society and cultural aspects etc. Every activity, under the sky, mutual relationships and their inter relationships are all related to subject matter of geography. Recently with the development of latest technological tools and methods like remote sensing, usage of remote satellites, cartographic methods based on modern computers have accelerated the growth of development. Due to development and usage of advanced technology there has been extensive humanization. This promoted research specially in the area of human survival at its best.

As geography was emerging with more human centric approach, there was an extensive development of branches of human geography, the physical geography was not much in focus.

Geography studies physical and humanistic aspect and their inter-relationship. From the very beginning two distinctive branches of geography emerged (i) Physical Geography

(ii) Human Geography

In later periods (after 1950) these two branches further divided into many sub branches. Each branch developed distinctly and extensively. The main branches and sub branches of geography are as follows :

### **Branches of Geography Physical Geography**

1. Geodesy
2. Geophysics
3. Astronomical Geography
4. Geomorphology
5. Climatology
6. Oceanography
7. Hydrology
8. Glaciology
9. Soil Geography
10. Bio Geography
11. Medical Geography
12. Ecology/Environment Geography
13. Cartography

### **Human Geography**

1. Economic Geography

2. Agricultural Geography
3. Resource Geography
4. Industrial Geography
5. Transport Geography
6. Population Geography
7. Settlement Geography
  - (i) Urban Geography
  - (ii) Rural Geography
8. Political Geography
9. Military Geography
10. Historical Geography
11. Social Geography
12. Cultural Geography
13. Regional Planning
14. Remote Sensing and GIS

Its important to note that cartography statistics, survey, mathematical geography, behavioural geography and remote sensing, GIS are being used in every branch of geography.

These branches are used for resource utilization and conservation at regional and national level development policies.

### **Physical Geography - An Introduction Meaning, Definition, Subject Matter and Scope.**

Physical geography is considered as the main branch of geography. The study of facts and theories of physical geography summarizes the entire science of geography. Geography is a progressive science. Since the mid of the century, there has been constant researches, explorations and inventions which contributed with latest information and facts that revolutionized the development of geography. For example, ventures in the field of geomorphology like origin in the earth formation of the earth's surface, process of mountain building, formation of topography and topographic features, which served as a base to resolve queries about earth's interior its formation and drifting of continents, volcanic eruptions, earthquakes. More and more latest factual details are being highlighted about outer layers of atmosphere and its shape.

There are two major parts of geography - physical or natural environment and humans. The development of special study of the areas and sub areas of a subject is the proof of advancement of any science. With this perspective modern geography is not an exception. Two distinctive branches of

geography were developed as Physical Geography and Human geography. On one hand the elements of physical geography influence human and on the other hand human being as a geographical element influences and changes his environment. The activities of human beings and the cultural environment created by him comes under the scope of study of humans geography. According to **lobeck** the study of geography "The subject matter of geography may be defined as the study of the relationship existing between life and physical environment. The study of physical environment alone constitutes physiography".

### **Meaning and Definition of Physical Geography**

There is no doubt that physical geography is considered to be the main branch of extensive science such as Geography.

In the words of Philip "The tree of geography has its roots in the soil of physical geography. It branches cover every phase of human activity".

Other scholars have considered the study of environment, topographical features, biosphere and atmosphere to be studied under physical geography. Although more attention is given to aspects related to human activities but the importance of physical geography cannot be compromised. This is the main cause, why the fundamental knowledge about physical geography is important while studying any branch of geography. According to Strahler, a famous scholar, physical geography is an integrated study of different earth sciences which studies the human environment.

Earth's surface and topographical features on earth's surface are not uniformly distributed, even there is no even distribution of lithosphere on earth. Hydrosphere is approximately extended two and half times more than lithosphere along with the atmosphere that is surrounding the whole earth. The above mentioned three spheres are integral part of our natural environment and are interconnected. This natural environment interacts with biosphere and is studied under physical geography although not all geographers are unanimous to include biosphere in physical geography, but most geographers also explain physical geography as a description of local models of the elements of

atmosphere, along with this physical geography. It also studies the changes and its causes, in the elements of our environment in reference to space and time. Therefore the biosphere of our earth's surface is the study of physical geography, which includes atmosphere, hydrosphere along with vegetation and animal life possible. (Fig. - 1.1).

In true sense, physical geography was born along with the origin of our earth whereas human geography as a branch of geography developed along with emergence of human beings. Therefore we can say that the history of physical geography is as ancient as the subject geography itself. Geography and physical geography are complementary to each other because physical geography studies earth and geography is the science of earth. Finch and Trewartha advocated geography to be the science of the earth's surface, whereas Arthur Holmes describes geography as a study of human habitat. Therefore the scope of physical geography is very broad and vivid. At present, the study of physical environment includes, the interactions of human beings with the environment. It can be summarized, that the sequential study of lithosphere, hydrosphere, atmosphere and biosphere and its interactions and inter relationships are included in the study of physical geography.

