

## Science Serial Based on Sustainable Development

.....Life Must Go On.....

### Episode -23

Central Theme.... New Initiatives for Water Conservation

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#### Artists:-

1. Rahul..... Research Student (23-23 Years)
2. Gopal..... Rahul Uncle (60 Years)
3. Gita..... Rahul Aunt (55 Years)
4. Rekha..... Block Development Officer (30-35 Years)
5. Deenu..... Villager (About 55 Years)
6. Savita..... College student and daughter of Deenu( 20 Years)
7. Dr. Sudhir... Expert on water Management ( 50-55 Years)

##### Opening part of Signature Tune/Title Music with Announcement #####

**Announcement :-** (Welcome + Recap + Introduction)...Welcome friends in our science serial based on sustainable development..... “Life Must Go On” Dear Listeners! In our last episode you had listened an interesting story on the origin of water on our planet Earth. In this episode you will listen about the technology and methods of water conservation, which can help us to face the problem of water shortage. Let’s come with Rahul.....yes ....yes we are taking you in his small village which is situated in the Shivalik Mountains of the mighty Himalayan

##### Part of signature/title song continues#####

**Scene:** - Morning time.....birds are chirping and singing..... breeze flowing....Sound effect

Of windows opening

Rahul:- What a beautiful scene of our village. So much peace and mental satisfaction. Beautiful songs by birds.....Listen.....listen.... how are they singing? Sweet voice! The air is so fresh to breath. The beauty of Nature is beyond description.

##### Sound effects of footsteps #####

Gopal :- My dear Rahul! This is the difference between a rural and urban life.

Rahul:- (Laughing) Uncle, you wake up so early! Is it your daily routine or only today you have woke up so early.

Gopal:- Dear Rahul....You know we are from farmer community. If we don't wake up early in the morning then who is going to do all works in the farm. We are not Research Scholars like you. In university hostel, you too not wake up as early as you woke up today. Am I right?

##### Sound effects of some footsteps coming close#####

Geeta:- Why are you giving all these troubles to Rahul?

Gopal:- No...no....I was simply talking .....there is no such thing.

Geeta:- O.K. It is alright! Rahul go and be ready for breakfast.

Rahul:- After that.... where we have to go?

Geeta:- Forget, what were you saying yesterday? We all are going to see Gharat.

Rahul:- (eagerly) Oh! Aunty ...Gharat!...I understand. I forget what you had told me yesterday. It is good that you have reminded me all these. Water flour mill I mean gharat. I have read so much about all these in my textbooks. But I have never seen their mechanism. Uncle! I am going to be ready very soon.

Geeta:- I think you have also taken your bath. I am going to arrange morning breakfast. The village environment and its natural beauty is always a great surprise for boys coming from cities.

##### Sound effects of kitchen utensils and cups/plates #####

Gopal:- Geeta you are right. What has been said by you is a great fact? Rahul want to know all these. (Effects of some footsteps coming nearby)

Rahul:- (In happy mood) Uncle...it will be a great wonder for me to see all those gharats and water mills.. I was thinking, how to walk without having any meal in the morning.

Gopal:- Your aunt know all that. She prepared all these food items for you. Have these fresh vegetables and breads. After your breakfast we shall travel on our next journey.

Geeta:- Let me remind you. Don't spend too much time on gharat. Come early well in time.

##### Change over Music #####

(Sound effects of footsteps.....Birds and beetles noise)

Rahul:- Uncle.....uncle! I am tired.....please tell me..... How long we have to travel?

Gopal:- (Laughing)....We are very near to our destination. Do you know? In my school das I can have up to four rounds a day. See there....The water mills are just there on the side of that small river.

Gopal:- Be careful. Due to rain on last night, the path is slippery.

##### (Effects of footsteps and the sound of flowing water of a river)#####

Deenu:-(From some distance) Namaste Gopal Bhai! After so long, you have been here.

Gopal:- Namaste Deenu! How are you? Actually ...there are so many flour mills in nearby villages which run on diesel engines. My nephew Rahul is too eager to see all these gharats.

Rahul:- Namaste Deenu uncle!

Deenu:- Namaste.... young friend.

Rahul:- Uncle! Can I see all these from inside?

Deenu:- Yes...why not?

##### Sound effects of footsteps/ water mill/ river#####

Gopal:- The water level of these rivers are going down. Last year it was almost dry.

Deenu:- Yes Gopal, you are right. The water in our rivers is going down day by day. And are you seeing, most of the water have been diverted towards cities and that too through pipe lines. This is also one main reason of water shortage.

Rahul:- (With surprise) Uncle our forefathers were great inventors. Neither pollution and nor there is need of electricity. But what I am seeing? Very few people are coming here.

