

Episode – 20
Climate Change and its Side Effects

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Artists:-

1. Akash ----- Student of 7th Standard
2. Vani ----- Student of 10th Standard
3. Prof. Batra (Papa) ----- Professor of Chemistry
4. Damini (Mother/Mummy) ----- Science Teacher

Opening Part of the Title Song/Music

Scene-1..... Morning time.... Children proceeding for School, Kitchen/cooker/utensils effects etc.

Vani:- Mummy.....Oh... mummy ! Please have my breakfast. I am already too late.

Akash:- Didi..... No breakfast for you (Laughing). You are not taking interest in your study. Hence no breakfast. Do you understand? (Laughing).

Vani:- Akash! Please.... keep quiet. You always remain busy with mobile. Not taking enough interest in your study. Even Papa too knows that. What about yours final Exam? God knows.

Akash:- You can say anything, but there is no breakfast for you.

Vani:- Mummy please be hurry. I am already too late.

Mummy:- Akash is right. It will take some time.

Vani:- Why it is so mumma? You know my school bus is shortly going to arrive.

Papa :- (with smile):- Vani! Don't worry. Take your breakfast after one hour. Do you know? All schools have been closed by the Administration for one week.

Vani (With surprise):- Oh! Is it so? Why the schools have been closed? Anything serious.

Papa :- Vani, have you noticed? The temperature is rising day by day.

Vani:- Yes, but what is relation between the two? Even rain was there on last Monday.

Papa:- It is raining since late night. All roads have been flooded with water and not possible to drive on roads. Schools have been closed so that the affected people can be accommodated there. National Disaster Force is working day and night to save and evacuate the people from flooded areas.

Vani:- Yes, I too noticed it but was busy with my school project.

Papa :- Don't worry. Take easy and have your breakfast.

Akash:- But papa it was never happened earlier. It is too much hot and unseasonal rain. Difficult to believe.

Papa:- Akash! It is all due to global warming and climate change.

Akash:- (With surprise) What do you means by climate change?

Vani:- Yes Papa, my teacher was also telling the same.

Papa:- O.K! We shall talk later on. It is time for news. Akash, can you start the radio?

Sound effect

News Reader/Announcer:- This is All Indio Radio. The news..... Prime Minister of India has declared a new scheme on skill development. The day temperature has been above normal during past few days and people are suffering from acute heat waves and many died due to heat stroke. United Nation's head of Environmental Division Dr. Aerick Solheim said that due to global warming and climate change many countries in the world are badly suffering.

Vani & Akash (Jointly):- Many countries are under its influence. What are the reasons behind this? Papas please!

Mummy:- Better First you can have your breakfast.

In one voice:- O.K. Mamma. But it will be better if both can go hand in hand.

Mother:- Listen! Air and water are two important constituents of our environment. Long-time changes in the environment fall under climate change. These can be natural or men made factors. After industrial revolution, the average climate conditions have changed and world temperature is rising. Sea level is rising and many living species are on the verge of disintegration.

Vani:- Yes mummy, our Madam was also telling that the causes behind Natural Disasters in Jammu and Kashmir, Kedarnath, Tamil Nadu and Kerala were due to climate change. But mummy, how it all happen?

Mummy:- We human beings are the main culprits. In Nature the process of change is very slow. But it is all due to deforestation and excessive exploitation of resources that cause all these blunders.

Akash:- Mummy , I had learnt that even Polar ice is also melting at fast rate.

Mummy:- Yes, you are right. During last 100 years, Antarctica temperature has risen almost double. Its snow cover is depleting day by day. It affects the lives of living organisms that found in the Antarctic regions. If it continue than by the

end of this century, 80% snow cover of Alps Mountains may disappear. Our own glaciers in Himalaya are melting at fast speed as compared to other regions.

Papa: - Due to Global Warming the ice and snow of the glaciers and the Antarctica melt at faster rate. This raised the sea level. On an average the sea level has been raised by 27 cms. There is danger that low lying countries like Maldives may be submerged under sea water in near future.

Mummy: - Remember! The rising level of carbon dioxide in the atmosphere cause change in our ecosystem. The acidity of sea water is rising. It changes the living organisms' pattern and moreover the carbon absorption power of the oceans is reducing day by day. Increasing pollution means change in biodiversity and the ecosystem.

