



Podcasting Pollution: Religious & Cultural Perspectives of the Ganges



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Who: Interviews with Dr. Rachel McDermott (Barnard College); Dr. Thomas Yarnall (Columbia University); Dr. Upmanu Lall (Columbia Water Center); and Anthony Acciavatti (Columbia GSAPP)

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More specifically, for those curious about Hindu and Buddhist perspectives of the Ganges, and how these perspectives could be employed as sustainable solutions to this global health crisis.

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Podcasting Pollution: Religious & Cultural Perspectives of the Ganges | Dr. Rachel McDermott; Dr. Thomas Yarnall; Dr. Upmanu Lall; Anthony Acciavatti | Transcript (via Sonix)

[00:00:01] We're here today discussing sustainable solutions to pollution in the Ganges. My name is Max Zimberg.

[00:00:08] And I'm Mary Banister, and we're students in the Sustainable Development Department at Columbia University.

[00:00:16] The Ganges River is considered to be a sacred mother goddess by the Hindu majority population in India, and it's also one of the most polluted rivers in the world.

[00:00:25] This awkward pollution comes from a variety of sources, but it's mostly the result of inefficient sewage and sanitation facilities unable to accommodate India's large and growing population, leading to unregulated open defecation, trash disposal and even cremation. The pollution is also a combination of discharge from factories, tanneries and agricultural runoff that is only exacerbated by the silt coming from the seasonal monsoons.

[00:00:52] This also includes everyday pollution from people throwing plastic in the river, bathing, bringing cows to the river and performing religious rituals known as pooja that involve throwing artifacts like flowers or even dead bodies into the river to invoke liberations of reincarnation, called moksha.

[00:01:13] Max, did you know that the Ganges River Basin is the most highly populated river basin in the world?

[00:01:19] It accounts for twenty five percent of India's water, with 400 million people relying on the river for water to drink.

[00:01:27] This is a major public health problem, drinking or using the water from the Ganges results in GI disease, cholera, dysentery, hepatitis A, typhoid and many other bacterial diseases that result from open defecation.

[00:01:43] The Indian government has made efforts since the 1980s to counter this pollution of the river. The problems include lack of public involvement, exclusion of groups, local inefficiency and corruption and lack of monitoring.

[00:01:57] There's also a major disconnect about what pollution even means to policymakers, environmentalists, Hindu devotees and Buddhists living in the region.

[00:02:08] Clearly, this issue involves complex interactions between many different stakeholders, which will require culturally driven and bottom up approaches rather than top down or siloed solutions or podcast aims to encapsulate these many perspectives.

[00:02:24] And rather than amplifying the role of religious activity as part of the problem, we aim to reveal the ways in which Hindu and Buddhist ideas can instead be used in tools that actually promote protection of the river.

[00:02:38] We hope to provide a larger cultural context for this complex problem and provide tools to those working for a solution at the nexus of sustainable development and public health.

[00:02:50] We are so grateful for the invaluable conversations we had with experts surrounding this issue from the Columbia community, including Dr. Rachel McDermott, Hindu goddess scholar and professor of Asian and Middle Eastern cultures at Barnard College.

[00:03:04] Dr. Thomas Yarnell, a scholar of Buddhist philosophy and ethics at Columbia.

[00:03:10] Anthony A.R.T., who is trained as a historian, cartographer, architect and author of Ganges Water Machine Designing New India's Ancient River, who has mapped and traveled the length of the Ganges River.

[00:03:24] And Dr. Upmanu Lall, Civil Engineer and Director of Columbia Water Center and senior research scientist at the International Research Institute for Climate and Society.

[00:03:36] First, we'll be hearing the Hindu mythological perspective from Dr Rachel McDermott moving into environmental ethics from a Buddhist perspective with Dr. Thomas Yarnell, and Mary and I will be discussing what this possibly could mean for sustainable development and the fact that the Ganges was recently given the legal rights of a human.

[00:03:59] While it is vital to understand religious and cultural perspectives, sewage and lacking infrastructure are still the main source of pollution. So we can not leave out the invaluable insights of Anthony Acciavatti and Upmanu Lall, who have both worked in connection with the Indian government on this problem.

