

Irrigation is Great!

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Sharia: Hello everyone. My name is Sharia Mitchell and welcome to my WaterByte Podcast. Today, I will be talking about the use and management of irrigation throughout the world. Here with me I have a student named Yaasmiyn.

Yaasmiyn: Hi Sharia and thanks for having me here. So tell me about irrigation!

Sharia: Many people do not know much about the importance of irrigation around the globe. Irrigation is a way to get water brought to dry land using artificial means such as pipes or ditches.

Yaasmiyn: Are there different types of irrigation systems?

Sharia: There are actually multiple types of irrigation systems used for different reasons. First there is ditch irrigation. Then there's terraced irrigation, sprinkler system, and rotary systems. The most common irrigation system is the drip irrigation system.¹

Yaasmiyn: What are they and what are they all used for?

Sharia: The ditch irrigation is a system where man made channels deliver water to homes, farms, and industries. Terraced irrigation systems are used to help steep land to be able to be used for planting crops. This is done by the land being cut into steps causing the water to flow down the steps to water the different plots of land. The sprinkler system is mostly used at homes to water a person's lawn or a place that has a lot of grass such as parks or a golf course. The rotary system is similar to the sprinkler system, except it is able to give water as far as 100 feet. It is able to water large areas using small amounts of water over a long period of time. Drip

irrigation is most widely used around the world. It is a very efficient way of saving water because it drops water right near the root zone of a plant in a dripping motion.¹

Yaasmiyn: Wow. So what you are saying is the drip irrigation system is something that many farmers should have?

Sharia: Yea. Many farmers use the drip irrigation system because they need water often to water their crops. Using this method saves water for the people living in these areas and helps farmers save water so they don't over water their crops. According to U.S. Department of Agriculture or USDA, potatoes that are planted in flat beds can increase irrigation water use efficiency.²

Yaasmiyn: What is the purpose of using a flatbed instead of ridged rows?

Sharia: When planting crops such as potatoes, ridged rows will cause there to be runoff and it becomes unavailable to the crops. With flat beds, they are able to use less irrigation water and increase the yields.³

Yaasmiyn: So, how is irrigation water being saved in other parts of the world?

Sharia: In Sub-Saharan Africa, only 4% of the cropland there is irrigated. There, they are using an irrigation system called the treadle pump. The treadle pump was used by having someone pedaling up and down on two poles. This activated a cylinder that suctions water up through a tube well and into farmer's irrigation ditch. The families living in Sub-Saharan Africa were able to eat more due to the increase in food that was being grown.⁴

Yaasmiyn: So, what would happen if an irrigation system is damaged?

Sharia: In Pakistan, this happened and it caused rain to turn into runoff due to the hard and dry ground. For them to prevent more damage to the irrigation system, they had to divert the water

from the Indus River into irrigation canals. But, when the canals showed signs that they may be breaking, controlled breaching is the only way they can try to solve the problem. They will later have problems with food because they will not have enough if the irrigation system stops working. Rice production would be delayed because the farmlands were flooded.⁵

Yaasmiyn: There are many crops that are planted. I heard that corn is a very popular crop that is grown. Does corn use a lot of irrigation water?

Sharia: Yes, corn is one of the crops that uses up the most irrigation water. But corn also gets a lot of its water from the rain that falls to the ground.⁶ So, it is shocking to see that this crop is able to use up so much irrigation water.

Yaasmiyn: Yes that is interesting. California is in a drought right now and has been for some time. Are they taking any measures to cut down their irrigation water usage? How are they saving water?

Sharia: Well a lot of farmers are using drip-tape irrigation to try and save water in California. A farmer named Dan explained that the drip-tape irrigation system helped the people in California with food shortages and wasting water.⁷ There are 4 places in particular located in California that are trying to conserve more water. The first place is the Dodger Stadium. They decided to install a water-saving irrigation system that measures the underground moisture levels. They also installed waterless and low flush toilets to help support keeping their plants alive. The second place is the Forest Lawn. They have been using 100% recycled water and they also installed drought-tolerant plants so that they would not have to worry about using water on them. The third place is the Getty Center. They have increased their use of drought-tolerant plants, drip irrigation, and a leak detection system. The last place is Exposition Park. There, they took away

some of the grass areas so that they did not have to worry about using irrigation to water the lawns. They use special irrigation technology called Calsense and they also use drought-tolerant plants.⁸ But, irrigation in California's Central Valley pours a lot of water vapor into the atmosphere, which causes a lot of rainfall and runoff.⁹

Yaasmiyn: How about modernizing irrigation systems? How can that help?

Sharia: Modernizing irrigation systems can help farmers make more money and decrease their water use.¹⁰ In central Arizona, farmers are able to use technology to monitor the ditch irrigation system.¹¹ Some areas in the Sacramento County have their residents use irrigation water one day a week. There is a state-mandated reduction number that they have to meet each month, so this was their way of making sure that they met the mandated number.¹²

Yaasmiyn: That can be difficult but if it can help save people from the drought, it has to be done.

Sharia: Thank you Yaasmiyn for talking through the different ways irrigation is used and managed throughout the world.

Yaasmiyn: No problem Sharia. It was interesting to find out so much information about irrigation.

Sharia: If you would like to learn more about the use and management of irrigation water, you can go to water.epa.gov. Thanks for listening. See you next time.

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