

Episode – 17

Change in vegetation and animal distribution

Research & Script..... Dr. R. S. Yadav

- Artists:--**
1. Ramu (12 years child) Jamoora “the play boy”
 2. Mahesh (35 years)..... Madaari (Magician)
 3. Naresh (23 years)..... Research student
 4. Dr. Krishana (55 years)..... Professor of Environmental Science.
 5. Neha (27 years)..... Research Scholar & Faculty Member.

Opening part of the title song#####

In this part of the science serial based on various aspect of environmental science, you will listen how the change in weather and global warming are effecting the vegetation, plants and animals and particularly distribution of their population. This is a slow process that we are not recognising presently but in future there may be substantial change in vegetation and animal distribution.

Part of title song

Scene—1

Road side of a Tyre-II city. Buses, cars, motorcycles’ horn/ sound, noise. A magician/Madaari is playing on his drum and calling loudly to attract public for his show.

Sound Effect of drum/damroo

Mahesh:- Meharwaan! Kadardaan..... Listen....listen.....

Ramu:- Ustaad! What is there in your mind? Your voice indicates some great secret.

Mahesh:- Jamoore! A secret but very painful to narrate.

Ramu:- Secret.....What is that secret? (Laughing). First time I am listening from your mouth that you have some secret. It is difficult for you to digest anything. Your mind is always like an open chapter of a book.

Mahesh:- Jamoore! You are more than your age. Very intelligent question and that too from a boy of your age!

Ramu:- (Laughing) No my Lord. This is all from you. What you say, I pick that? This is not my but your brain that works.

Mahesh:- Meharwaan and Kadadaan! Listen....listen.....His quarries. What he is saying? The Jamoora seems to be very intelligent? His milk teeth are still intact. But.... But..... Talking likes his grandpa?

Ramu:- (Laughing)... Thank you for your praise. But what is there in your pitaara I mean in your box? Are you going to disclose some great secret?

Mahesh:- Wait...Jamoorewait! Everything will be open before you, no.... no....before the audience, very soon. What is with me can't be locked inside my Pitaara. Wait a little bit!

Ramu:- My Lord, I have one trick for the audience.

Mahesh:- (Laughing) Trick.....and that too by you. Oh, that will be great. Our audience will be happy to see your trick. Who should display trick first, you or me?

Ramu:- Boss ! This can't be decided by you or me. Our spectators will be better to decide on it. Look....look at that gentleman. Seem to be well educated. He may be teaching somewhere like you (laughing).

Mahesh:- Jamoore! Don't divert my question. O.K. Let me ask the public to reply and decide.

(In one voice) Let the Jamoora.....the little master play his trick first)#####

Mahesh:- O.K. Let's obey the choice of, "Jan-Janardhan" That will be good. Come my Lord (Laughing), you are welcome. Take this seat. You were aspiring for it since long.

Ramu:- "Aab aaya ount pahaar ke niche". Understand! I mean the camel. Boss is under his Jamoora to obey his order. Golden opportunity to revenge all earlier misbehaving (Laughing).

Mahesh:- O.K. My Lord! Jamoora..... haazir hain. What order for me?

Sound Effects of drum beating#####

Ramu:- Meharwaan...&...Kadardaan! See ...seea great magic is coming. Have a strong heart to bear the brunt. Yes....I mean....."Dil thaam ke rakhna"

Mahesh:- My Lord! Your audience is strong by mind, soul and also by heart. They are eagerly waiting for your tricks. Show them what is there in your pitaara and in your mind.

Ramu:- Wait...Jamoore ...wait! Have you ever heard? Slow and study wins the race. I mean "Sahaj pake so meetha hoi".

Mahesh:- Understand boss. I can wait but what about the public.

Ramu:- (Laughing) O.K.....O.K..... No more wait! (Beating drums). Look at me.This beg is empty. I can show you. Anybody from the public who want to confirm it, please come?

Mahesh: My Lord! I doubt. Something is there in it. It is too bulky. The public can imagine from outside. Am I right?

(In one voice)..... Yes, there seem to be something inside the bag.

Ramu:- (Laughing) This is all due to my magic. I had an empty beg. Now it is now full of flowers and some petals. I brought it from the Heaven. This is all due to my magic. I read the mantra, the hymens in my mind. Anybody can feel the sweet fragrance that is coming out of it. Waha! What a great fragrance? (Laughing)... Anybody can come and enjoy the heavenly blessing. A lifelong opportunity.