[00:04:18] This leads into what certain NGOs and non-state actors are also doing about this issue. So we'll end with a quick word about current solutions from NGOs such as Ganga or events like India Water Week.

[00:04:32] We're so happy you're here listening and we hope you enjoy the podcast.

[00:04:51] So, Professor McDermott, as a Hindu goddess scholar, can you tell us about how the Ganges River is depicted in the Hindu tradition?

[00:04:58] The River Ganges in art is depicted as a beautiful woman sitting on a crocodile like vehicle called Macara. And so when she's supposed to be the goddess of purity who washes away all sins, there are temples to her at the very beginning of the headwaters of the Ganges, there is a temple or the Ganges comes out and people go and worship. Or so she's viewed as a very auspicious, beatific deity who brings life and purity to the world. The problem with many people who don't want to admit that the Ganges is polluted is that they say, well, how can the mother be anything but pure? You may think she's impure, but actually the mother is always pure and she has

been said in the scriptures to wash away all sins. So how is this mythology being applied to the pollution problems?

[00:06:02] So that's why I say it's a creative process, you mine your scriptures for things to use. When

[00:06:09] Ngo workers or local people try to initiate projects to help clean her up, they often will utilize imagery of the goddess and sometimes they say, well, she is our mother and she is pure, but she has been dirtied by her children such that now the way to serve the Ganges is to try to clean her and she needs her sons and her daughters to restore her. Of course, she's always pure and in a sort of spiritual sense. But the Ganges has been defiled by pollutants and corruption and things like this.

[00:06:51] But it's not going to help people who are factory owners. They're not going to buy into this. They want money. They want just the way, you know, in any environmental debate in any country. You have the developers on one hand and idealistic environmentalists on another.

[00:07:13] So it's an uphill battle. The same problem exists for the Yamuna River, which is also lets off at Allahabad from the Ganges River. And so the Yamuna River is the place where Krishna and Radha apparently sported. And so many people say, well, do say that to Krishna and Durata by cleaning up the river that they loved.

[00:07:36] Remember the story that it was full of poisonous snakes. The Elmina and Krishna dives into it and he finds one snake that has a thousand heads and he does it and dances on the heads and all the wives of the snake God come up and they pray to show it to Krishna, don't kill our husband. And he says, OK, but go to the scene, get out of this river.

[00:08:01] So just as he tried to get rid of the pollutants or the the elements in the river that were harming it and harming people around it, you could say that let us be like Krishna.

[00:08:15] Shiva is supposed to be the God of the Ganges to Earth by us by agreeing to have it come on his head.

[00:08:21] Remember that. Because the force of it would have been too great to for the earth to bear, so he said, I'll break the fall.

[00:08:29] So that's why when you see images of should I be off the river?

[00:08:33] I said so again, people can say, well, Shiva did service for the river by.

[00:08:42] Taking it physically onto his body, we should do something similar. So using mythology or people's beliefs, to help the Ganges will punish you if you keep polluting her.

[00:08:57] But I don't know if that's happened yet. I doubt it because then the NGOs would be put against the factory owners or against. I don't think that.

[00:09:07] But certainly she is a mother in need, the mother's milk or her vehicle can't survive in this water. So we have to clean up so that the fish can survive and sort of drawing upon things that everybody recognizes about her to save a disservice to the goddess by. Helping to stop factories putting into the river for help to mother by joining cleanup crews along the bank.

[00:09:49] So interesting to learn more about the mythological underpinnings of the Ganges.

[00:09:54] And how these reinterpretations could be possible solutions, so rather than thinking of Mahat Ganga as palatable, she's rather seen as suffering and someone who we need to help.

[00:10:08] You know that in the struggle for Indian independence from the British mother, India as a whole is shown as this as a suffering mother who needed the help of her children.

[00:10:19] Exactly. And it was a powerful way to rally people in saving mother India and declaring independence.