Some definitions of physical geography are as follows:-

#### **According to Kant**

"Physical Geography is the first part of knowledge of world, indeed it is essential preliminary for understanding our perceptions of the world."

#### **According to Pierre Byrot**

"Physical Geography is the study of visible natural surface..... before the intervention of mankind....."

**A. Holmes** defines physical geography as "The study of physical environment by itself is physical geography which includes consideration of the surface relief of the globe (Geomorphology), of the seas and oceans (Oceanography) and of the air (Meteorology and Climatology)

A. Holmes in above definition has considered lithosphere, hydrosphere, atmosphere as three elements of physical geography.

In the words of A.K. Lobeck

"Physical Geography is the study of the interrelationship of the physical environment and life."

According to H.R. Cain "The study of the physical environment is called physical Geography."

According to Hammond & Horn "The study of Physical Geography deals with natural phenomena".

It may be concluded that analytical study of distributed elements and their interrelations between physical and biological environment are included in physical geography. According to Strahler physical geography includes all the natural sciences which provides as a base to understand the interactions between physical and biological environments. (Fig. 1.2)

According to him, there is a very narrow zone of life layer which sustains all the interactions between humans and their physical environment. This is a contact zone of atmosphere - lithosphere and atmosphere - hydrosphere. This contact zone is also called Interfaces. There are constant actions and reactions of various physical elements undergoing in this contact zone and the result of these actions and reactions and lot of variation is found in the distribution pattern of elements on biosphere.

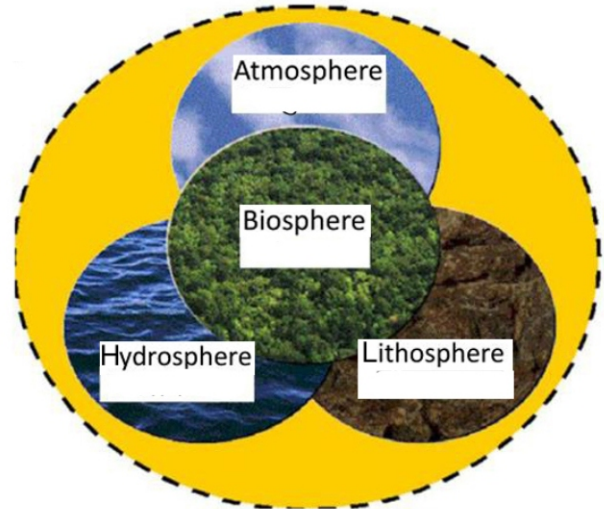
According to their belief these spatial differences on biosphere is studied in physical geography. Human thrives on the earth's surface and utilizes the physical environment according to his needs. Therefore its natural for human beings from the very beginning to know and understand, about the spatial differences that surrounds his environment. (Fig. 1.2)

### **Nature and Scope of Physical Geography**

Earth's surface is the centre of study of physical geography. The fundamental knowledge of physical geography is essential to study any branch of geography. In physical environment not only every activity of human beings but every element of the earth is being affected. Physical factual details of air, water and land are integrated and mutually inter-related.

Change is the chief characteristic of physical environment and the study of physical

geography not only includes distribution pattern of spatial differences but also the changes in them. This leads to origin of various physical conditions as result of adjustment and integrations. Physical geography studies the following spheres in their pure form Lithosphere, hydrosphere, atmosphere and biosphere.



**Fig. 1.2 : Interaction of components of Physical Geography**

### **1. Lithosphere :**

It is the study of the landform and their structures its present stage and the processes which resulted in the formation of these landforms. In this way, in the geological history, structure of the earth's layer, types of rocks, slopes, endogenetic and exogenetic forces, composition of rocks etc. are all included in the study of lithosphere. Different types of geological shapes are studied in Geomorphology.

The sphere of land on which we actively move and till its depth, at which we have utilized earth's resources, are studied under lithosphere The earth's surface is not even everywhere and there are lot of variations. Some areas of lithosphere are characterized by extensive plains, whereas somewhere there are deep valleys or some areas have huge mountains whereas somewhere there are small islands.

Various geological forces and processes are responsible for formation of continents to different landforms on the earth's surface. The formation of different types of rocks also resulted from these

geological forces thus its also included as the subject matter of lithosphere.