Walking around the ring & beat his drum#####

Mahesh:- My Lord! The public is very intelligent. We are now passing through twenty first century. Am I right? It is difficult to fool them. They now, what we can't realise. They gather here to enjoy our simple trick. But what you are saying is true.

Ramu:- (Laughing) "Sachai chhoop nahi sakati, Banavat ke vasoolo se, Khushboo aa nahi sakti ,

kaagaz ke vassolo se".

Playing and beating his drum#####

My Lord! This is true and I am waiting the day when you are going to train me and disclose the basic principles of magic and you tricks, so that I can entertain the masses.

Mahesh:- What you said "Sahaaz pake so meetha hoi". Keep patience. The day will come. But today, you raised an important question, "The fragrance of Heaven". Do you know, we have everything on our planet?

Ramu:- (with surprise) Heaven on our planet. What are you saying my Lord? I can't see.

Sound Effects of beating drum/damroo

Mahesh:- Yes, what I am saying is true? Look around, the beautiful sky, the cool breeze that is blowing, the trees, the birds and moreover a beautiful human race with different colours and creeds. Why all these, for whom and by whom? Do you ever imagine?

Naresh:- (From the public gathering) Intelligent questions. The beautiful blue sky with bright Sun during day and twinkle stars during night, an unique world of plants and animals, the world of water in rivers and oceans and so on..... All these are enough to describe the great beauty of this Planet. But.....

Mahesh:- Have clapping for this young man..

Sound Effects of Clapping#####

Mahesh:- What I was saying? What is your name my young friend.

Ramu:- Boss! He is intelligent and seems to be well educated. I wished, I might have learnt all these!

Mahesh:- Jamoore, don't be so disheartened. One day you will be a great artist and magician.

Naresh:- Yes Jamoore. What your boss saying is true? Education has wide perspective. By spreading proper message in the society on environment, weather change and global warming, you can do great service to our society.

Mahesh:- Yes Babu. We have some components in our magical tricks which convey such messages. Like any other art of entertainment, we are also trying to enrich our entertainment with some social messages.

Ramu:- My Lord! What gap-sup is going? "Haath Kangan ko Aarsi Kaya". (Laughing)

Naresh:- Your little artist I mean the Jamoora is very cute. One day he will be a great magician.

Mahesh:- Meharwaan and Kadadaan! Ramu brought fragrance from heaven (laughing). What are you expecting next? Some birds, some animals or some Aliens.

In one voice..... Aliens

Ramu:- No my Lord..... No....Aliens..... No my Lord..... I afraid....Some unexpected happening.....May happens.

Mahesh:- Jamoore...Don't afraid. There are so many gentlemen to protect you. These Aliens are not from the outer world. I am calling some Aliens....from the unique world of creatures that exist on this planet, I mean from our own Earth.

Sound Effects>>>> Aadra Ka Badara..... Aadhara Ka Badara..... Choomanter...#####

Gentlemen please close your eyes for a moment. Look! What a beautiful tortoise... This alien is coming from far furlong areas of the Southern Polar Region. Have you seen so colourful and so beautiful tortoise earlier? Never....never..... What are the reasons that forced this creature to migrate from thousands of miles away? Can you imagine, what forced this Kachhua to leave his habitat?

Ramu:- Boss I have never seen this type of tortoise. He might have forgotten his path. The pity animal! He is missing the members of his family.

Mahesh:- Yes Jamoore! Home is always home. There is saying, “Home sweet home”. There are some more friends of this alien. Let’s me take the lid out.

Ramu:- Boss I can’t see any lid. Where are your new friends?

Mahesh:- Wait Jamoore...wait!

Sound Effects of drum/damaroo#####

Aabara Ka Daabra..... Aabra Ka Daabara.....Choomantar..... Nikal Jaa...#####

Sound Effects of birds.....wings/chirping etc.

(In one voice).... Oh my God! We have never seen such types of birds? #####

Naresh:- These are the species that don’t found in warmer regions. But due to change in weather conditions and global warming, the world is changing. Earlier these birds were confined to some Islands of Pacific Ocean. But due to food shortage and change in weather condition, forcing them to find some safe heaven at other places.