Deenu:- What will they do here? It takes too much time to grind 20 kgs of wheat. People are now turning towards diesel operated flour mills. The water level is not enough to operate our water mills.

Rahul:- But what were the sources, when there were no diesel operated mills?

Deenu:- During those days, it was a different situation. This river was always overflowing with so much water and it was not possible to cross it.

Gopal:- Is it right? There were about 10 water mills in those days. See there....you can find remains of one such mill.

Rahul:- Ten water mills! How was it possible to run ten water mills?

Deenu:- In those days, all these rivers and their tributaries were full of water. There was sufficient water to run gharats. As the water level went on decreasing so were the mills. Do you know these das our gharat operates only in rainy season? In rest of the time it is impossible to ran gharats due to shortage of water in these rivers.

Rahul:- But uncle! Why the water levels of our rivers is decreasing day by day?

Deenu:- Are you seeing those barren hills? Earlier they were thickly covered with forests. With big trees. Now one can find only some pine trees.

Rahul:- What was the characteristics of those trees?

Gopal:- These trees were the water house of our small rivers. They were capable to store sufficient amount of water and this water was percolating slowly round the year. These days you can also found the same situation, where the forests are well protected.

Rahul:- This means the deforestation has snatched the technology from our rural areas which were running on nonconventional source of energy. Without any pollution these flour mills were operating to grind wheat.

Deenu:- Well said Rahul. Earlier there were no water pipelines and most of the villagers were depending for their water requirement on all these rivulets. Our ancestors were aware that if we need water, we have to protect our forest resources. At present we all need water but nobody care to save our forest and conserve water.

Gopal:- Oh !I recollect, tomorrow there is one workshop in our Panchayat Bhawan. Rekha Madam is also coming in that meeting. This workshop is themed on water conservation.

Deenu:- The Block Development Officer of our area is too coming. Good to know.

Gopal:- Yes, Rekha Ji is the BDO of our block. She is nice officer. Rahul have you seen the gharat and its operation properly or not? We are getting late. Let's now return back to home, otherwise your aunt will be too annoyed.

Rahul:- Yes uncle! Now we should return to home. Otherwise every blame will be on you.(Laughing).

Gopal:- My dear Deenu, tomorrow we shall wait you at the Panchayat Bhawan. It will be better if your daughter Savita can accompany you. She is very alert and sensible about water conservation.

Deenu:- Yes Gopal, we both are coming tomorrow to attend the workshop on water conservation.

##### Sound effect of river and water flour mill slowly Fade out#####

Scene Change:-- Noise at Panchayat Bhawan/ Mike setting and testing etc.

Gopal:- Please be silent.....silent please.....no noise...

##### Silence#####

Gopal:- Dear friends! I welcome you all. It looks good to find such a good gathering. All are welcome in our Panchayat Bhawan. Once again I welcome you all. ....and...and you will be happy to know that our Block Development Officer Srimati Rekha Ji is already here. On behalf of our village I welcome her.

##### Clapping#####

Rekha:- Thank you very much.

Gopal:- Friends! Our Block Development Officer, I means Madam Rekha Ji is very much co-operative. She guided us from time to time on various developmental activities. We are thankful for her gesture to guide us on water conservation. This is good thing for us.

##### Clapping #####

Gopal:- Now I am inviting Madam Rekha Ji on the stage.

Rekha:- Thank you Gopal Bhai. I also thank you all to be here for this great cause. I can guess most of the villagers are present in today programme. This is good as it is our own programme for our own benefit. On this stage we can put our views related to water problem and how we can contribute to face this problem. There will be no speech. We are going to discuss common problems and what our experience say to solve those problems. Dr. Sudhir Ji is also with us. He is an expert on water conservation and its management. Dr. Sudhir we welcome you all.

##### Clapping #####

Dr. Sudhir:- Thanks you all.

Rekha:- Now we can start our meeting and discussion. You can raise your question on water conservation, its harvesting, how we can recycle dirty water and any other related question.

Deenu:- Madam! You know our rivulets are drying day by day. Even there is no water to run my water flour mill. Very serious problem. Is there any scope to cope all these?

Rekha:- See..... all these depend on us. If we take suitable steps, our situation can improve. All of you know the importance of forest for water conservation. Keep basic needs in mind and work accordingly to improve the situation. The solution will be with us.

Deenu:- This time we have planted thousands of trees on our hill top. But there is no change in the situation.

Sudhir:- Don't worry. Your efforts will definitely bear fruit. In our own country you can find so many examples, which have changed the scenario completely.

Deenu:- Sir....I don't understand, what you are saying?

Sudhir:- You might have heard the name of Sh. Rajender Singh, the 'Water Man'.

