

Science Serial on Sustainable Development

Rays of Hope

Episode – 8

Research & Script—AbhayS.D.Rajpoot

English Translation—Mrs.Savita Yadav

Artists:- In this part of the series, there are four members of a family.

1. Mr.Dinkar- Father who is an Account Officer in a private company.
2. Dr. Vasudha- Mother who is a Scientific Officer in Science Centre.
3. Monika- Daughter.... Student
4. Lokesh- Son.....Student
5. Dr.Rakesh- Professor of Environmental Science and was a classmate of Dr.Vasudha- He has been in Delhi to attend an international conference on sustainable development.

##### Part of Title Song #####

In this episode different aspects of sustainable development have been discussed. Listeners can know about different components of sustainable development such as water and energy conservation, Disaster management, Organic farming, Smart cities, and protection from diseases.

##### Part of Title Song #####

Scene: Dr.Rakesh just arrived by taxi and approaching gate of the house of Mr.Dinkar's house.

##### Sound Effect of doorbell #####

Dr.Vasudha: (From distance.....Dinkar ...please can you see...who is on the gate)

Dinkar: O.K.....I am looking . Dr.Rakesh may be there.

##### Effect of feet/ door #####

Prof. Rakesh: Hello dear Dinkar....Good evening ! How are you? Nice to see you.

Dinkar: Good evening Prof. Rakesh. Welcome. What a surprise visit. It is more than seven years since our last meeting.

Vasudha: Will this meeting continue on the gate(laughing). Prof.Rakesh please comes inside.....How are you? Nice to be here. How is your life going on? It is great

to be Head and Dean of your university Department. You deserve all that....  
friend.

Prof. Rakesh: Good evening Vasudha.Thanks for your compliments.

##### Drawing room scene....mutual discussion #####

Monika & Lokesh: Namaskaar uncle! How are you? Welcome.

Prof. Rakesh: Namaste and very good evening. How are you my young friends? Nice to find you at home.

Dinkar: Prof. Rakesh, it is very bad that you came alone and that too after a long gap. It would have been a plus point if your family happened to be with you.

Vasudha: Professor Rakesh ..... You had promised at the time of our last meeting, that next time, you will visit along with your family. You are still following your college time's concepts. All promise but no guarantee. (Laughing).

Prof.Rakesh: (laughing) Vasudha ! You still remember all those mischief of our college. It is not so. This time everything happened at very short notice. Moreover it is time of examination and both my kids were busy in their preparation. But I hope soon we are going to fulfil our promise. They have already planned to visit Chandigarh and Delhi during their coming vacations.

Monika: Vow ! It will be a pleasant time with Anish and Anishka. Papa we should also plan to visit Chandigarh. It will be a beautiful visit of a beautiful city with a beautiful family (laughing).

Prof. Rakesh: Yes...that will be nice to enjoy. But promise first that you will take Anish and Anishka a round trip of Delhi, along with you.

Lokesh: Uncle ...uncle that is good idea. First we would go to India Gate in the evening. Very peaceful and pleasant weather. It is good to enjoy street food on Rajpath. President House and Parliament House are very near to that.

Monika: Mummy your office is near to that area.

Lokesh: Uncle..... It will be better to first visit National Science Centre.

Dinkar: That is good proposal by Lokesh. Along with children we can also enjoy all sorts of activities based on scientific principles. Most of the time our neighbours and their children ask Vasudha about the activities of National Science Centre. Our children will be happy, when they shall find some projects and models installed under the guidance of Vasudha.

Vasudha: Why not...It is a good idea. In National Science Centre, everything has been explained in very simple language.

Prof. Rakesh: Somewhere, I read in the newspapers that a very big model of Dinosaur has been installed in National Science Centre.

Vasudha: You are right? In last September that model was inaugurated by our honourable minister of Science & Technology.

Lokesh: Mummy ...I wish they may be in living form. Our Biology teacher was saying that they were very huge in size and body weight.

Monika: (Laughing) What will happen when they eat and enjoy your body as their meal.

Lokesh: You know Didi...when man can befriend elephant then it is also possible to tame the Dinosaur.

Monika: It may be right. But they vanished from our planet thousands of years ago.