Ramu:- Boss, what this gentleman is saying?

Mahesh:- Yes Jamoore! I can only guess the reason but he may know the truth. He seemed to be a scientist or an Environmentalist. Am I rightBabu?

Naresh:- Yes Mahesh. I am working and doing research on all these.

(From public side..... Research.....?)

Mahesh:- Meharbaan & Kadardaan! I can’t explain the reason that forced these aliens to leave their original habitat and migrated in our regions. Thirty years back nobody had ever seen all these birds and sea animals in our regions. But now it is easy to find these new species of plants and animals.

Naresh:- Mahesh, to know the reason is one thing but why this is happening is the question that we have to reply. It is not new species that we are seeing these days in our regions but this is also equally true that many plants and animals that were so frequent in our regions are now disappearing.

Ramu:- (With sorrow) Disappearing! Where are they going? What force them to leave their homes?

Mahesh:- Jamoore, like our magical tricks, these are some secrets that scientist babu know.

Naresh:- Mahesh, these are no more secrets. Scientists through their research have established the reason of all these changes in vegetation and animal distribution.

Ramu:- Babu, it will be our pleasure if you can narrate some more facts. Everybody here is interested to know about these secrets.

Mahesh:- Yes Babu! What is Ramu saying is also our views. We too want to know.

Naresh:- Friends! It is a complex issue. You will be happy to know that Professor Krishana is a world renowned expert on this subject. Next Tuesday, Dr. Krishana is going to hold an open meet on this subject.

Ramu:- Can we come there? Will we be allowed to participate in it? Where it will be held and at what time?

Naresh:- It will be an open meet. Anybody can come and participate. The venue will be at the open stadium in the college campus. All are invited. I promise it will be a great event to learn and know about, "Change in vegetation and animal distribution".

In one voice.....Vow.....we are coming to participate#####

Scene-II

(Morning time, students passing through college corridor, noise, Naresh and Neha are working in their lab.)

Prof. Krishana:- (Entering in the Lab) Good morning everybody. How is the work going on your last experiments that we had designed? Hope everything may be as per plan that we had set.

Neha:- Yes Sir. We are doing fine. Our data work is almost over and soon we are going to arrive on some positive conclusion through our model on "change in vegetation and animal population due to global warming".

Naresh:- From our data interpretation, we can say that the whole Ecosystem will experience a drastic change, if the present situation continue for next fifty years. Unimaginable situation, we have to face in the next century.

Neha:- Sir! In laboratory, we are presenting facts based on real situation. But the world is still immune to take any action. What our politicians are thinking? Where they want to take us? What will happen to future generation are some questions that nobody want to answer?

Prof. Krishana:- Neha you are right. It is manmade problem. We have to solve it. If we fail to do so, Nature will change its path.

Naresh:- Policies are framed by those who don't have the basic knowledge of real situation. Like other scientific reports, our work will also become a show piece.

Neha:- Which point Naresh? You mean final conclusion of our experiment.

Prof. Krishana:- Oh! No Neha. I am talking on our next open house session on coming Tuesday. Have you informed to all?

Naresh:- I am looking after it Sir. Everybody has been informed in black and white. Even for student's information, we have also placed a notice on college notice board.

Neha:- Sir, you will be happy to know that Naresh have also invited some interesting people from outside. They are contributing in public awareness in their own ways.

Prof. Krishana:- That is great.

Naresh:- Sir, by 11.00 o'clock, everything will be ready. Neha will look after the guest and refreshment and I shall manage all other affairs.

Prof. Krishana:- I have an urgent meeting regarding our future research projects. The management and Governing Body are meeting for that purpose. I have to leave immediately. O.K. Bye..... Have a nice time.

Neha & Naresh :-(common voice) Bye Sir! Thank you very much for your guidance.

Scene- III

(Morning time, sound effects of birds chirping, noise of students and public, buses/cars horn/Mike effect etc.)

Neha:- Welcome! I can guess. You are Mahesh andand He is Jamoora (laughing), I mean Ramu. Am I right?

Mahesh:- Namste Madam. Scholars are always right (laughing)..... There is no chance of any mistake. We are well in time.

Neha:- (Laughing) Mahesh, your magic is working with time and your tricks stimulate the needles of clocks. Hello Raju! You are doing well. Naresh told me that you want to be a scientist. Don't worry; an artist is not less than any scientist. Your work and tricks inspire people to do something innovate.

