

Episode – 21
Climate Change and its Impacts (Part-II)

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Artists:-

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|---------------------------------|-------|--------------------------------------|
| 1. Aakash | ----- | Student of 7 th Standard |
| 2. Vani | ----- | Student of 10 th Standard |
| 3. Prof. Batra(Papa) | ----- | Professor of Chemistry |
| 4. Damini (Mother/Mummy) | ----- | Science Teacher |
| 5. Bipin (Uncle) | | Professor in University |
| 6. Dr. Pandey | | Scientist and Climatologist |

Title Song/Title Music

Scene: - The ambience of a Railway Station/ Noise/ whistle/ Train sound etc.

Vani:- Vow! We are in Delhi.

Aakash:- Oh my dear sister, this is New Delhi Railway Station. Mean we are in Delhi

Mummy:- (Laughing); Yes, you were aspiring to visit Delhi, hence we have planned all this.

Papa:- Oh....After long and tiresome journey of twenty four hours, we are finally in Delhi.

Vani:- Papa we were expecting to be here in 18 hours. But....but...it took 24 hours to be here. Oh! My Indian Railway.

Papa:- On the way, you might have notice that the speed was so slow and moreover there were many extra stops in between. It is this that our Government is planning to have parallel tracks and fast speed bullet train.

Vani:- Look....look! Bipin uncle is there. He may be waiting for us.

Papa:- Hello Bipin! Look....look..... We are here.

Bipin:- Oh, I was waiting for you. My mobile is not working. May have some technical or network problem. Let us go now. Rain is expected shortly.

Papa:- Yes, we have to leave platform immediately. Pick up your luggage.

Sound Effects of platform/noise etc.

Aakash: - But uncle, I had read somewhere that February and March is the best time to visit Delhi. But it is raining. What about our sightseeing?

Vani:- I pray to God....rain....rain go away, come again another day....(Laughing)

Bipin :- But do you know? This is all due to climate change and its impact on our weather.

Akash: Oh! Climate change (Serious). Its impact....

Vani:- Yes Akash, in our Social Science book there is one chapter on climate change.

Papa:- Akash your Bipin uncle can tell you much better about all these.

Aakash:- Yes uncle, please tell us. I know you are teaching in JNU (Laughing).

Vani:- And Akash..... Bipin uncle is a Professor of Environmental Science.

Change over Music/Sound Effects/car start

Akash:- Uncle please tell about global warming.

Papa:- It will be better first to get adjust on your seats.

Bipin:- OK children. Come.... Let me answer your quarries. Do you have some ideas about the scientist, who coined the term, “Climate Change”. His name is Wales Smith Broker

(वालेस स्मिथ ब्रोकर).

He died recently in the month of February, 2019 at the age of 87 years. He was the first person, who said that increase of carbon dioxide in our atmosphere the global temperature will rise. This was in the year 1975, he propagated his findings.

Vani:- Oh! In 1975, he concluded to prove all that.

Bipin:- Not only this, he was the first scientist who tell much about the Ocean’s Conveyer Belt”, I mean current that defined the richness and quality of ocean water.

Akash:- I know(Laughing). Even scientists are confused how to solve the problems of seas and oceans pollution. Uncle, please have some more light on him.

Bipin:- Broker was born in Chicago city of USA. In 1959, he came to Columbia University and started his work on environment, global warming and climate change. He was the first person who attracted the attention of global leaders on Climate change. His works acclaimed him the title, “Father of Climate Change”.

Akash:- Father...(Laughing)..... He was father.....

Vani:- Look....look.... It is raining.....andand.....Oh! Hail storm....

Damini:- (With surprise):- In Delhi, hail storm and that too in this season..... Oh my God! Changes are coming, difficult to be denied by anyone.

Akash:- Mamma....mamma... seethe size ...Big enough like a small cricket ball.

Bipin:- I have never seen such a hail storm in Delhi and even in NCR. You can see a white carpet, everywhere. Thanks God, we are at the door steps of our home. O.K. Vani. We are going to reach home and I shall tell you there.

Sound effect of Car stop/ Music of car stereo slow down

Scene Change: - Door effects/ Living room of the house/ background TV sound/ Kitchen effects can also be added.

Papa :- The weather is fine and moreover day light is enough to save electricity.

Mummy (Damini---Laughing):- Your Papa always thinks about money. Every time saving....saving...