Deenu:- But what is link between Rajender Singh and our problems.

Sudhir:- Not in our own country but his work on water conservation has been appreciated worldwide. Rajender Singh started his work on water harvesting during 1980 in Rajasthan. He stressed on the mechanism and ways of water conservation which were used by our ancestors since centuries. With the help of local villagers he built small dams for water conservation. The rain water gets stored in these small dams and within few years the level of ground water start coming up.

Savita:- But sir, it is surprising to build dams in desert.

Sudhir:- Well said! Even people were making jokes of him. But his efforts bore fruit. People were leaving their villages due to water scarcity but as the water problem solved they start farming on their land. All this motivated local people and they come together to supports his efforts. Thousands of ponds and small dams were constructed and built in dry areas. The rain water gets stored in these ponds and this is the water that recharges our ground water.

Deenu:- Similar tradition was there in our villages in Utrakhand. In hilly areas they are known as, “Chaal-Khal”. But these days nobody care about that.

Sudhir:- Yes, You are right. Rajender Singh has done nothing new. He succeeded in convincing the people to stop the flowing and run away water and stored it in small ponds and dams. This gave good results. People became prosperous owing to good harvest and better farming. Water was made available to them. Now you can find good greenery in those areas.

Deenu:- (Happily) Vow! He is next to God to the people of Rajasthan. Great and congratulations.

Sudhir:- Not only in Rajasthan but in other parts of our country people are now adopting this technique. They are storing water in dams and ponds. It is his this work that people are popularly calling him as, “Jal Purush”

Deenu:- God bless us with some ‘Water Man’ who could have given a new life to our rivers?

Rahul:- Deenu uncle, nobody is going to come from Heaven. We have to help ourselves. If we have not taken suitable steps, the situation will be out of our control. There is also no rail line or train in our area to arrange water for drinking purpose.

Savita:- What do you mean? Water that too by train.

Sudhir:-He is right. Last year the water problem in some part of Maharashtra was too acute, and to control the situation government had supplied water through train containers.

Rekha:- In some parts of Maharashtra, people have done great job. Through community services they are managing their local affairs including water management. We can learn from them.

Gopal:- Madam! What is that special work done by the people in Maharashtra? Please have some light on that.

Rekha:- I am talking about 'Water Panchayat'

Geeta :-( with surprise) Water Panchayat. We have heard about village Panchayat. What do you mean by JAL PANCHAYAT?

Rekha:- This is also a unique initiative of a single person. He motivated the local villagers for judicial water management. His name is Vilas Rao Sankhule. It was the year of 1972. Many parts of Maharashtra were passing through acute drought condition. The problem was too serious that thousands of people were on the threshold of hunger. At that time Vilas Rao Sankhule realised that the problem can't be solved if the people are not coming together to solve it.

Savita:- What have been done by the people in Maharashtra?

Rekha:- Vilas Rao started his campaign from Nayegaon in Purender Tehsil. To succeed in his initiative he involved the local villagers in his project. He constructed small dams with the help of villagers in the region. A big water reservoir was designed on the lower side of the hill. On the hilly track he planted fruit trees and on barren land he planted short bushes and grass.

Savita:- After that what happened?

Deenu:- Some great miracle might have happened. The ground water rises in the region. The dry soil converted into green land. Is it right?

Rekha:- ( With a smile) You are right. When water gets accumulated on dry land, this give a positive result on farming. Farmers who had left their villages returned back and started farming.

Savita:- Beautiful. It was a wonderful work and a new experiment.

Rekha:- After his success in Nayagaon, Vilas Rao started his work on new projects in other villages in Maharashtra. He constituted water bodies in villages for such work. These water bodies were later termed as , “Jal Panchayat” These Panchayats set rules for water distribution. Under this system water was distributed equally based on the number of members in a family.

Savita:- I think Mr Vilas Rao Sankhule was a man of great scientific temper.

Rekha:- Actually he was an engineer by profession and used his knowledge in water management. Jal Panchayat encouraged the farmers to grow such crops which need less water. Community water distribution system was designed to meet the need of big farmers as well as that of landless farm labourers.

Sudhir:- I want to add one thing more in it. The work of Vilas Rao started giving result and simultaneously the Government came forward for more help. Government started financial aids on such projects. This catalysed the work of water management and it spread to other regions too.

Rekha: Right. If we start some project on community basis than our government too come in support of us.

Deenu:- Madam! Is there any project to supplement the water scarcity of our rivulets? So that we should also not face any water problem. I mean my water mill run continuously without any failure (laughing)

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

Rekha:- ( with little smile) For river conservation there are many projects. But there is only one thing that can save your rivers. Anyhow, we have to protect their water sources.