Lokesh : But how it happened? Surprise to know howso powerful and big animals vanished from our Earth.

Prof.Rakesh: Monika, There are so many theories. There may be some adverse conditions which cause their disintegration. But real truth is yet to be found out.

Vasudha: Children ! You have seen the movie...Jurassic Park. It was based on their lives.

Monika: Oh mummy! That movie is so interesting. I liked it very much.

Lokesh: Mummy...mummy .....I still remember, how she was crying on some scene?

Monika: Actually those scenes were very dreadful to be remembered.

Vasudha: Prof. Rakesh is an expert of Ecology and Environmental Science.

Monika : (Laughing) Oh! It is this reason that Rakesh uncle explains all these so beautifully.

Prof. Rakesh: Friends ! Some Scientists are of the view that Dinosaur disappeared from our Earth due to change in environmental conditions. They might havefailed to adopt themselves with the change in conditions.

Dinkar: But you know the environmental problem and global warming are at their threshold. These days one can find news on many channels, about the severity of environment.

- Lokesh: (with fear) This mean we the human being are on the threshold of extinction.OMG a new problem. What may happen to the human civilization due to global warming? Nobody can say anything on it.
- Monika: If the problem of global warming continue in future, we have to face serious problems that we can't imagine.
- Vasudha: Don't be afraid my children. This time it will not happen. We know the causes and can design our new strategy of development. Our leaders and public are now realising the problem to stop the over exploitation of our resources.
- Prof.Rakesh: That is why; we are now talking of sustainable development.
- Dinkar: Monika and Lokesh.....do you know? Prof Rakesh is here to participate in an international conference on sustainable development. It is a way of development without harming our environment and surrounding ecology. In this conference there will be deliberation on different problems related to our environment and Planet Earth. Am I right Professor?
- Prof. Rakesh: Yes it is so. In this conference scientists and environmentalists will discuss new ways of development. No unnecessary exploitation of our Natural resources. Take that much which is necessary to sustain life. It means a beautiful harmony with Mother Earth.
- Vasudha: During last few decades we are exploiting our natural resources beyond our imagination, for developmental works. We are doing works and engaging in such activities which are polluting our environment.
- Monika: Mummy you are right. It is very true that we are spoiling and destroying our environment. The situation in NCR is beyond our imagination. During Deepawali period it was too difficult to breath.
- Prof. Rakesh: It is good that you are aware of these problem. If everyone cares for our environment, the problem can be tackled and the situation will improve. By doing this we can make everyone life happy.
- Lokesh: Our Earth is thriving and supporting lives since centuries. Why this pollution?
- Prof. Rakesh: During last two centuries the population in the world has increased dramatically. There is great demand for natural resources. Use of synthetic and manmade chemicals, fertilisers, plastic and pesticides catalysed this further. Being a Chartered Accountant, Dinkar you can explain it in much better way.
- Dinkar: As you all know that this Earth has given so much to humanity. But our greed goes on increasing. Our Planet Earth is like a gullak ...I mean like a bank. Its resources are limited. We are emptying it by our greed and unnecessary exploitation. If it continues in future, nothing will leave for our coming generation.

Prof. Rakesh: Yes my children. It is true. We have always exploited our natural resources. This is all due to our greed. We always tried to control and exploit the resources.

Vasudha: Our this greed is disturbing the natural balance. Human race is destroying all these at very fast speed. Whereas our Earth takes thousands and millions of years to balance its cycle.

Prof. Rakesh: For our survival there is only one path left and that is of, 'Sustainable Development'. In this development we care for our soil, water, air and other natural resources.

Dinkar: The Social Sciences have stressed on equality and need based resources that mean...not for anybody greed but for everybody need.

Monika: Are there any efforts going on at international level ?

Prof. Rakesh: Yes...efforts are going on at International level. By UNO an International conference was organised in 1992, in Rio-de-Janeiro city of Brazil. In that conference discussions were held on poverty, consumerism, health, environment and bio-diversity. All nations agreed on common agenda to lay road for sustainable development.

Dinkar: It will be worth to mention here that targets were set to achieve between 2000 to 2015.