Vani:- Oh mummy! It is not only saving of money. We are saving our environment and moreover our Planet Earth (Laughing).

Bipin: - First we should have our breakfast. Have some rest and after that we can plan our outing.

Akash:- Vow! Uncle...we shall go for sightseeing. It will be better to enjoy our dinner outside (Laughing).

Papa:- Bipin, please start the radio. Let us see, what is the latest news?

Akash:- Papa I can tell you the latest news(Laughing). The weather is changing. Heavy rain and hail storm is expected in the city.

Sound Effect...Radio start#####

(Radio):- This is All India Radio. The headlines. The Western disturbance is active over the Norther parts of the country. In Delhi and the National Capital Region, there was heavy rain with hail storm in the afternoon. The situation in Kashmir Valley is improving day by day and people are coming to support the government for the new peace initiatives taken by Central Government.

Now in details:- Heavy rain during Monsson season is common but it is rare to have heavy hail storm in summer. The white carpet scene on Delhi roads was reminding about snow fall on high mountains. There is drastic change in day temperature. The Indian Meteorological Department has predicted heavy rain during night.

Vani:- Thanks God we were in time, otherwise.....what one can say about the traffic jam of Delhi.

Akash:- Papa, they are saying about crops loss. How that possible?

Papa:- Generally unseasonal rain harms the crops in the fields. Crops like mustard are blooming and pollination is in the process. This process helps in seeds formation. Heavy rain and hails storm disturb the whole process of fertilisation and seeds formation. This will reduce the crop yield. Sometimes due to heavy wind the crops fall on the ground and this also mean less yields. If the rain continue for few days, it will also affect others crops like wheat, barley and gram.

Akash:- But papa, have you listened the radio. Heavy rain is predicted in this week. How can we go on outing for sightseeing, if it rain continuously.

Vani:- What about holidays? If continue then there will be no use of our Delhi visit.

Damini:- This is all due to climate change. Weather is changing and temperature is rising.

Vani and Akash:- Even our weather and seasons are changing.

Damini:- You can have some snacks and discuss all these with your uncle. In the mean time I can prepare hot tomato soup and some idali and sambhar.

Papa:- That will be better.

Bipin:- Bhabi Ji, your idea about , idali and dousa is super.

Papa:- Even, the soup is also equally tasty.

Alash:- Uncle, you forgot your promise. Only food and nothing about climate change. What about your promise? (Laughing)

Mummy:- First have your meals. No talking.

Vani and Akash :- O. K. Mumma!

Sound effects of breakfast/dinner table

Vani:- Uncle, please tell us about climate change and global warming.

Bipin:- O.K..... You know about water and air. Very Important constituents of our environment. Without them life can't be imagined on Earth. Over a long period when some changes are noticed that fall under climate change. During last few centuries, changes in climate have been noticed by the scientists. The average temperature that was prevailing in past is now changing. There is some change in the winter and summer season's cycle. Temperature is rising and even level of water of the seas is also rising. Many living species are on the verge of disintegration.

Vani:- Besides our country, where one can have experienced these changes?

Bipin:- You might have heard about forest fire in Australia and North America. In January, the temperature of Port Augusta city touched 49.5 degree Celsius. The average temperature of January has broken all the earlier records.

Akash:- Is it so? We had listened that Australia is a cold country.

Bipin:- You are right Akash. Similar changes have been noticed in America also. In winter, cold due to Arctic affect has broken all the records. Due to severe changes people face frost bites and skin problems.

Akash:- If this continue, we have to face many problems in coming years.

Vani:- You mean only human being. No Akash. Our teacher was telling that climate change affect bio diversities and many living organisms are facing their own existence.

Akash:- What do you mean by bio-diversity?

Papa:- This means the beautiful world of living organisms that you find in a region. All plants species, animals and micro-organisms fall under it. Compilation of data on biodiversity, their lists, proper monitoring and conservation play great roles in scientific studies. To understand and studies biodiversity is a challenge to our Biologists.

Vani:- What are you saying? You mean to conduct study and to understanding it is a challenge. But how?

Papa:- All complex biological systems have their unique ecosystems. With space and time their behavioural system starts showing changes. There are no laws by which one can predict the benefits of the existing biodiversity. But through their behavioural models, historical studies and from different time periods, it is possible to predict and designed the best possible ways of their conservation and protection.