Papa: - If these changes continue in future, means more and more disasters. A change in temperature up to 1 or 2 degrees Celsius will change the pattern of agriculture production. Green pastures covers may be reduced and water availability may be affected. This will lead to human refuges from one place to others.

Mummy: - Due to mass scale migration, the demography of many regions may change, which means change in social setup. The social disturbance will cause disharmony and unrest in the society. Shortage of food and scarcity of available water may cause worldwide unrest and violence. India, Bangladesh and China may be the most affected countries in the world. In one UN report, it is said that in coming years, the weather change and global warming will drastically change the future world.

Papa: - Effects of climate change will be reflected throughout the world. India can't remain aloof. Due to global warming, we shall face many problems. By an estimate, it has been predicted that temperature of Indian subcontinent may rise up to 4 degree Celsius.

Vani: - But who and how are these changes predicted?

Papa: - It is all by Department of Meteorology. Indian Space Research Organisation collects data from the weather satellites, launched for this purpose. It has been predicted that sea water in our region is rising at the rate of 2.5 mm per year. If it continues, it is estimated that by 2050 the sea level will rise by 15 to 36 cms. Low lying areas like Sunder ban may be submerged under sea water.

Mummy:- Due to Greenhouse Effect, the average temperature is rising. By one estimate, it has been predicted by the scientists that the average temperature of the world during 2020 may surpass the temperature of last one thousand years. The 1995 report of Inter- governmental Panel on Climate Change said that if the present situation continues by the end of 21st century the Global temperature may rise by 3.5 to 10 degree Celsius. The report says that the Greenhouse gas effect has already begun and is now clearly visible.

- Akash:-** Papa! Does India too is going through that changes?
- Papa:-** Yes, no country is safe. Those countries, where Monsoon brings rain may be affected by heavy rain, drought or flood, soil erosion etc. Quality of water may not be the same and even its availability get reduces. It is said that rainfall in middle and Northern India will fall and that of Eastern and South-Western India will rise. This means drought in some parts and flood in other regions.
- Vani:-** Oh... Understand. This was the reason of last year flood in our city.
- Mummy:-** It may be possible. Under these conditions our agriculture will be drastically affected. Availability of drinking water will be reduced. Water will get polluted and moreover the distribution of water will be affected. In some parts of the world like South-East Asia, water will be available in abundant but in Central Asia its availability will be scarce.
- Akash:-** Will the countries lying on the sea shores may also be affected. But... how?
- Papa:-** The effect of rising sea level will be felt up to 60 kms from the shores. In Bangladesh the Ganga-Brahmaputra Delta, Nile river delta in Egypt, Marshal Islands and Maldives islands will be submerged under sea water.
- Akash & Vani :-** Oh My God !
- Mummy:-** In India, many parts of Odisha, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Goa, Gujarat and West Bengal may submerged under sea water. About ten crore people may be get displaced and many parts of Lakshadweep and Andaman and Nicobar Islands may get lost under water. This will also reduce the availability of fresh and drinking water.
- Papa:-** Not only this, it will also affect the biodiversity of sea corals and sea weeds, which are commonly known as the tropical rain forests of the oceans. Rise in temperature will also affects the micro-organisms of the seas and the oceans. They may get lost from some regions. In 1997, a substantial portion of Pacific Ocean's coral reefs and other weeds and many other species were affected. By an estimate it is found that 30% coral reefs are drastically affected, 10% were killed and about 30% have degeneration. Global Coral Reef Monitoring Network of Australia has reported that by 2050 most of the coral reefs may disappear from the global face.
- Vani:-** Papa even the fishes are also going to be affected by global warming? They are creatures of water.
- Papa:-** Yes, there is no doubt in it. Vani, I have to go for some urgent meeting. You can have interaction with your mummy. See you all in the evening.
- Akash:-** Oh papa! My question is still not answered.
- Mummy:-** Akash! Listen... Your papa will answered all your queries in the evening.

Vani:- Mummy, you too know all these. Please tell us.

Mummy:- O.K. What is your question?