Prof. Rakesh: Mr. Dinkar....you may know that United Nation succeeded in most of these targets. But the journey is long and miles to travel to achieve this goal. From time to time there were so many efforts to save our Planet Earth. In the year 2002, similar conference was held in Johannesburg on sustainable development.

Lokesh: This mean that efforts are going on sustainable development since long back. But there is no success story to be reported.

Dinkar: My son ! The whole world is involved in it. It is time consuming process but we must hope for some good results. Moreover, we are too selfish to think for others. It takes time to arise on some common points at international level.

Prof. Rakesh: In 2015, United Nation prepared an agenda on sustainable development for all nations. This agenda is to be achieved by 2030. If all nations take necessary steps on proposed agenda, there will be definitely great change in future.

Monika: Uncle... Are there any such activities and works that is going on in our country, on sustainable development?

Prof. Rakesh: Interesting question. Our Niti Ayog is working on it, to achieve the target of sustainable development. A 17 points agenda has been set up for sustainable

development, which is further divided in 169 subheads. It is important to know that these action points are must for one and all, whether developed or underdeveloped.

Vasudha: The most important thing that is to be kept in mind is harmony between three components. Economy, social and environment factors are part of it.

Lokesh: This mean environmental problems must be included in this agenda which are of great concern.

Rakesh: Yes...yes...This is the beauty of this agenda. All burning points of poverty, hunger, unemployment, education, health, sexual equality, child development, availability of drinking water, hygiene, renewable energy, economic equality, environmental changes and conservation of bio-diversity including world peace and prosperity have been included in it.

Lokesh: (Laughing) In our country the campaign for clean India has been going on. It was launched by our honourable Prime Minister Sh. Narendra Modi.

Monika: (Smiling) .....My dear brother.....that is going on in our country. Better to keep your school bag clean. Papa! You can find so many wrappers of toffies and chocolate in Lokesh bag.

Dinkar: Lokesh beta ! This is not good. First we should care our own home. It is said....charity begins at home. By doing this, we can play important role in our clean India campaign.

Lokesh: Mummy .....You know. Didi always feel proud to show me down. Only once she found some wrappers. You can check my bag. It is as clean as didi's bag.

Vasudha: No more complains. No more tit-bit. This is enough. It is easy to find shortcoming in others. First give attention on yourself.

Dinkar: Vow ! This is similar to sustainable development. Every country complains about carbon production and fossil fuel consumption of others but remain silent on their own production.

Prof. Rakesh: Well said. But sustainable development is meant to improve the life standard of one and each. Its main aim is to provide equal opportunities and resources to one and all.

Vasudha: In our country lots of works is going on in this field.

Prof. Rakesh : Yes...we have taken so many steps on renewable energy keeping sustainable development in mind. Our Government is initiating steps to provide clean and green energy at domestic level.

Monika: Now I came to know, why our Government is laying so much stress on solar and wind energy.

Dinkar: Our Government has an ambitious plan to make available electric energy to one and all without any cut by the year 2030. To achieve this goal, renewable sources of energy can play an important role.

Prof. Rakesh : Dinkar...these days one more thing is important. Like financial accountancy, the concept of Energy Auditing is gaining importance. Efficient use of energy is equally important. Experts are of the views that to save energy is equally and even more important than to produce electricity. One unit of electricity saved is equal to one and half units of electricity produced.

Vasudha: Prof. Rakesh, we have to build new infrastructure and strengthen the present one for continuous supply of power. We have to adopt new technology to strengthen our power grids and power lines to avoid transmission wastage.

Monika: Uncle ! It is true that availability electricity is not enough to meet our need. One of my friends has installed solar power at their roof top. It is costly compared to conventional power supply.

Prof. Rakesh : Yes beti....You are partially right. We can save lots of power by encouraging LED lighting. In future it may be possible that renewable sources of energy may be much cheaper and easily available. Our Government has launched a National Mission to encourage renewable and non-conventional source of energy. The purpose of this mission is to raise the proportion of renewable source of energy at international level.

Lokesh : (Laughing)the day is not far away, when cheap and clean energy will be available at affordable rate in our country. There will be no pollution and nor there will be exploitation of natural resources.

Prof. Rakesh: Along with natural resources, there is one more purpose of it and that is revolution in agriculture.