Vani:- That is fine but how global warming and climate change affect it?

Vipin:- It is learnt that change in climate will definitely going to influence biodiversity. Time is very important factor for living being to be adjusted in new circumstances. Unfavourable conditions may cause death or even some species may disappear from the Earth. The climate change is going to affect the coastal regions and the species that survive and live there. Simultaneously it will influence the breeding cycles of animals and plants species. The incidents of forest fire will rise in tropical and hot regions. You may know that plants, animals and other living organisms make the biological system on the Earth.

Climate change and global warming not only influence the biological system but the disintegration of the living system itself influence the weather cycle. In other ways, through our activities, we are also catalysing the problem of global warming.

Akash:- Uncle please tell us what can be the best solution of this problem?

Bipin:- The only solution is to slow down the process of global warming and climate change. This we can do by reducing the level of greenhouse gases. There is need to protect and save our forests and wetlands. Lesser is the population of a species more will be the effect on it. Even restriction in particular and limited areas enhances the process. We have some good examples like coral reefs, mangrove forests and ice covered regions.

India is also among the countries, where more than 60-70% of the world biodiversity thrive. Being the oldest and largest agricultural region of the world, India is a source of good agricultural and vegetables crops and plants species. We in India have 6% species of the flowering plants and 14% species of the birds. Out of total plants species that have been recognised till the time, we have 45000 species in our country. Among crops, we have in India at least 166 species and among their relatives in wild forests, we have 320 species.

Akash & Vani:- Thank you uncle. Very Interesting information?

Bipin:- Now listen carefully. In India 90% medicines, we get from plants. In tribal areas and in many parts of Himalaya, the herbal plants are sources of livelihood of many people. The Ecosystem greatly influences the local prevailing conditions and the management of resources. Along with agriculture it is important for industrial development and urbanisation of the regions. Global warming and climate change is showing its effects on the cultivation of medicinal and herbal plants.

Sound Effect of Mobile Phone#####

Akash:- Uncle you call!

Bipin:- Hello....hello.... Yes Dr. Pandey....I am getting you. Good morning.... We are here in Delhi. I am not alone and my brother and his family are with me. We are planning to visit your auditorium at about 4.00 O'clock. Weather will be fine by that time. Is it fine? O.K.

Akash & Vani: -- Wow! Thank you uncle. What a great planning to enjoy the evening.

Change Over Music/Scene change

Scene-IV

(Noise in the auditorium, public coming and going, sitting effect on chairs etc.)

Dr. Pandey:- Dr. Bipin, please come to this side.

Bipin:- Hello Dr. Pandey! I am coming.

Dr. Pandey:- Welcome you all. Nice to see you.

Announcement: - Hello friends! I welcome you all. Please take your seats and maintain peace in the hall. All of you know that this workshop is on climate change and global warming. We are feeling the pinch of global warming from Polar Regions to seas to land. To have in depth knowledge on the subject, we have planned this workshop. Our first expert is Dr. Akhilesh Gupta from the Department of Science and Technology. Please welcome Dr. Gupta with loud clapping.

Sound Bites of Dr. Gupta

Announcement:- Dr. Gupta has beautifully defined the Climate change problem. Thank you Sir...and our next speaker is Dr. Surjeet Singh. He is associated with the International Organisation working on Climate Change and its effects on living species.

Sound Effect of clapping

Dr. Surjeet Singh.....Bites

Announcement: - Our next expert is Dr.J.Sundreshan Pillay from the National Institute of Science Communication and Resources.

Bites of Dr. Pillay

Announcement:- Thank you Dr. Pillay and our next and final speaker is MS. Urvashi from UNICEF.

Bites of Urvashi

Announcement:- Thanks all our expert speakers and the esteemed listeners. All are welcome for high tea outside the auditorium

Sound Effects etc.

Bipin:- Dr. Pandey, the children are very eager to interact with you.

Dr.Pandey:- Is it so? Most welcome.

Bipin:- They want to know on about the impact that of climate change and how global warming is going to influence it?

Dr.Pandey:- This is good and our aim is also to educate the public on it. Education and awareness can play great role in it.

Bipin: - Ask, what is in your mind?

Akash:- Bipin uncle had told us that climate change is poisoning the sea weeds and sea grasses. Fishes survive on these weeds are also poisoning and when human being eat them they too. This is a chain reaction of poisoning.