## **2. Atmosphere :**

Air covers the entire earth. Atmospheric conditions on the earth is what that makes survival of organisms possible. This is studied under Atmosphere. The gases present in the atmosphere are the most unique and basic sources we utilize to survive on earth. Atmosphere is also dynamic in nature as its elements. Weather includes short period of changes in atmospheric elements whereas climate is the long term changes in the elements of atmosphere. This include atmospheric structure, composition conditions, height, temperature, pressure, wind velocity, its direction, mode of origin, its types, cloud formation and precipitation.

## **3. Hydrosphere :**

More than 2/3<sup>rd</sup> of earth's surface is covered with water. Hydrosphere is sphere which includes the study of oceans and water bodies. Water is found in form of small and large reservoirs. The characteristics of water varies with depths. Hydrosphere includes study of oceans and their origin distribution, marine topography, physical and chemical characteristics of water, marine deposits, ocean currents etc. All the above facts are studied as part of the hydrosphere.

## **4. Biosphere :**

A narrow zone between lithosphere and atmosphere where all life forms exist is called Biosphere. The study of biosphere includes all types of organisms which include human beings, animals and vegetation, their origin, their development, distribution, habitat and factors affecting their life cycles inter-relationships between organisms and their environments and their different aspects Lithosphere (geological relief features). Atmosphere (its structure, composition, the elements of weather and climate temperature, pressure, wind, rainfall, types of climates etc.) Hydrosphere (sea, oceans, lakes and components related to these) Biosphere (forms of organisms, humans & animal). Their nutritional processes like food chains ecological parameters and ecological balance etc. are studied in Biosphere.

Soils are formed through gradual processes

and these processes depend on primary rock type, climate and other organic processes and which forms the soil profile. Every component is important for human beings. Landforms provide a base on which human activities take place. Open fields are used for agriculture whereas plateaus are used for extraction of minerals. Mountains serve as a abode of vegetation and serve as a important tourist destinations. Many important rivers have their source of origin in mountains. Climate influence our settlement structure and pattern, our clothing patterns and our food habits. Climate creates a deep impact on vegetation, grass types, livestock raising and industrial growth pattern (some).

Physical geography is developing as an assessment and management of natural resources. It is necessary to understand the relationship between physical environment and human beings to fulfil this objective. Physical environment provides resources and man uses these resources to ensure his economic and cultural development. Extensive use of resources with technological know how has created ecological imbalance in the world. Therefore, knowledge of physical environment is essential for sustainable development which underlines the importance of physical geography.

### **Important Points**

1. Physical geography is the main branch of geography. The two main aspects of geography are - Physical or natural environment and humans.
2. Study of living creatures and their physical environment and relationships among them is the subject matter of geography and study of physical environment is physical geography some definitions related to physical geography includes study of only physical environment while others include biological environment too. Its subject mater includes - Lithosphere, Hydrosphere, Biosphere, New contact zone or Interfaces. The study of physical geography is centered around earth's surface.
3. As the specialization in geography increased, many branches of emerged out of physical geography. Main branches of physical

geography are-Geomorphology, Astrology, Climatology, Meteorology Ecology, Oceanography Hydrology, Glaciology, Geometry, Geophysics, Ecology, Bio-Geography etc.

### Exercise

#### Multiple Choice Questions

1. The branch of physical geography which studies temperature, pressure, direction and speed of winds, humidity is :  
(A) Astrology (B) Oceanography  
(C) Pedology (D) Climatology
2. The component of physical geography which is controversial is :  
(A) Atmosphere (B) Hydrosphere  
(C) Lithosphere (D) Biosphere
3. The two main branches of geography are :  
(A) Agriculture and Economic geography  
(B) Physical and Human geography  
(C) Plant and Organisms geography  
(D) Weather Geography and Climatology
4. Which geographer has first used the word 'geography'?  
(A) Eratosthenes (B) Herodotus  
(C) Strabo (D) Ptolemy
5. The age of the earth is :  
(A) 4.8 billion years (B) 5.0 billion years  
(C) 4.6 billion years (D) 3.9 billion years

#### Very short type questions :

6. What do you mean by 'Universe'?
7. What is meant by 'Solar System'?
8. What is 'Milky way'?
9. What is meant by 'Earth's Surface'?
10. What is 'Biosphere'?

#### Short Question :

11. Define geography.
12. What is the objective of geography?
13. What do you mean by 'spatial differentiation'?
14. Differentiate between physical and human geography.

15. What is meant by 'Inter-disciplinary sciences'?

#### Essay type :

16. 'Geography is that tree that has its roots in physical geography'. Critically analyze the statement.
17. Explain the scope and subject matter of Physical Geography.
18. Do you agree that - 'The present geography is now more human centric' - Examine critically.

#### Answer Key

1. D 2. D 3. B 4. A 5. C