Ep. 7 Water Stories World Water Day March 2022

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SPEAKERS

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JC

0:15

Water is fundamental to human development, from drinking water and sanitation to agriculture and more. You're listening to Water Stories, a podcast series where you will learn everything about securing water, energy and food security for all of us.

Hello everyone, I am Juan Carlos Giraldo. Welcome to episode number seven.

Do you know that March 22 Celebrates World Water Day every year? In this episode, we will honor World Water Day with our guests. But let's start with this question: What is World Water Day? World Water Day began in 1993. Since then, it has been an annual United Nations observance focusing on the importance of water.

What is the goal of World Water Day? According to worldwaterday.org, this day celebrates water and raises awareness for people living without safe water. Or even worse, without access to water. The core focus of World Water Day is to support the achievement of the Sustainable Development Goal SDG number 6, which is clean water and sanitation for all by 2030. Now it's time to say welcome to our guests, Chuck Young and Vishal Mehta, scientists from the Stockholm Environment Institute with vast experience in sustainable water management. Hello, Chuck. So glad to have you today as a guest again.

Chuck
1:51
Hello. Nice to be here.

JC Giraldo
1:53
Thank you. Vishal, how have you been?

Vishal
1:55
I'm good, JC. Thanks for having us again.

JC Giraldo
1:57
That's great. Thanks, Vishal.

OK, let's start with some thoughts. Generally speaking, Chuck, what are the feelings or thoughts that came to your mind about World Water Day?

Chuck
2:06
Well, I think it's great that we have a day where we ask people to focus on water because it is so important to everyone's life and livelihood.

JC Giraldo
2:18
Oh thank you so much, Chuck. Vishal, I would like to ask you the same question.

Vishal
2:21
Yes. Especially this year is special, I think, because it's focused on groundwater. It's called “Groundwater: making the invisible visible.” And I think it's about time for that, since groundwater is water found underground in aquifers and we don't really think about it and don't really pay attention to it, like we do with rivers and ponds and lakes and such.

JC Giraldo
2:47
Thank you, Vishal, yes, the central theme of this year is groundwater. Chuck, let's dig a bit into that. What is groundwater and where is it located?

Chuck
2:56
Sure. So groundwater is water that exists under the ground. And what it is, its water that occupies the space between grains of sand and silt and clays.

So one way to think of this, say you're at the beach, if you fill a bucket with sand, you can actually pour water onto that sand, and it will disappear, it will percolate down into those spaces between the sand grains. So that's where the water exists, is in between these tiny, little tiny spaces between soil particles.

It can be under our ground, it can be hundreds to thousands of meters deep that this water exists, so it can be quite a lot of water. And some locations, there's things called karstic aquifers, which are places where limestone has dissolved into cracks or even caves and tunnels where the groundwater can exist and flow.

JC Giraldo
3:57
Thank you, Chuck. You know, I read some articles about the difference between groundwater and the surface water. And, you know, I didn't know that, for example, the quality plays an important role between them. That made me understand a little bit more about this and also about the aquifers, which is really a fascinating topic.

Vishal, as you mentioned before, the main message of the World Water Day is “making the invisible visible.” Let's talk about the importance of groundwater. Will you mind sharing your thoughts with our audience about the importance of groundwater, maybe locally or globally, please?

Vishal
4:35
Sure, JC. Actually, I'm not sure how many people are aware that groundwater is the dominant global freshwater resource that we have globally. It contains 99% of global freshwater resources if you don't count icecaps and glaciers, and if you count those, it's 30%, whereas surface water you know, rivers and lakes and ponds, is actually just 1.2%. So that itself tells you that it's actually our major freshwater supply.

Groundwater accounts for 40% of all human freshwater use, but it varies a lot across the world, and even in a county sometimes, in arid areas of the world, it is the dominant resource. Chuck and I live in Davis, we’re in California where until recently, all of the water – drinking water supply – came from groundwater. Only some of this groundwater resource is actually accessible without overexploiting, and without large

pumping costs occurring. One of the biggest indicators of how important groundwater is that 53 of the SDGs' 169 targets have a link to groundwater.

JC Giraldo
5:42
Chuck, perhaps you would like to add additional thought to Vishal's insights?

Chuck
5:45
Yeah, I could just say, in many places, California included, the use of groundwater is in conjunction with the surface water, the water that's in the streams and rivers. And it often is a kind of like a bank account, which can be relied on during dry periods. So for instance, in California, we use considerably more groundwater during droughts than we do in wet years.

JC Giraldo
6:16
OK, Chuck, let me continue with you, and it's about California. On this World Water Day, what is your reflection on the challenge or the impact, maybe, of use, overuse, abuse of groundwater in this important region here in the United States? What are your thoughts about that?

Chuck
6:34
Sure. In California, a major problem in a large part of our agricultural area is the overuse of groundwater. Depths to which we have to go to retrieve that water and pump it out are growing over time. And that's creating several problems.

One is it's very expensive to pump the water up to the ground surface. Another is that if you in some areas, if you pump too much, the ground actually sinks or subsides, which can be a real problem to roadways and canals and that sort of thing. Because the ground is no longer level.

So those are those are major challenges that we're facing. And we're working to manage water better in California, there's been a recent law that was passed in, I think, 2014, that has local areas create plans for managing their water. And we're still in the middle of that process right now.

JC Giraldo
7:29
I see. Thank you, Chuck.

