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Environmental Degradation and Climate Conditions: With Special Reference to India

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ABSTRACT

Human beings are dependent on the environment for continued survival. It is our responsibility to keep it clean and use natural resources in a sustainable way. Today, due to Environmental degradation there is depletion of natural resources which has led to the loss of livelihood, poverty, famine, weather extremes, species loss. It can be reduced by reducing our overall consumption of resources as our wildlife and flora depend on their natural environment. We must learn to reuse, second-hand consumption should be promoted. While talking about climate change; In any place, we found six major controls of climate change Altitude, Latitude Wind System and Pressure, distance from the sea, current of the ocean and relief features. The air temperature in India decreases generally from the equator towards the poles. The temperature falls when we go from the earth's surface to high altitudes. This is the reason that in the hot season the upper area is cold than the lower area. The Latitude and the altitude of a space decide the wind and pressure of any area and in the same way, it influences the rain system of that particular area. The climate of the coastal areas is also affected by ocean currents. The main cause of water pollution is organic and inorganic industrial waste and effluent discharged into rivers. Water pollution is mainly caused by petroleum refineries, chemicals, textile and dyeing, tanneries, electroplating industries detergents, acids, salts and heavy metals like lead and heavy metals like lead and mercury pesticides, fertilizers, a synthetic chemical with carbon, plastics and rubber, etc.

I. INTRODUCTION

The Indian climate is described as the “monsoon” type. If we talk about the different climates in the country, we can say that the variations in climate conditions especially regional, in India. While discussing in terms of temperature and precipitation we found that during summer the mercury sometimes touches 50°C in Rajasthan but on the other hand it is about 20°C in J & K. Sometimes the temperature is below minus 45 degrees on winter nights in Jammu and

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Kashmir. In some of the places in India, there is a huge gap between the temperatures of day and night. The Thar Desert observes a temperature of 50 degrees in the daytime whereas it drops down to 15 degrees in the same night. In the case of precipitation, it seems to occur in the form of snowfall in the upper parts of the Himalayas. It varies from 400cm of rain in Meghalaya case of annual precipitation to less than 10 cm in Ladakh and western Rajasthan. The variations of rainfall in the various parts of the country give rise to the variety of lives of the people in the form of food, clothing and shelter. The climate of India is described as monsoon type. In spite of this, the two elements which are very important are Temperature and Precipitation.

II. PROMINENT MEASURES OF CLIMATE CONTROL

In any place, we found six major controls of climate change like Altitude, Latitude Wind System and Pressure, distance from the sea, current of the ocean and relief features. The air temperature in India decreases generally from the equator towards the poles. The temperature falls when we go from the earth's surface to high altitudes. This is the reason that in the hot season the upper area is cold than the lower area. The Latitude and the altitude of a space decide the wind and pressure of any area and in the same way, it influences the rain system of that particular area. The people feel very high weather conditions when the distance from the sea increases. This is known as continentality. The climate of the coastal areas is also affected by ocean currents. Relief also plays a crucial role in the decision of the climate of a particular area.

There are various factors that affect Indian Monsoon. The major among all is Latitude. In the case of our country, our country has features of tropical and Subtropical seasons. In the case of Altitudes India is having mountains in the north having an almost height of six thousand meters as well as a coastal area of about thirty meters. The Himalayas acts as a shield against the cold winds from Central Asia. The atmospheric conditions which are associated with climate and weather conditions in India are surface winds and pressure, circulation of the upper air, cyclonic disturbances in the West and tropical cyclones.

India has unique pressure and wind conditions. In the winters the Himalayas observes high-pressure area in the North. There is a low-pressure area over the ocean. The upper air circulation is known as Jet Stream. These Jet Streams blows in the Himalayas except during summers. There is a narrow belt of high-altitude westerly wind in the troposphere. These are winds that blow above the altitude of twelve hundred meters, over the troposphere. The velocity recorded in the summer is about 110km/h at the mid-latitude and over subtropical regions. These streams are located approximately over 27 to 30-degree north latitude. These create western

disturbances. These disturbances are formed in the north and northwest parts of India. These are called the sub-tropical westerly Jet Streams. In summer, these move towards the extreme north and therefore, replaced by an easterly jet stream called easterly jet stream. These cause heavy rain over peninsular India, approximately over 17-degree North during the summer month.