Akash:- Didi has asked about the effect of global warming on fishes and other living organisms in the oceans and seas.

Mummy:- Good question. In one study, it has been reported that global warming is drastically affecting the lives in Caribbean region. Scientists from the University of Florida have reported poisoning of fishes in the Caribbean. The poison passes to human being through food chain, resulting many diseases and physical disorders.

Akash:- What a surprise? Diseases in fishes!

Mummy:- Professor Maoris has reported that due to rise in sea temperature, some species of algae are showing intensive growth and many of them are poisonous in nature. As fishes in seas water survive on algae and sea weeds, hence they are forced to eat these poisonous species. Thus they too got poisoned.

Vani: - Mummy, how is it going to affect us?

Mummy; - When man eat these fishes, his body too get contaminated with harmful and polluted elements. The poison that found in fishes is very harmful and sometimes become fatal. Even after proper cooking, it still persists in the food. Many people are reported with fatal diseases such as cancer.

Akash: - What a nexus? Fishes are getting poisoned and those who eat them too suffer. Thanks God that we are vegetarian (Laughing).

Vani: - But what about others? Mummy...how we come to know all about this?

Mummy:- There are some common symptoms. People start vomiting and feel dizziness. Diarrhoea is also observed in some cases. In some serious cases, the patients start shivering and have intense body pain.

Akash:- Mummy! It is really frightening. But are there some remedies?

Mummy:- Experts are of the views that first we should try to know about the main elements that caused this. It is none other but Global warming and weather change. It will help us to protect our environment as well as our biodiversity.

Akash: - But ...mummy....one question.....

Mummy: - It is enough. Finish your breakfast and all your pending home work. More discussion in the evening.

Change over Music

Scene-II #### Sound Effect of Door Bell #####

Mummy :- Hello Akash ! Where are you? Open the door. Your papa may be there.

Akash :- O.K.Mamma....

Sound Effect of Doors

Akash :- (With surprise) Papa... you are so early. First time I am seeing.

Papa:- Yes Akash! College was closed earlier so that staff members' can contribute and take care of the people, who have been affected by heavy flood. I visited Vani's school and found it in very bad shape. Government and non-governmental organisations are working and helping the people. I came to pick you all with me for the workshop on disaster management. Experts from different fields are coming to give their presentations. Hurry.

Vani & Akash:- Oh ! That is good. We were waiting for the opportunity.

Sound Effects..... Noise.....horns...cars/vehicles

Announcement: - Hello...hello...Are you getting me. Please listen ...listen.... You know the theme and subject of today workshop. It is on climate change and global warming....reasons and its impact on our life. All are welcome. One can feel the pinch of global warming everywhere. From Polar region to sea and beyond that. In the year 2018, people from different fields and from more than 200 countries gathered in Poland to discuss the problems of global warming and climate change. They agreed to implements the decision taken during the Paris Summit in 2015.To elaborate all that we have with us Deputy Director General and Senior Scientist Dr.Anand Sharma from Meteorological Department. I welcome Dr. Sharma and request him to be on the podium to give his presentation.

Sound Effect of clapping

Dr.Anand Sharma (Bite)

Announcer: - Our next expert is Dr. Somnath Vaidya Rai, Associate Professor, Department of Environmental Science, IIT, New Delhi

Sound Effect of clapping

Announcer: - And now our next speaker is Dr. Sudesh Yadav, Environmentalist and Associate Professor, Jawaharlal Lal Nehru University.

Sound Effect of clapping

Announcer: - You know that IMD has predicted heavy rain today in the evening. With this we come to the end of our today workshop. Thank you very much. Please one more announcement. There is arrangement for tea, coffee and snack outside the conference hall. All are welcome. You can have your questions with the experts at that time.

Sound Effects

Papa:- Hello children! Now we have to leave immediately. Rain is expected in the evening.

Mummy:- Yes, we have to leave but take care. There is too much rush.

Akash and Vani:- Yes ... we are ready to leave.

Sound Effects of crowd/cars/horn etc

Papa :- Come inside. See ...see... It is raining.

Sound effects of car-start/ rain/wiper etc

Papa :- O.K. Children ! Have you some more questions to ask? If any doubt, you can ask.