Vishal, speaking about challenges, India is facing the same kind of challenge as California. We know, of course, that the climate is different, the population size is different, to the politics, et cetera. I know you have been working on the Urban Metabolism Project in Bangalore, and other parts of India. Can you elaborate a little bit, please?

Vishal
7:49
Yes, it's pretty much the same. There are many similarities. Just to set the context, India is, you know, population is very close to China's, close to 1.4 billion, and going to surpass it in a few years, but has 4% of the world's freshwater resources. And India is the largest user of surface water and the largest user of groundwater in the world. So its groundwater use is more than a quarter of the global total, you know, one country using more than a quarter of the global total groundwater use. That's why it's important to think about that country.

And more than 90% of this groundwater is used for irrigated ag. So in that sense, it's very, very similar to California. But the remaining 10% of groundwater use supplies 85% of drinking water needs, mostly for the hundreds of thousands of villages, towns and cities' municipal water supply. So even just 10% of the groundwater used by India is is supplying water to 85% of its drinking water needs. These are some really massive numbers.

Another issue here is with India is that you know, the number of wells has grown from 1 million to 20 million wells in the last 50 years. That, coupled by farms irrigated by groundwater, where there are power subsidies for farmers, so you know, the electricity, they don't have to pay much, sometimes they don't have to pay at all, and that drives the overexploitation of groundwater. So it's approximately 30% of groundwater blocks in the country that are already overexploited.

JC Giraldo
9:28
Thank you so much, Vishal. I would like your opinions related to pretty much regulation and policymakers. Last week, Marisa Escobar, the water program director at Stockholm Environment Institute, United States, shared an interesting article with us, right? Titled, "California has begun managing groundwater under a new law. Experts aren't sure it is working." I read the article. My conclusion is that there are differing opinions about it. And we know that the policymakers play an important role and even more in the groundwater issue.

Chuck, what is your opinion?

Chuck
10:02
Yeah. So I think that's referring to the fact that a lot of small communities in our agricultural areas in California rely on groundwater, you know, for household supplies. And often their wells are not as deep as the surrounding agricultural wells. So, particularly as we're in drought right now, the agricultural wells can pump water deeper than these municipal supply wells. And it can leave these small, relatively low-income areas without a good water supply. And that is a significant problem for California right now.

JC Giraldo
10:46
Vishal, what are your thoughts about this particular situation, or about this article?

Vishal
10:50
Yeah, like Chuck mentioned, it's, you know, in 2021, that same article mentioned that almost 1000 households lost access to water because of their shallow domestic wells running dry. And the American Journal of Public Health says there are 1.3 million Californians which rely on these shallow domestic wells, small communities, to get that drinking water. Another issue is that these are – when you have such shallow wells next to agricultural areas, not only is the water level going to fall when the agricultural pumps are turned on, you are also at risk of nitrate pollution.

So these are also happening in largely poor communities, because they are communities of migrant workers, immigrant workers. So these are some of the most important challenges faced regarding groundwater in California.

JC Giraldo
11:49
And what in your opinion, what is the future of the sustainable groundwater?

Chuck
11:54
Well, I think, I think humanity has a real challenge. We, in some places, we're overusing groundwater, and as Vishal was referring to it, we're also polluting it because it isn't visible, right? So it's easy to forget that it's there. And anytime we dump pollution on the ground, it can end up in the groundwater.

So I think we really do have a challenge, and groundwater is only going to become more important to meet agricultural and domestic needs for water, as climate change leads to more variability in the flows within the rivers and streams.

Vishal
12:34
Yeah, I mean, if we look at some examples where communities are successfully managing their resources, of groundwater and otherwise, there are examples which are community-based examples. For example, when it comes to groundwater management, there are examples from southern India, villages self-organizing, to use the groundwater more wisely, while still protecting their economy. So, and this particular article I'm thinking of is on the World Bank website on groundwater, it can be found there.

And out here in California, we have the Sustainable Groundwater Management Act, which is trying to prevent the overexploitation of groundwater and all the things that happen, when that happens.

So on the one hand, we have government oversight trying to make sure that people toe the line, and on the other hand, you have more like a bottom-up type of solution. I think we're going to need both to make sure that we conserve this resource and manage it wisely.

And lastly, of course, there are many parts of the world where it is underused. So it will have to be a part of the portfolio when it comes to water supply and water use in those areas.

JC Giraldo
13:46
Is there anything that you guys would like to add? A message or maybe some advice for our listeners on this World Water Day?

Vishal
13:55
From my side, I think, you know, World Water Day is about making all of us more aware of water in general. And the themes provide specific subtopics to focus on for all of us, and in this case is groundwater. So I think that just making sure we all understand where our water comes from, in our homes, in our farms, in the products that we consume and vegetables that we eat, just getting more aware, asking questions, is a very first step.

JC
14:25
Chuck?

Chuck
14:27
Yeah, I think Vishal said it very well. It's really about raising awareness and not assuming that water is an endless supply, because it is not.

JC
14:38
Yes, I 100% agree with you guys. Let’s create awareness about the situation, have the knowledge, understand, take care of everything related to this essential natural resource, the water. Vishal, I want to say thank you for your time.

Vishal
14:52
Thank you, JC, thanks again.

JC
14:53
Thank you so much. Chuck, thank you for your time, as well.

Chuck
14:58
Yes, thank you, JC.

JC
14:59
Thank you for listening to Water Stories. Remember you can find us on Spotify, Apple Podcasts and Google Podcasts. Thank you so much to everyone.