III. THE SCENARIO OF MONSOON IN INDIA

The monsoon winds in India influence the climate of India to a great extent. As in historic times the sailors came to India at the mercy of winds. The Arabs named the seasonal reversal of the wind system in India 'monsoon'. To understand the monsoon mechanism the following facts should be considered.

- The different types of pressures are created by the heat and coldness of the water.
- Changing of the condition of ITCZ.
- The intense heating of the Tibetan Plateau.
- The movement of the Jet Stream during summer.

There are other features also which affect Indian Monsoon e.g. the changing pressure conditions over the southern oceans.

The Monsoon in India is considered as a unifying bond because unifying means attachment or affection with another. Such conditions are formed when we talk of the monsoon's attachment with India. The cold winds from the north side do not strike India as there exists a natural barrier of the Himalayas, the other places are covered with extreme cold winds in the same latitude. Similarly, peninsular India is covered by the cold winds in the sea from three sides. This arrangement also ensures a moderate temperature in India. Again, peninsular India is covered by the sea from three sides. The arrangement also ensures a moderate temperature in India. Again, the seasonal reversal of the wind system provides a rhythmic cycle of seasons. The pressure of wind conditions in India is unique. During winter, there is a high-pressure area in the north of the Himalayas. Cold dry wind blows from this region to the low-pressure areas over the oceans of the south. In summer, a low-pressure area develops over interior Asia as well as over the northwest of India. This causes a complete reversal of the directions of winds during summer.

Various Seasons in India:

Condition of weather has a significant change from one season to the other. We can notice the changes in the various parts of our country. Although we observe that the pattern of rainfall

changes yet there is no significant change in the temperature.

There are basically three main types of seasons in India which are as follows:

(A) Cold Weather:

In India, it exists from the month of November to February. In the Northern parts of India, December and January are the coldest months. There is a significant decrease in temperature from the South to the North. Chennai has an ideal temperature of twenty-four to twenty-five degrees Celsius. In the Northern Areas, the range differs from ten to fifteen degrees Celsius. During this period, we observe warm days and cold nights. There is snowfall in the higher hills of the Himalayas. The Northern Trade Winds are observed during this season. Due to these winds, there is rainfall in Tamil Nadu. It is notable that a feeble high level high- pressure region develops in the Northern parts of the country which helps lighten up the winds. The Weather is clear during this time. There are cyclonic disturbances over the Northern plains which is a very important feature of the cold weather. Because of the effect of the sea, there is no significant change in the temperature pattern during the cold season.

(B) Hot Weather:

The hot weather in India is observed in the months of March, April and May. During these seasons a clear shifting of temperature can be observed. In Deccan Plateau, it is observed as 38 degrees Celsius. It is around 42 and 45 degrees in Madhya Pradesh and Gujarat. The temperature is comparatively low in Peninsular India because of the moderating effects of oceans. In the northern parts of the country, there is falling of air pressure and falling of the air pressure specifically during the summer months. 'Loo' in India is an important feature of the hot weather season in India. The hot and dry winds are observed in the country, especially in the northern part. There are direct effects of these kinds of winds in the northern side of the country. These kinds of winds somehow remain till late evening. In the month of November, there are some kinds of storms that bring some kind of relief as these are responsible for the slow rain and cold breeze. These kinds of storms are known as 'Kaal Baisakhi' in West Bengal. When the summer season is ending the pre-monsoon, showers occur which are called 'mango showers'.

(C) Rainy Season:

During the month of July, the south-east trade winds are attracted by the Southern Hemisphere. These winds bring much amount of moisture to the subcontinent as they blow over warm oceans while entering the Indian Peninsula. The average velocity of these winds is thirty kilometres per hour. The speed of these winds is very high. The country is covered by the

monsoon winds in about one month. These southwest monsoons are responsible for bringing a total change in the weather. During this weather, the Western Ghats receives heavy rainfall of more than 250 cm. The Northeastern part of the country receives maximum rainfall during this season.