Monika: Uncle ! Our economy is agriculture based economy. This means there will be complete revolution in all fields.

Vasudha: That is why; stress is being laid down on green technology and Second Green Revolution. In this revolution we have to raise our production without harming soil, water and environment.

Prof. Rakesh: For this work is going on to encourage and popularise biological fertilizers. This is must to save our soils by use of chemicals fertilisers and pesticides. Besides it, these chemical disturb the delicate biological link between soil and environment.

Dinkar: This is true. Farmers are using too much pesticides and fertilisers in their crops and vegetables. This destroys the useful and friendly insects too. Residual effects of these pesticides cause cancer and other diseases in human beings.

Lokesh: Papa ..Papa.... Last week our school has organised a popular lecture on cancer. The expert was telling that this problem is becoming very serious in Punjab. A train running between Bhatinda and Bikaner is known as Cancer Train, as most of the passengers who travelled in it are cancer patients.

Vasudha: Yes my son, you are right. Due to excessive use of chemicals and pesticides, people are becoming cancer patients in that region of Punjab. The patients travel to Bikaner for their treatment.

Monika: Oh My God ! What a tragedy.

Prof. Rakesh: It is this reason that agriculture has been included in the Project 2030 for sustainable and safe development. For this genetic bio-diversity is on top priority. Now in agriculture, we have to combine traditional knowledge along with new technology. For soil testing a massive campaign has been launched which is known as 'Soil Health Card Scheme'. Under this scheme, essential minerals are tested in the soils, so that if there is any deficiency, that can be supplemented by fertilisers.

Vasudha: By increasing crops production, we can raise the income of farmers. This will help to raise their living standard, as well as it will also alleviate their poverty. Malnutrition can also be eradicated by this. It will also help in our food security.

Monika: Very sad! Some people leave food in their plates, which go waste. On the other hands millions of people sleep hungry.

Dinkar: My dear daughter, we have to remove all these from our society. So that misuse of resources can be stopped by a limited group of people.

Lokesh: I promise.....that I shall never waste my food in any form at any time.

Jointly..... Vow ! Great Lokesh .....clapping.....

Vasudha: My son, I am proud of you. Many people can't realise the problem that you have promised.

Monika: (laughing) ....whose brother is he ?

#####( All laugh)#####

Dinkar: Forget about villages, even in cities peoples are living in poor condition in the slums.

Monika: Monika:- Yes Papa. You can find so many people on the street, who sleep on the road sides. Last year, our school took us for some project in Jhuggi-jhopdi Basti. There was only one water tap for supply in the whole area. Some houses had no electricity connection.

Lokesh: I don't like to visit such places. There is so much dirt and garbage.

Vasudha: Our urbanization process is faulty. It became difficult to cope the pressure of rising population. That is why; 'Smart City' concept is gaining importance.

Lokesh: Vow ! Smart City....a new term. We know about smart phone. Like smart phone, can we have all facilities just on the press of a button?

##### Loud laughter #####

Prof. Rakesh: Lokesh do you know the concept of smart city is new one. Under Smart City Mission, it is mandatory to provide sufficient fresh drinking water, all facilities for cleanliness and hygiene, efficient public transport system, strong IT facilities, sufficient and affordable houses for poor. Our present Government is giving importance on this to make the concept of smart city feasible by 2030.

Dinkar: Such smart cities will be based on the principles of sustainable development to make available all essential services at affordable cost.

Vasudha: Definitely. In such cities all essential services for living a good quality of life will be made available to all the residents. In our country, 100 cities have been selected under this mission in the first phase.

Monika: I think in these cities technology will be of great use.

Prof. Rakesh: You are right. Technology will play great role in the development of smart cities. Better IT services and digitization will be of great use in our day to day services. Education and health for all will be ensured in such cities.

Lokesh: Education and health facilities must be there for all in welfare state. This should not be limited only to big cities. I have read all these in my Social Studies book.

Vasudha: You are correct and well said my son. It is this reason that most of the countries give priority to it. In our country, primary education has been made affordable for all. By 'Right to Education Act' it is made affordable to all.

Monika: Mummy well said.....It is time.....right to coffee.....

Lokesh: Not only coffee mummy.....please have some snacks.....and pakoda also

Vasudha: So smart.....(laughing). It will be ready within next ten minutes.