Dr.Pandy:- This is true.

Akash:- Yes our uncle is great. He too is Professor in JNU of Environmental Science (Laughing)

Vani:- But it is equally true that human body adopt itself in new environment with due course of time. Our body through internal physiological activities can change its temperature according to its need.

Dr.Pandey:- Yes. But it has its own limitations. After certain limits, the change in climate and environment start showing its negative impact on our bodies. During last decades, it attracted the attention of one and all. Warmer weather has more influence compared to cooler one.

Vani:- This means climate change is also affecting human health.

Dr.Pandey:- There is no doubt in it. Diarrhoea, cholera, dysentery and seasonal fevers are going to be more common. As per World Health Organisation report, heart and lung problems rise. Rain and temperature are the two factors that increase the growth of bacteria, which cause diseases. Hence in South America, Africa and South East Asia the diseases spreading through mosquitos like malaria, dengue, chicken Guinea, yellow fever and Japanese Encephalitis will cause more death than any other. Moreover these diseases will spread to new areas of like Europe and North America.

Akash:- Uncle....Does their influence will be different on different age groups?

Dr.Pandey:- Good question (Laughing). See, hot weather always has more adverse effects compared to cool weather. As the temperature rise, our body through internal changes tries to adjust with rising temperature. Common symptoms are perspiration, rise in heart beats and expansion of blood vessels. In old age the rate of perspiration decreases, secondly their blood circulation is also slow down. It is the reason that senior citizens are more exposed to adverse conditions than young blood. Rising number of patients shows that climate change is showing its influence on our health.

Vani: - This means, the areas under their influence is rising day by day.

Dr.Pandey:- You are right. As the temperature increase, the diseases that were not common in certain areas may appear and spread their wings in future. Earlier dengue fever's mosquitoes were not found above 3300 ft. of sea level but now they are found up to 7200 ft above sea level in Colombia. Diseases spread by insects, flies, mosquitoes were not common in Europe but now they are spreading their wings in the region.

In India malaria is becoming common in Himachal Pradesh, Nagaland and other mountain regions. By the year 2070, malaria will spread up to 60% of the world due to more favourable conditions.

Damini:- One question from my side(Laughing).

Bipin:- Yes, why not Bhabhi ji. Dr. Pandey is a renewed scientist and he has participated in many international conferences throughout the world.

Damini:- As the existing diseases spreading their wings, so may be the new diseases.

Dr Pandey:- Yes, this is going to happen. The climate change and global warming can change the genetic structure of micro-organisms, which can cause new types of diseases. At present we may not have knowledge about them. Being ignorant, the question to have their medicinal treatment will be very difficult in the beginning. Their severity may be as mild as cold or even may be more dangerous than AIDS. Such diseases may be confined to limited areas or can engulf large part of the world. We may not hear about some diseases but they can engulf a substantial part of the world population. In India, we have an example of Kainsnoor Forest Disease that spreads through virus.

Damini:- Oh My God! This means it can become serious anytime and anywhere.

Dr.Pandey:- In India the situation is not so good. Malaria is spreading to new areas. Earlier it was confined to Odisha, West Bengal, and Southern Assam but now it is spreading its wings to Maharashtra, Karnataka, and Kerala and creating health hazard. Now a day's one can find Malaria patients in large number in states like Himachal Pradesh, Arunachal Pradesh, Manipur and Mizoram. Similarly the incident of throat infection is spreading. As the temperature increase, pollution is also increasing. With rise in carbon di-oxide level the particles contents of sulphur, lead and dust rise in the atmosphere. In early age, lead can harm the development of brain in children.

Bipin:- Dr. Pandey one more harmful effect. The rise of sea level will cause soil erosion and submersion of land in coastal regions. The danger of desertification is looming on our heads. Industrialisation may alter the shape of agriculture. Flood, drought and hell storm will reduce the crops yield. Shortage of food may cause hunger and malnutrition in poor and underdeveloped countries.

Vani:- We are reading Ozone depletion in our text books but what are you saying is very serious.

Bipin:- Vani, what you are telling is also a part of climate change.