[00:10:28] It was actually author Bankim Chandra Chatterjee who popularized depictions of mother India in three ways, India of the past, of the present and of the future. So in the past, India was seen as daughter who's the warrior mother goddess. In the present, she was seen as emaciated Kali, who's a goddess of wrath and anger and darkness, much like the river is today. In the future, who knows? India has to be portrayed as a mother needing the protection of her sons.

[00:11:03] And we found this interpretation to be particularly important to sustainable development in thinking about a way a country or a society is shaped in the present, in the past and most importantly, the future.

[00:11:17] NGOs on the ground are really incorporating this idea, using theology. One really cool NGO we found is called Help US Green. They do something called flower cycling. So they take flowers that are thrown ritualistically into the river and they reuse them, employing local women to turn them into insects and fertilizer, which can be sold to make a profit on the website. They use a lot of language like that. We saw reference by Rachel McDermitt like saying how the Ganges is synonymous with the Indian civilization, but that she is dying.

[00:11:54] So they're doing this to help the Ganges in a very creative hackathon type way and their products are pretty cool. I want some of these insects right.

[00:12:06] That's a whole nother topic on global health, is how incense cause asthma.

[00:12:10] But that's another podcast.

[00:12:13] So like any good hackathon, they're solving a problem.

[00:12:17] So in India, the floriculture industry is growing at five percent annually. And to grow all of these flowers, there's a lot of farm runoff that's poisoning the Ganges and the groundwater. Harmful pesticides and insecticides are used to grow these flowers at such high rates and the vast amount of flowers decomposes along with fecal coliform bacteria that's giving rise to severe diarrhea, cholera and other waterborne diseases.

[00:12:45] So we urge you to go on to their website. This is not a paid promotion, though. If you feel like sponsoring us, help us. Great. We would take some green.

[00:12:55] So essentially they're hackathon product is a chemical free pack of seedlings where the actual package decomposes and turns into a beautiful Torcy plant, which is very culturally appropriate, given that Torcy is grown and used for tea all over India and their packaging is ripe with Hindu mythology.

[00:13:16] Deities like Ganesha you may have seen the little elephant boy who's a remover of obstacles. So it's very culturally appropriate and innovative solution to pollution in the Ganges.

[00:13:29] So for Hindus, the Ganges is a goddess. Buddhism also came out of India. So what about Buddhism? Do Buddhists see the Ganges River as a sacred being or even as the river has now been given rights as Ascendant being? Now we'll talk with Professor Thomas, your of the Buddhist perspective.

[00:14:00] It's the first thing I would say is that sometimes Buddhist perspectives on nature and quotes are surprising to Westerners. So in general, the natural environment, at least the inanimate part of rivers and mountains and trees and so forth, is not really considered holy or sacred in most cases, although it can be inspiring. Of course, nature can be and it's great that there are holy pilgrimage sites or sites that are considered sort of special from a Buddhist perspective that in some way contain some special energy or presence. But for the most part, nature writ large, is it really considered holy or sacred?

[00:14:37] It is considered in practical terms as the environment, in the sense that the container habitat that or support for all sentient beings, have to have the inconsiderate destruction of natural habitats that are critical for the survival on the flourishing of other types of sentient beings is considered unacceptable from a Buddhist moral ethical point of view. So in terms of times in the history of the country and any sort of destruction of of a river such as the garden season so far, that is the habitat for many types of non-human sentient beings. One final word on that.

[00:15:16] What's important to realize that we are part of nature. Ultimately, nature will always be more powerful than human beings, even though they're human beings.

[00:15:26] People of our nuclear weapons, scientific equipment and knowledge of the sun disappears of the earth. Temperature changes by degrees are really in trouble at a deeper level. Recognize that we are part of nature. We can control and change things to some extent due to our intelligence among the thousands of species of mammals on Earth, we humans have the greatest capacity to alter nature and as such we have a twofold responsibility. Morally, as beings of higher intelligence, we must care for this world, other inhabitants of the planet, insects and so on. I have the means to protect this world and our other responsibilities onto the serious environmental degradation that is the result of incorrect human behavior.