Raju:- Madam, I am happy with my work. One day I shall be a great magician. There is no doubt in my mind.

Neha:- What a great confidence. Definitely you will be. Our good wishes. Mahesh and Raju take your seat inside the hall. Within ten minutes the programme is going to start.

Sound Effects of Mike

Naresh:- Hello.... Hello..... Are you getting my voice? As you know, we have organised this open house to deliberate on, "Change in vegetation and animal's distribution". How is it happening? What can be the consequences in

long run? Which are the most affected plants and animal's species? What are chances of their survival on Earth? Finally the roles that you and we can together play to save this situation. Our Chief Guest and key speakers are on their way. Please take your seats.

Sound Effects of entry of chief guests/speakers etc.

I request Neha for welcome address and present flowers bouquet to our guests and Principal Sir.

Sound Effects of clapping

Neha:- It is my pleasure to give a brief introduction about Professor Krishana. Professor Krishana is a world renowned scholar and scientist. His work is based on Global warming and weather change. How it influence and effect the migration of plants and animals species. A silent change, we are not seeing but Prof Krishana has presented it through his unique model.

Prof. Krishana has been honoured and awarded by many National and International Institutions. He is Fellow of many scientific bodies, including National Academy of Sciences. A warm welcome to Professor Krishana.

Sound Effect of clipping#####

Prof. Krishana:- Thank you Miss Neha for your lively introduction. Mr Naresh deserves all praise for organising this open house discussion. Our Principal and Dean Students welfare is here to grace the occasion. It is my pleasure to thanks them for their support.

The subject of today Open House was suggested by my Research Scholars Mr. Naresh. "Change in vegetation and animal distribution" seems unrealistic but it is more realistic than any topic. Sooner or later we are going to face this problem. At present it is visible at few places only on our planet. But by the end of this century it will be one of the major problems that we are going to face. Scientists have pointed to physical changes on Earth, like melting of polar ice caps, sea level rise and violent storms. These are some of the dominant indicators of global climate change. But changes in climate can wreak havoc in more subtle ways, such as the loss of habitat for plant and animal species.

Scientists have predicted through Climate models that rising temperatures over time can lead to increase in dry and desert-like conditions. The changing circumstances thus forced species to move elsewhere to find places to live and food to eat. One of the best examples of such species is lynx found in Canada and Alaska. Lynx lives in deep snow cover in boreal forest and rely heavily on hares for food. It is predicted that a temperature increase of 2.5 to 4 degrees Celsius in the coming century across the U.S. and Canada will diminish snow cover suitable for lynx by 10 to 20 percent and reduce boreal forest cover by half.

Climate change can result in animals and plants migration, northward to escape the heat. It is found that climate change also has impacts that could make climate patterns less consistent over a period of time. One Research Models predict that year-to-year variability in precipitation and temperature reduces the Earth's total vegetation cover; expanding its relative grass cover and diminishing its relative tree cover. The potential impacts of climate change on entire ecosystems are even more alarming.

In the 1998 report of Intergovernmental Panel on Climate Change, it was predicted that the distribution of world biomes will shift as a result of climate changes associated with increased greenhouse gases. The composition of forest may change but the survival of some species could be at risk. While birds moved uphill at higher altitudes. But plants and butterflies surprisingly showed no significant changes in altitude above the tree line. Contrary, alpine plants and butterflies showed a tendency towards a downhill movement. Why it is so? It is difficult to explain. Being an open house session, I welcome you all to express your views and suggestions.

Neha:- Professor Krishana, one question in my mind. Most plants and animals live in areas with very specific climate conditions. Any change in the climate of an area can affect the plants and animals living there, as well as the makeup of the entire ecosystem. Some species are already responding to a warmer climate by moving to cooler locations. If the situation continues, where we would be in near future?

Professor Krishana:- Neha, as the Earth gets warmer, plants and animals that need to live in cold places, like to move on mountaintops or in the Arctic. If the Earth keeps getting warmer, up to one-fourth of all the plants and animals on Earth could become extinct within 100 years. Recently it was shown in a report that during past two decades, European bird and butterfly communities have moved on an average of 37 and 114 kilometres to the North.

