

Serena Allen:

Welcome to The Policy Paycheck. My name is Serena Allen. Thanks for tuning in. The Policy Paycheck was born from the idea that all people should have access to factual and relevant economic evidence about the most controversial policy topics we hear about every day. While our intended audience is American High School civics classes, even policy experts may learn something from each episode.

Ideally, listeners like you will walk away better informed to not only discuss but also form your own opinions about the policies as taxpayers we already pay for. Today, Dr. Monalisa Chatterjee will talk about environmental economics. Dr. Chatterjee is Assistant Professor of environmental studies at USC Dornsife College of Letters, Arts, and Science. Thank you so much for being here today.

Dr. Monalisa Chatterjee:

Yeah.

Serena Allen:

So we want to talk today about environmental threats, environmental economics, and some of the environmental policy that is really popular right now in the media and particularly amongst youth to try to gain more information about. To start off, what kind of environmental threats is America currently facing?

Dr. Monalisa Chatterjee:

So depending on which way you're looking at, if you want to sort of look at specific sectors, then we can produce a different list. But in reality, when it comes to environmental issues, it's mostly a broader consequence that you're seeing coming from one particular type of environmental issue. So I'll give an example. We can say that a water sector is something that's very, very problematic in United States, we have to worry about water quality, water quantity, all those things, right?

But we have to also remember that it's not just about the quantity and the quality, it's also about the systems that we have designed, which actually help us distribute water. For example, water infrastructure is a big issue in the United States. You already are familiar probably about the Flint case where lead contamination happened affecting specific groups of people.

And that's because our infrastructure is degrading, so rapidly, and we are not investing enough money to keep updating it, maintaining it, realizing what kind of choices we made in the past, which were actually problematic, and now the problems that are emerging in some sense. And that we need to figure out a way of undoing or changing some of those things, which will actually have a direct impact on some of the environmental issues that we're ending up seeing in the community.

So it's not just about do we have enough water? Or do we have the right quality? We also have to think about how much? What infrastructure? Where it's going? Are we really

making the wisest choices about what to use? So, for example, if you're using it in agriculture, or if you're using it in industrial development, or if you're using it for municipal sort of household users basically. Are we really making the most efficient choices when we are assigning a certain amount of water for all those different kinds of users?

Because if we are using it somewhere, that means we cannot use it somewhere else. So we are losing that. And if we don't make a wise choice, if we don't do it correctly, then we're basically not being most efficient.

Serena Allen:

Definitely. And even just the water crisis. I know that Flint, Michigan hasn't had clean water for quite some time now. And even more locally, I think of my hometown right here in Southern California. And I live right along the California aqueduct. And I know that all of our water's coming from the northern part of California, all the way down to [crosstalk 00:03:31]

Dr. Monalisa Chatterjee:

And also from Colorado.

Serena Allen:

Wow. And also from Colorado. That's quite some distance. So it's all interconnected between... I mean, mass distances just to access the water we're drinking right now.

Dr. Monalisa Chatterjee:

Yeah.

Serena Allen:

So, yeah. Water is just one of the current threats that we're facing. So what role I guess, in general, does the government play in trying to regulate things like that?

Dr. Monalisa Chatterjee:

Well, you know, the government is obviously interested in making the most sensible choices. So when it comes to water, it's a public resource, right? It's not something in most sense, privately owned, we have certain laws to assign rights to different groups of people based on their proximity to water, their prior appropriation rights to water. So we have all those rights, which basically are still being used to decide who has access to water, who has rights to the initial extraction from that particular water resource.

But sometimes, from an economic point of view, people would argue that that's not the most efficient choice because that way, we are not actually assigning a true value to water because right now, water is a scarce resource. We have to give it to groups of people who can actually pay the right price for it. And currently, our government systems are holding on to that because if we want to go into free market water systems, then only people who can afford it can actually get the water resource and can use water to whatever quantity they can afford it.

But government plays a role to sort of regulate that, "No, we're not going to make it into a free market." I mean, there are debates about it all the time. You have groups of people who say that, "We are going to be more efficient if we are actually making it into a regular market for water where we decide how much water is required, who has the water, what is the true cost of water." And government is assigning certain kinds of rights to allocate water resources depending on what use is considered to be more important, as opposed to other uses.

So, for example, agriculture may be a better use because it directly goes into food production and food security. So, that way assigning a certain amount of water, which is a public resource to agriculture and helping farmers perhaps is going to support with food security in the country and at a global scale as well. But then, does that mean that we are actually using water?

Some people would argue that we are not using water efficiently then because we are subsidizing or assigning excessive amount of water to agricultural sector, which is at a very low cost, which is pushing farmers or maybe people who are using a lot of water, to use it inefficiently, to use it excessively without realizing how scarce that resource is. We're consuming it in a way and also degrading the quality to some extent because when it comes to agricultural use, of course, fertilizers and pesticides, all those things go into lowering the quality of the water.

And then we have to start investing in treating that water to bring it back to a certain quality which will basically meet with the ambient quality standard that the government has assigned. The role of the government is to make sure that it's not a free market commodity water because water can become a free market commodity. Classic economics would say that just open the market up.

Those who want the water and those who have the water, they will negotiate and figure out a price and the quantity that will be available for everybody. And we'll just make the whole process very efficient in that way. But government, we know that there are negative externalities in that process. It's not just the cost of water, we are also looking at the degraded quality of water once it's consumed by certain people or certain activities, and then also things like monopoly that could be. So there is no complete free competition in the market.

So all those factors end up affecting whether we are being efficient or not. And as classic economics would say that a market, just open it up, it will make it efficient. We know that market doesn't solve those problems. It's not always creating the most efficient solution because we're not looking at so many things, which is beyond the control of the market.