[00:16:09] So, Professor, now what do you say about possible solutions to anthropocentric environmental degradation?

[00:16:17] It would be helpful to find some comments by some leading Buddhist scholars and teachers. And so I turn to some comments by both His Holiness the Dalai Lama from Tibet and take note of the history of the Vietnam War and so forth.

[00:16:33] He says explosion of bombs, the burning of napalm, the violent death of our neighbors and relatives. And likewise, the pressure of crime, noise and pollution and the lonely crowd is all have been created by the disruptive cause of our economic growth.

[00:16:50] There are all sorts of mental illness and they must be ended.

[00:16:54] Anything we can do to help them is preventative medicine and political activities are not the only means to them. And so there is, again, sort of suggesting that political activities are important, but so are psychological remedies, environmental activities, socioeconomic and so forth. And he talks elsewhere in here about the need to tackle issues related to the media, education and so forth. So, again, from a Buddhist perspective, Technofile sort of demonstrating the fact that these are all interrelated issues and that cleaning up the environment, preserving the environment is absolutely critical to mental health and to the health of sentient beings. So now some some of the comments from the Dalai Lama, from the Dalai Lama's book, Imagine All the people conversation with the Dalai Lama on money, politics and life.

[00:17:41] It could be out. Do you think democracy is helping laws to evolve in this way? The answer is yes. In democratic countries, legal system should work that way. Generally do, but nevertheless partially contrary to the principle of interdependence. Since these laws do not include, quote unquote, democratic rights for the environment and the animal realm, most legal systems refer only to human rights and do not consider the rights of animals or other beings. Share the planet with us.

[00:18:16] This point on the Buddhist view of sentient beings is very interesting right now, given the fact that courts have very recently given the Yamina and Ganges rivers the rights of human beings.

[00:18:27] It seems that a Buddhist would not agree with this, but they would see all animals that live within the rivers as having the same rights as humans do as sentient beings from a Buddhist perspective. What role do political solutions play in this problem solving problems like this?

[00:18:45] So now some some of the comments from the Dalai Lama speaking on the issue of politics, he said about actually about the election of a different one, in part because of the recently a growing chorus of support, there was nothing sacred or holy about taking care of our planet as we take care of our houses, as we ought to have confirmation sovereign, no point in going against nature, which is why I much it's not a matter of religion or ethics or morality is a luxury that we can survive without them, but we will not survive if we continue to go against nature. And so we have to accept this tough balance nature. Humankind will suffer, of course, elsewhere and also suffer from the most people alive. Today, we must consider future generations of human biology as a human right like any other. Therefore, part of our responsibility towards others to ensure that the world is healthier than we found it.

[00:19:53] That quote from the Dalai Lama sounds a lot like the nineteen eighty seven Brundtland Report definition of sustainable development, which is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

[00:20:07] I think it's so important that we mobilize children and people of all faith to think about the consequences of their polluting habits, not just in the short term, but what this will mean for future generations and other forms of biodiversity and life.

[00:20:25] So I can't stop thinking about what Dr. Lal said about the dolphins.

[00:20:31] And I don't think to tell you is that, you know, up to maybe 30, 40 years ago, there were there were dolphins. The river was teeming with life, even though there was pollution. And at this point, I don't think there's much of anything in there.

[00:20:46] No oxygen will do that.

[00:20:48] You know, I know the guns is crocodiles. They know all the river dolphins.

[00:20:56] Gnjidic Dolphins are actually a species of dolphin native and extend to the Ganges River.

[00:21:05] So there are all these negative externalities on the ecosystem of the country and all the animals as well as humans that rely on it.

[00:21:14] So it's really going to take ecosystem based management. Policies that take into account the entire eco system and.

[00:21:25] Symbiotic reliance of humans, animals, plants and other natural resources, plus everybody loves dolphins, so this could be a really effective way to really rally up people's concern for pollution in the Ganges.

[00:21:39] Lastly, it is important not to make this a purely religious or faith based issue, we bring in Buddhism here not as another religion, but as a philosophy, because we could well go into Islamic perspectives, which are incredibly important in this issue, specifically because of the tanneries that line the Ganges River. These tanneries are places where animal hides are tanned. Typically, water buffalo in this case are mostly owned by Muslims.