Dr.Pandey:- Now it is clear that Ozone depletion led to many diseases. It exists in the upper part of our atmosphere and protects us from the harmful effects of Ultra-Violet Rays. But its presence in lower part of our atmosphere and cause problems related to lungs and respiratory system. Ozone also enhances and catalyses the effect of sulphur-di-oxide and other dust particles on our body. The resistance power of our body get reduces. Ultra-violet rays caused cancer related diseases. Increase in temperature may cause heat stroke.

Akash:- How we come to know about all these? Through scientific research or by some Aliens (Laughing).

Dr.Pandey:- Through research, it is all possible. Through scientific research we come to know that presence of Carbon dust particles caused breathing problems, swelling in lungs and also concentrate the blood in the body. This also causes the death of cells, which fight against harmful micro-organisms and are helpful in body to have resistance against diseases.

Vani:- Uncle...You forgot to tell us about the consequences of fresh water shortage.

Bipin:- Yes Vani....Availability of fresh water is very important. Rising sea level reduce the availability of fresh water in coastal regions. This also causes displacement of coastal population to new regions, which led to increase in water problem, where the refugees arrived and got settled. Availability of fresh water means more danger of diseases caused by polluted water such as diarrhoea, dysentery, cholera, encephalitis and other diseases. Sometimes they may take the shape of severity.

Vani:- But uncle...you had told earlier that rising sea level means displacement of local population. The mass migration of this may cause refugees problem.

Bipin:- You are correct Vani. Half of the world population live in a radius of sixty kilometres within coastal regions. As the sea level will raise, these regions fully or partially may submerged under water and become inhabitable for human. The Delta of Nile River, part of Bangladesh around Ganga and Brahmaputra Delta may submerge under water. Similarly countries like Maldives and Marshal Island will be the most affected regions due to global warming.

The displaced population will face the problems like hunger, housing, drought, social disparities and mental disorder. Sharing of resources with existing population means shortage of food and housing.

Akash:- Doctor Uncle! You mean these problems will be equally prevails in summer and cold. Does the temperature influence it?

Dr.Pandey:- Akash, you know that in extreme cold our body temperature fall below normal. Our body with some internal adjustment try to adjust with changing condition. If the atmospheric temperature is too low, than very difficult for our body to adjust with it. Body temperature starts falling at fast rate and cause hypothermia. It is generally notice among poor and homeless people, who are forced to sleep in open under the sky. Under such condition, the physiological activities fall and if proper treatment is not available, that will lead to death.

Vani:- Uncle...uncle.... Many times we herd in TV, Radio and read in newspapers that the incident of diseases likes Dengue, Chicken Guinea and flue increase many folds. Do they have any relation with climate change?

Dr.Pandey:- I appreciate your eagerness (Laughing). In a United Nations Reports, it has been pointed out that Climate change and global warming are important factors to spread flue related diseases. Earlier the migratory birds were settled where they found wetland. With the rise in temperature these wetlands are

contracting or even disappearing. Due to this many diseases infected birds come down and mingled with domestic farms animals. This cause disease among the birds reared in poultries farms.

Similarly dengue is spreading. Due to severe blood haemorrhage, it causes death of the patients. Earlier it was very rare in cold countries but due to global warming, this disease is spreading its wings in new regions. In the year 1996, dengue spread widely in Delhi. About ten thousand people were infected and more than four hundred died. Similarly it spread again in the year 2006 and from where it spread to adjoining areas and states.

Bipin:- Children...What Dr. Pandey is saying very important to know. The rise in temperature and climate change is very helpful for the survival of micro-organisms. As the climate become more conducive for multiplication, the severity of diseases rise. This means we have to fight anyhow to curtail the global warming. Our young generation like you can play an important role in public awareness against pollution.

Damini:- Yes Bhibin Bhai! Public awareness is very important. Exploitation of natural resources should be curtailed.

Dr.Pandey:- Yes Bhabi Ji. We have to fight at the grass root level. Natural resources should be used very carefully. More stress on recycle of waste products. It should be our mantra. Sustainable development with new technology is must to survive in future.

Bipin:- Here one and all shroud behave as a responsible world citizen. It is our moral duty to spread the message of environmental awareness among the general public and common people.

Dr.Pandy:- Well said Bipin. We have to believe in simple living and high thinking. We have to save our planet Earth.And.....and..... Now it is time for lunch (Laughing).

Akash & Vani:- Vow! Let's go. Now it will be worth to enjoy the meal (Laughing)....

Closing part of the Title Music