IV. WHAT CAUSES CLIMATE CHANGE?

It is observed that natural phenomena are the main cause of social change. There is much said about the climate change phenomenon, but the best way to go out about the examination of the metal is by starting with the simplest explanation. The atmosphere is a protective layer of gasses surrounding the Earth. It is transparent and therefore admits the Radiations coming from the heated surface of the sun, which provides Warmth and Light for the survival of all living organisms on the planet. The Atmosphere's property however is not only to allow radiations to enter and warm the earth but to allow the infrared energy generated by the objects on the earth's surface to escape. The Atmosphere is not transparent to this infrared energy and thus water particles and Co₂, not permitting it to radiate out into space. This effect is exaggerated by the buildup of additional gasses, which causes a malfunction in the "Ventilation System" of Planet Earth. As the Alternative denomination "Green House Effect" Suggests, the more Co₂ Emissions are produced, the harsher and thicker the "Glass" of our Atmosphere will become. This causes not only the warming of the earth's surface but a whole array of environmental problems.

Industrial Pollution and Environmental Degradation:

No doubt that the industries contribute significantly to the economic growth and development, the increase in the pollution level of the land, water and air and noise and it results in degradation of the environment. There are four kinds of pollution caused by the industries(a) Air Pollution (b) Water Pollution (c) Land Pollution (d) Noise Pollution.

The main cause of Air pollution is the presence of undesirable gases in very high proportion like Sulphur dioxide and carbon monoxide. Both solid and liquid particles like dust spray mist and smoke are contained by airborne particulate material. The big and small factories like chemical, paper, brick, refineries generally ignore pollution norms and emit enormous smoke to the environment. The leakage of toxic gases is responsible for very hazardous with long term effects. The health of humans, plants, buildings and the atmosphere is adversely affected by air pollution.

The main cause of water pollution is organic and inorganic industrial waste and effluent discharged into rivers. Water pollution is mainly caused by petroleum refineries, chemicals,

textile and dyeing, tanneries, electroplating industries detergents, acids, salts and heavy metals like lead and heavy metals like lead and mercury pesticides, fertilizers, a synthetic chemical with carbon, plastics and rubber, etc. The major solid waste in India is fly ash, phosphor-gypsum and iron and steel slags. Various diseases are caused because of water pollution in the form of waste from nuclear power plants nuclear and weapon production factories e.g. cancers, birth defects and miscarriages. Another very harmful pollution is soil pollution. Water and soil pollution are somehow interlinked. The soil becomes useless as it is adversely affected by dumping of waste like glass, industrial effluent harmful chemicals, packaging salts and garbage etc. The soil carrying the pollutants is percolated by rainwater and the groundwater also gets contaminated.

Noise pollution is also a very prominent type of pollution. It causes anger and irritation on one hand and hearing impairment, increased heart rate. It is also responsible for the psychological effect and a source of stress. Noise pollution is caused by machinery, factory equipment, generators, saws as well as electronic drills.

V. CONTROL OF ENVIRONMENTAL DEGRADATION

It is studied that wastage of every litre of water discharged by industries pollutes eight times the quantity of freshwater. Following are a few suggestions through which pollution of freshwater can be minimized: -

- (i) To re-use and re-cycle, the used water in two or more successive stages
- (ii) Rainwater harvesting to meet water requirements
- (iii) By treating effluents and hot water before releasing them in ponds and rivers.

Treatment of industrial effluent can be done in three stages:

- i) Primarily through mechanical which involves screening, grinding, flocculation and sedimentation.
- ii) Secondary treatment by biological processing means
- iii) The third treatment by biological, chemical and physical processes involves recycling wastewater.

VI. CONCLUSION

Therefore, we must conclude that climate changes are occurring due to human activities. We must have a check on fossil fuels and the emission of CO₂ in the atmosphere. This in turn causes the temperature to increase, melting of the glaciers, increase in the temperature of the

ocean, extreme weather conditions etc. There is a hope to slow down climate change with the help of the government. For this purpose, we must reduce deforestation and guide the people for tree plantation this is the responsibility of the teachers also to guide the children regarding the climate change. The government should invest in green technology and in energy production like wind and solar energy.

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