[00:22:04] So they receive a disproportionate amount of blame for the pollutants and runoff going into the Ganges River.

[00:22:14] So, Dr. Lall, can you explain the pollution problem from an engineering point of view and how the Ganges may be hydrologically unique?

[00:22:22] You have a series of canals that divert water from the river.

[00:22:26] If there's one factor, this is for irrigated agriculture in the state that the Ganges flows through, OK?

[00:22:35] And there are barrages across the river that allow you to block the flow of the river and divert this water. The second thing that goes on is that there is no shortage of countries, but there is water creating things that put a nice cocktail of anything you can imagine into the river. OK, so

it's the combination of the depletion of the flow in the river, which is primarily for agriculture, a few common power plants, but including water.

[00:23:11] And what comes back from them is not polluted by just warmer water. But the warmer water will allow bacteria or microorganisms algae to grow at a higher rate, and they will consume oxygen more rapidly from the water as a result. So it is a compounding factor. The government of India plans to build a ridiculous number of water treatment plants, but the plan included no monitoring, and the plant did not include enforcement of individual pollution controls on individual plant sources. So that's kind of where things were two years ago. And I know you've had various universities in India and the various government organizations fooling around with this, but I don't think anything significant can happen. I know the people at Columbia who are working on this.

[00:24:09] There is Anthony who's written the book on the dangers that he walked against and all that.

[00:24:16] So he may be able to give you a better narrative on what you've seen firsthand. But this is a situation the government doesn't really the data on either floor in the river or on the levels of pollution in the river. Some of the Indian institutes of technology have their grant from the government for the last umpteen hearings to collect this data, analyze the study and make sense of it. I have not seen a public release of that data.

[00:24:43] There is a flood every year, too, you know. So if there is a flood, you now have sediment mobilized so that the new source of pollution, what the river is. Typically, many people have always accepted that is sediment. And there are the different you of the detriment of studying. You can't and it's going better, which is to try to out the better than you'd think.

[00:25:07] Right. So it is just the natural sediment. It makes the water more opaque to begin with.

[00:25:14] So it's the sediment, the Himalayas, very month and so any day and do the best condition of the children or snowmelt or rain. There is a lot of sediment released that's natural. And so it's coming down from the mountains of sediment to natural sediment. You know, there might be some arsenic. There might be why this isn't bacteria in it. But what started happening once you get out of the mountains is large population living on the shores of the river that are discharging anything you can imagine.

[00:25:52] Do you think water infrastructure projects and laws are sufficient to solve this problem?

[00:25:58] What he told the government of India when they asked me to review this stuff, what if you have no monitoring of the sediments and you don't really know what is going on? You can see the water. You put polluted water in the river. Let's say you dig the entire floor of the river, but you can't run it through a treatment plant and put it back in after he disappeared back into service. So no super contaminated from decades of crap showing up under the clean water will just leave all that pollution of the Taliban back into the water column and the same time associated with daddy. Daddy, I think it's going to pick up whatever. But they have to have consistent space and time monitoring of water and sediment through the river. And that would also allow them to figure out whether or not what they are putting down is meant to be effective. It could well be that they have to dredge a very large quantity of sediment to reach any kind of effect of that.

[00:27:02] So what you are kind of saying about designing our future, you know, the things you're doing with America's water and things like that, do you think that there's a way for us to engineer ourselves?

[00:27:15] I think that the idea that you've got lodged with water treatment plants in a few places and hope for the best is over, and especially in that kind of a situation at every point of view as very water is generated or in some neighborhoods or whatever, they need to be able to get the technology and they should be putting that in so that you get it up right there.

[00:27:42] And is there anything you can say just with your personal experience with the Indian government now and any so.

[00:27:51] No, I won't comment on the government, but I don't think that they don't want to work with them.

[00:27:58] So, Anthony, we heard from Dr. Lall about current governmental and infrastructural developments around the guarantees, given your extensive experience traveling and mapping the countries, why do you think they haven't been affected in cleaning it up?