Ramu:- Sir....sir! I am not much aware about the subject. How can you link all these changes to our daily life?

Naresh:- Professor Krishana, his name is Jamoora(laughing). I mean he is the same boy who generally plays the role of a supporting artist with Mahesh. He is Rahu.

Prof. Krishana:- I appreciate your question my dear young friend. I would like to link your question with human nature. Here one has to keep in mind the presence of physical barriers such as mountain ranges or even extensive human settlement may prevent some species to shift to more suitable habitat. Himalaya can be taken as a good example for such barrier. As we prefer to move on hills during summer, the same interesting thing you can find in population migration of animals. Species sensitive to temperature may respond by moving to cooler locations at higher latitudes or elevations.

Mahesh:- Professor Sir, my name is Mahesh. Problem is there and dangers are on our heads. We always believe that precautions are better than cure. Neither our policies makers and nor our politicians are taking concrete steps. Now the questions arise what we can do to prevent this?

Prof. Krishana:- Mahesh, when you play your show, you try to mix with the local masses. The best principle to face the situation is to be part of that, just like plants and animals people will have to adapt to climate change. Many types of birds in North America are already migrating further north as the temperature warms. We can help these animals and plants by protecting and preserving their habitats.

Take example of Coral reefs. These are created in shallow tropical waters by millions of tiny animals. Over time the skeletons of dead corals build up to create coral reefs. These reefs provide habitat for lots of fish and other ocean creatures. Warmer water caused coral bleaching and their death. If the present situation continue then by 2050, live corals could become rare in tropical and sub-tropical regions. This will be all due to the combined effects of warmer water and increased ocean acidity caused by more carbon dioxide in the atmosphere. We should treat these fragile ecosystems with care.

Naresh:- Professor Krishana, I have gone through such a Model designed by Environmental Scientists on species migration due to global warming. It shows that hundreds of species of plants and animals are on move at very fast rate.

Professor Krishana:- Mr. Naresh, a tally of more than 4,000 species from around the world shows that roughly half are on the move. The ones on land are moving an average of more than 10 miles per decade, while marine species are moving four times faster. Some individual species are moving far more quickly.

Principal:- Professor Krishana your work is more concentrated on biological aspects of global warming and weather change. Is there any shift in Biological Cycles of organisms?

Professor Krishana:- Thanks sir for your question. I have presented my research works at many platforms in our college. My work has established that warming is shifting the timing of biological cycles. Globally, frogs and other amphibians are breeding an average of eight days earlier with each passing decade, while birds and butterflies are reproducing four days earlier. It is find out that some flowers are now blooming earlier than they did in the 1850s. Some are adapting to temperature changes, others are more influenced by sunlight or changes in precipitation. All over the world, new hybrid species are appearing among toads, sharks, butterflies, bears, trout and so. The hybrids result from interbreeding of species that have been newly thrown together by climate change.

Mahesh:- Prof. Krishana, what are the other dangers you expecting due to Change in vegetation and animal distribution?

Professor Krishana:- The changing climate is affecting species distributions via changes in growth, reproduction, and mortality. Climate changes can act to directly influence species distributions through, drought, floods and wind as well as indirectly through temperature and weather related changes.

Prof. Krishan:- Before we come to end I would like Mr. Naresh should reflect some light on the steps to be taken to face the problem.

Naresh: - Thanks Sir. Many models suggest the steps that are needed to face it. Some specific actions, when considering how species may shift in response to climate include, encourage increased connectivity for species modelled to increase with climate change second is to evaluate potential for assisted migration third is to encourage retention of refugee which may allow persistence of species modelled to decline under climate change and finally we have to prepare for additional costs likely required to maintain forest health and the last but not the least is to identify species which are likely to be especially vulnerable.

Professor Krishan: - I thank you all from my heart for your lively participation. It is not an end of our discussion. We need constant and regular debates on this subject to alert the masses about the danger of Change in vegetation and animal distribution.

Neha:- Thank you Professor Krishana. Our thanks to Principal Sir and our Dean – Student Welfare for being with us. I would like to thank the little artist and Jamoora..... Master Raju and his guide Mr. Mahesh. They can play great role in spread of this message through their street plays that we are facing due to weather change and global warming. All are requested please join us for tea and snacks outside the hall in the gallery.

Sound Effects of clapping etc.#####

Closing part of title song#####