##### Effects#####

Prof. Rakesh: On the other hand, if we talk about health.....target has been set to reduce and minimise child death. You will be surprised to know that in Sub-Saharan Region 17000 children died before or at the time of birth. There, out of ten children, one died in the next five years after their birth. This is 15 times more than the developed countries. To control and reduce child death is a great challenge for the world. Though there is great control in it during the last two decades. Similarly there is need of safe motherhood during pregnancy and at the time of child birth.

Monika: But even these days man is suffering from so many new diseases.

Dinkar: Yes Monika. In sustainable development this is also important to control AIDS, Malaria, TB etc. Biotechnology can play great role in it. In the last decades one million people died of Malaria alone. Whereas, we have succeeded in saving one crore people from Tuberculosis.

Lokesh: I am afraid of Malaria. Last year, I suffered from Malaria. Very painful and it took weeks to recover.

Prof. Rakesh: You know ! Precaution is better than cure. Never allow mosquitoes to breed around your surroundings. No standing water.

Dinkar: It is rain that cause problems. Lots of water accumulation one can find everywhere. All these may be due to poor drainage system. If it happened to be some flood, it caused not only Malaria butalso spread some deadly diseases.

Vasudha: Your coffee is ready to enjoy.

Lokesh: What about pakoda and snacks?

Monika: Lokesh...wait.....you will get all things.

##### Sound effects of cup and plates#####

Dinkar: After earthquake, fire and flood such problems become very severe.

Prof. Rakesh: That is why stress has been laid to reduce the losses caused by Natural and men made disasters by 2030. A strong Disaster mechanism is needed to be designed for it. To reduce human and other losses, new technology is too be designed and adopted at National and local level.

Monika: Prof. Uncle, I still remember the dates of last two cyclones. During Hud-hud and Phellin Cyclones our Indian Meteorological Department had predicted, well in advance about their advancement and thus saved thousands of lives by timely evacuation.

Prof. Rakesh: Great Monika ! You are well aware and your GK is well updated. Due to advancement of technology, it is easy to predict the correct assessment of weather. Similarly technology can play great role during others Natural disasters.

Dinkar: Yes...Now efforts have been made to predict Tsunami and other such Natural disasters. In November,2016 warning had been issued in Japan, when a powerful Earthquake struck it coastal region. Safety measures had been taken there, well in advance to save lives.

Prof. Rakesh: Besides all these for sustainable development, necessary steps have been suggested for conservation of our delicate ecosystems of the oceans. In the process of sustainable development one and each has to play their role. Only then we can save our Planet Earth.

Vasudha: Yes.....no ifs.... and buts..... by anybody at any level and at any time, understand Chhotu (laughing). We have to save all parts of our planet as they have their importance and non can be neglected. Oceans are two third of our earth. Their resources are beyond imaginations, which need to be saved not for us but for our future generation.

Prof. Rakesh: Oceans play great role in maintaining the temperature of the Earth. They are important sources of fishes and other resources.

Monika: Uncle...whale th biggest animal on this Earth is found in the oceans.

Lokesh: If Dinosaurs happened to be found on earth then they may be the biggest. Bigger then whale.

Monika: Lokesh don't be silly. At present it is whale, which is the heaviest living organism on this earth.

Lokesh: (changing tone) And Didi ! Your name will be in the list of wisest men on this earth.

Vasudha: Why all these mischiefs? At one time so much enmity and on the other hand so much love and affection.

Dinkar: My children ! Similar to this we have to love our mother Earth, so that it can sustain lives and support our coming generations. For this we have to keep it clean and safe.

Prof. Rakesh: Not only our children .....All have to play role in it. This will enable our Earth to be ever green and life supporting planet.

(Together in one voice)... We take this oath that ..... “We will play our roles in sustainable development. We will also try our best to keep it clean and green and to preserve the original beauty of our Mother Earth”

##### Title Song/ Title Music#####

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Quizzes:-

Question 1. How many smart cities are to be selected under phase one of 'Smart City Project'

Ans:..... 100 cities.

Question 2. In which region and continent of the world is the highest death rate among the newly born children?

Ans: - Sub-Sahara Region of Africa.