[00:28:17] It's just that I think will have the capacity to solve this problem. So we'll just have to get back to other forms. So once you develop your systems for sure, because you're almost using this mosque air, ground floor, access to public defecation. So how do you also the structures in these areas?

[00:29:04] And again, because I think don't of those sorts of structures, you know, politicians don't look like you're this. There's also to to.

[00:29:36] So my first thought hearing about all of this pollution was that the Ganges must be completely underfunded. There must not be any sort of hydrological infrastructure at all. But even Anthony said that the Ganga basin is one of the world's most hyper engineered places and rivers in the world. So what's going on here?

[00:29:57] And Dr. Lal talked about a lot of this problem coming from insufficient monitoring and data collection by the government and the problem that the government changes so frequently and that this data can often be unreliable and not last past an election cycle in discussing this issue of lack of government data.

[00:30:19] What civil society organizations that they point to this supports is the Center for Information, Basic Management and Studies see Gonca. It was established at the Indian Institute of Technology and Confort as a center of excellence for coalition creation and dissemination of knowledge and information for sustainable development of the Congo River Basin.

[00:30:44] The center acts in the capacity of a comprehensive think tank to the National Mission for Clean Ganga and the Ministry of Water Resources, River Development and Ganga rejuvenation the government of India and in its stated goals and objectives vis a vis the Congo River Basin.

[00:31:02] It incorporates some of the aspects that Dr. Yarnold talked about as the Ganga, as an ecological entity near Mildura, and goes really deeply into the scientific research on developing protocols for aquifer mapping coordination with the institute, which is also where Dr Lal went to school for civil engineering.

[00:31:24] And they also hosted two really important other organizations. One is known as Ganga Pedia, which acts as a really transparent hub for the mission and management plans and everything having to do with. She Ganga's research as a think tank, so this includes missions like ecological restoration, sustainable agriculture, geological safeguarding, basin protection from natural disasters, river hazard management, environmental knowledge and cultural sensitivity, and plans for sewage treatment, urban planning and flood plan mapping.

[00:32:06] Experts, including these at Ganga, have also come together for five different India water weeks hosted in April or January. These are events that have attracted up to four different countries and fifteen hundred different delegates with themes including efficient water management, water for all, and in two thousand and 17, water and energy for inclusive growth.

[00:32:34] They also had a theme on water, energy and food security calls for solutions. which Dr. Lall is especially focused in this nexus between water, climate, energy and food.

[00:32:50] So as an architect and cartographer, something really interesting that Anthony Acciavatti did in his travels to India and walking and backpacking and sailing around the Ganges is placing this emphasis on drawing and mapping out the Ganges because we said four hundred million people rely on it. How is one environment supposed to know what the Ganges looks to someone else in Rishikesh? In a way, Anthony's own hackathon project is his book, Ganges Water Machine Designing New India's Ancient River. By the way, we are also not sponsored by this book, but please go out and take a look at it and why it is so beautiful and so well put together and researched. And in it he really calls for this remapping of the Ganges because when he first started his research, there were no maps at all provided by the government. There's something really important in sustainable development and global health fields where the problems that we're dealing with can be microscopic or underwater.

[00:33:52] And it's really important that we map them out and bring them visually to the forefront of people's minds, whether that means through an atlas, through Hindu mythology or with a podcast.

[00:34:05] Yeah, that would be really effective.

[00:34:11] Thank you so much for joining us as we've talked about approaching this issue of pollution in the Ganges River from all these different perspectives, from that of mythology and culture in India, from the Buddhist perspective to that of current problems and sustainable development and infrastructure management before listening, if you didn't know how serious the problem of pollution in the Ganges is, we hope you walked away with with a heightened understanding of how we need to act now for this generation and all the generations to come. And if you did know about it in general, we hope you gain a deeper historical perspective that will lead to continued research project and talkathons of your own.

[00:34:58] Thank you so much. I'm Max Zinberg. And I'm Mary Bannister. Thank you so much.

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