Akash:- Papa, I have one doubt. Does global warming and change in weather affect us all equally?

Papa:- Yes. There is no doubt in it. It brings Natural calamities which in turn affect living organisms more than human being. Even among men, who are poor and homeless are more vulnerable.

Mummy:- All plant species can't survive in different types of environmental conditions. Every species have their specific requirement for survival. It is the reason that plants died, when exposed to adverse conditions of heat and temperature.

Papa:- Similar to plant species, animals too can't survive and live in adverse conditions. If it is dry and drought spells then vegetarians can't survive. Similarly when there is shortage of herbivorous in the forests, then very difficult for carnivorous to sustain. Too much heat in summer, drought or flood creates adverse conditions. This becomes more adverse for homeless or nomadic population.

Vani:- Papa! Our madam was also telling that even crops and vegetables too are affected by global warming and climate change.

Mummy:- Your teacher is right. Agricultural Scientists are saying that in future, it is going to affect our crops production at large. By the year 2100, crop production will fall by 10 to 40%. Winter crops like wheat, barley, mustard etc. will be affected the most and in our country alone, there will be less production up to 4-5 crore tonnes.

Papa:- As chances for drought and flood rise, means uncertainty in agriculture. You will find a complete change in crop production. Moreover this will bring imbalance in world trade and mercantile. Live stocks including milk producing animals will need more resources to sustain. Due to rise in

temperature the breeding power and season of fishes and other aquatic marine lives will change. Insect's multiplication and population will rise but bacteria population will reduce. And....and.... Less availability of water for irrigation.

Akash: - Oh my God! Change and change....everywhere. Even soil is not free.

Papa: - You are right Akash. Like others components for crops production, soil is also get affected. Due to excess use of artificial fertilisers, production power of soil is decreasing. Even soil moisture and efficiency is falling. It will also increase the salinity of the soil, which in turn will reduce the biodiversity that exist in it. Depletion of underground water level is also we have to face. This will make fertile soil, barren and non-productive.

Mummy:- Children, in one study, it has been found that with the increase of 2 degree Celsius of temperature, the wheat production will fall drastically. With every one degree rise in temperature means 4-5 crore tonnes less wheat production. By mitigating and adjusting timing schedule, farmers can lessen this loss.

Papa:- Similar to wheat crop, there will be changes in paddy crops. More temperature means less production of rice. With every 2 degree Celsius rise in temperature, the rice production will fall by 0.75 tonnes per hectare. Due to drought and flood, its production will further fall. This effect will be more in the Eastern parts of the country.

Vani:- Papa ! We know that great danger is ahead. What steps we are taking to tackle all these?

Papa:- Good question. Throughout the world, efforts are initiated to tackle the problem of global warming and climate change. There is understanding on many aspects. Most of the countries are of the views that before it is too late; we have to rise above individual interest.

The most important is that we have to fight against the greenhouse gases, reduce the use of fossil fuels, no burning of crops residues and minimum use of chemicals and pesticides in agriculture. Secondly we have to invent new and innovative ways of sustainable development. More stress on research and development. Better to develop such crops which are resistant to drought and adverse conditions.

Next we have to manage and adopt new technology for urban waste management, water harvesting and drinking water distribution. Even for rural areas we have to move fast to tackle similar problems so that people can themselves face the coming situation at their own levels. And finally there is need of an integrated information system to aware and inform people about the coming dangers.

Mother:- Yes, along with these we have to start campaign for trees plantation, forest conservation, careful use of natural resources, less dependence on fossil fuel.... a long list.

Vani:- Mummy, one thing has been left. We should use minimum plastic bags (Laughing)

Papa:- Very genuine point ... Vani. These days, one more problem we are facing and that is electronic wastes. We all have to fight against the evil of global warming and weather change.

Mummy:- Children...enough is enough....(Laughing). You are at doorstep of your home.
Akash...(Laughing)... Homehome....sweet home.....

Vani :- Now it is time for mumma... to be in the kitchen....(Laughing)

Mummy:- Yes, I understand your question. All of you may be hungry. (Laughing)

Sound Effects

Closing part of Title Song