Sudhir:- Rivers are not only source of water. Our traditions and culture are associated with our rivers. Take the example of Ganga River. In our country about 40 crores people are living in the catchment area of Ganga River. This means the waste generated by so much people

who are living on the bank of river, flow in river water and polluting the water in rivers. This means so much dirt and shiver flow in the Ganga River.

Rekha:- Do you know? Our Government has initiated the scheme to rejuvenate Ganga River. A project named, 'Namami Gange' has been launched to clean it. The budget provision has been increased four times. By the year 2019-20 about 20 thousands crore rupees are to be spent on Ganga for its purification and rejuvenation.

Sudhir:- Not only this, government is going to set up sewerage treatment plants on the bank of Ganga River to remove its pollution. Through oxidation process Ganga water will be purified from small and harmful bacteria. Along with industries the wastages of villages will also be taken into care and will be purified simultaneously. If we succeed to control the root causes of water pollution then it will be possible to purify our rivers. The sewerage coming from cities and industries is to be treated properly before the waste water is to be left in rivers water.

Rekha:- It is also to be kept in mind that the water of the rivers that merge in Ganga should also be treated. Their water is also to be pollution free. If we succeeded in purifying our rivers, most of the problems of our society will be automatically solved.

Sudhir:- The second thing that is to be taken in mind is proper management of water resources. When we will realise the importance of water, most of our problems will be managed and solved automatically. Proper management and wise use of water are two factors which are interlinked with each other. More the water we will use, more the problem is going to be serious.

Gita:- For our day to day use we are getting very little water. What more can we do to save water?

Sudhir:- It is not so. A long journey begins with a small step. If we keep small things in mind we can play great role in water conservation.

Rekha:- This is right. If we are staying in our home even then we can contribute in water conservation. Keep in mind to close the tap water while doing tooth brush. We can use the water coming from our kitchens for growing vegetables in our kitchen garden. Everybody should try to recycle the waste water as much as possible at their end.

Sudhir:- In the Himalayan Mountain people are depending for their water requirement on these small rivers but in plain the underground water is the main source of water supply for drinking and irrigation purpose.

Rekha:- For your kind information I want to tell you that the availability of underground water has come down in 2001 to about 35% compared to 1951. This report is as per an estimate of Underground Water Board. By the year 2025 its availability will further come down by about 10 percent. Great dangers are ahead!

Sudhir:- In earlier years most of the rain water was stored in ponds, tanks and other water bodies. This generally recharges the ground water every year. Now you see...most of the lakes and water tanks have been vanished from the urban and even from the rural areas. Even percentage of forest is decreasing day by day due to deforestation. Resulting scarcity of drinking water.

Gopal:- In summer we are also facing shortage of water in our villages.

Sudhir:- We can solve the water problem up to great extent by designing and constructing water tanks in our residential complexes. We can fight and face the situation, if we accept the truth that without water life can't be imagined on this planet. If it continues, the days are not far ahead when water availability will be almost negligible. We have to adopt such a life style so that both development and environment can go hand in hand.

Rekha:- In India the human population is about 18% of the total population in the world, where as our water resources are hardly 4 percent of the world resources. If the present situation continues, very soon we have to face a great problem. People will have to fight for few drops of water. As per WHO report, in our country 9 crore people has no access to pure drinking water. In villages the situation is even more serious.

Gopal:- This means people have to buy water in our villages. Day may come when we have to import drinking water from other countries.

##### Effect of Loud Laughter #####

Rekha:- Gopal Ji is right. Don't take it so lightly. You can realise the ground situation. Our water resources are depleting day by day. It is clear and you know all that.

Savita:- Madam you are right. Due to scarcity of water the water mill of my father is not working. All investment is of no use. If it continues, the day is not far away then we have to leave the village. I swore myself to take all those steps to conserve water in our area. I promise and again swore that I shall not waste a single drop of water at my level.

Gita and Gopal:- (enthusiastically) Savita Beti we are also with you. It is our common responsibility to save and protect our villages. We can't escape from our responsibility.

Deenu and people voice: And we all are with you in this noble task. Let's swear to give our contribution for this great cause.

In one voice.....We promise and are with you. "Jai Jal...Jai Panchayat and Jai village....

##### Closing announcement with title Music#####

Science Quiz:-

1. What is the name of the project launched by the Government for rejuvenation and purification of Ganga River?

Answer: - Namami Gange.

2. What do you mean by 'Jal Panchayat' and by whom the concept was designed and where?

Answer: - Management of local water resources by the villagers in the common interest of the whole village community. It was started by Sh. Vilas Rao Sankhule in his village Nayagaon in Maharashtra.

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