So in that situation, government has to come in. Government has to come in and make sure equity issues, make sure water quality issues, make sure that negative externalities are actually internalized in some form of taxation so that we are actually assigning some value to the negative consequences that comes from using water, say in agricultural sector. It reduces the quality of the water, which goes back into the ecosystem. And then we have to figure out some way of cleaning that up or live with degraded quality of water.

Serena Allen:

Right.

Dr. Monalisa Chatterjee:

So, government is basically regulating that. And that's where agencies like EPA come in, they start talking about, "Okay, what is the ambient quality of water that we want to maintain? What quantity or what concentration of different types of substances, chemicals that come from pesticides, or any kind of fertilizer? What is damaging? What is considered damaging based on robust scientific research?" And then how do we keep it within that, keep it below that particular threshold.

Serena Allen:

Definitely.

Dr. Monalisa Chatterjee:

That type of concentration that has been found to be problematic or having ecosystem damages or even public health damages. So, that's where the government sort of comes in and comes up with these agencies, which are going to then monitor and then also regulate and then establish these thresholds that then have to be met by these groups of people.

Serena Allen:

I want to talk more about the EPA, the Environmental Protection Agency. But before we get there, I just want to simplify some of your points. I think for some of our listeners, if they're not particularly well versed with economics may be having a difficult time following. So just to clarify. So, right now, we're using water but we could probably, at least in my opinion, exchange this out for any other resource like electricity or heat, for example.

Dr. Monalisa Chatterjee:

Air.

Serena Allen:

Air. Right, of course.

Dr. Monalisa Chatterjee:

Yes.

Serena Allen:

And so what you're saying is right now, these resources exist in a closed market or the idea that unlike something like housing, which can fluctuate, according to the market, or even something less grandiose and housing, maybe a Kit Kat bar or something along those lines can change according to supply and demand.

Dr. Monalisa Chatterjee:

Right.

Serena Allen:

Something like water or electricity or air in America is regulated by the government. And so when I go and open my tap and get the water, I know that it's going to cost me the same today probably as it will tomorrow without change for the market. Does that sound about right?

Dr. Monalisa Chatterjee:

Yeah. So there are different kinds of resources that we are relying on for our lives, right?

Serena Allen:

Definitely.

Dr. Monalisa Chatterjee:

So we have resources where we are actually... Like for a laptop, it's a private resource. We go buy that resource, we go buy a laptop, and we pay a certain price. The producers have decided what the price is going to be based on what kind of benefits or our desire for that particular laptop, we will choose if we are willing to pay that price. Because it's a private good but when it comes to things like water, air... Electricity, I wouldn't put it in that category because electricity, we're usually served by private companies.

Serena Allen:

Okay.

Dr. Monalisa Chatterjee:

Like national parks. All those things are basically publicly owned, or community owned resources.

Serena Allen:

Right.

Dr. Monalisa Chatterjee:

It's not something that it belongs to one individual, one company, or a group of individuals or a group of companies. It's something that essentially belongs to everybody but we have to find a way to use it without damaging it extensively because if it's a publicly owned or commonly owned resource if it doesn't belong to anybody specific. In economics and social sciences, we talk about the tragedy of the commons which says that, "Okay, if we do not have a clear owner for a particular resource, then it is likely to degrade because nobody's going to actually make those choices to protect it because it belongs to everybody."

So for example, if it comes to water, right now, if it doesn't belong to anybody, then everybody will go and extract as much as possible without looking at the consequences it's causing because the consequences is not borne by me. So if I go and extract like 20% of the lake that I have access to because it's a common resource, I'm not actually paying for the ecological costs that's coming or the social costs of other people not having access to that water. I'm not paying for it.

Serena Allen:

Right.

Dr. Monalisa Chatterjee:

I'm just getting that water, and I'm getting my benefits out of it. So that becomes really tricky. And that's why there is no incentive for me to be careful about how much I'm using. And so these kind of resources become very, very difficult to manage because we have to come up with a way to ensure that everybody's being a little careful about. And then there are taxes, and there are incentives. And there are different kinds of economic or other policy mechanisms that are then implemented to make sure that something that's not owned by specific people who can make choices about it is actually regulated and maintained at a certain level.

Serena Allen:

Wow. That's very interesting. Thank you for clarifying. That makes a lot more sense now. So, yeah, we mentioned earlier the Environmental Protection Agency or the EPA, what exactly is that? And how much funding do they receive from the national government?

Dr. Monalisa Chatterjee:

EPA, although, we've been very, very excited about EPA in the last few decades but in reality EPA's budget has not been that wonderful. I mean, of course, in the recent years, it's gone down significantly. But even if we don't look at recent years, we will find that EPA budget hasn't increased extensively in the past 20,30 years. So people have found that 1970s or 80s, the budget was about 5 billion dollars approximately and right now we have about an eight... I'm giving an approximate number. I'm not giving you specifics, but right now, in 2017, for example, it was somewhere around 8 billion.

Well, now, if it's just a 3 billion increase. Now, I'm sure everybody understands the concept of inflation. So if we adjusted for inflation or the increase in like how the value of a dollar has changed over time, if you adjust it to that, whatever was 5 billion in 1980, 8 billion today is close to about 3 billion of 1980. So, if you really look at-

Serena Allen:

Wow. It's decreasing.

Dr. Monalisa Chatterjee:

Yeah, it's considerably less than what it was in 1980, like 1979, 1980, the budget for EPA. And if we compare it with... Like US has changed in terms of say population. We've seen a 40% increase in population since 1979, '80. But we are actually seeing a decline in the budget when adjusted for inflation. So that really shows us how tight the budget and how rigid and stringent the budget has been for EPA, and more and more responsibilities have been given to EPA to, "Okay. You regulate water quality, air quality, public health issues. Figure out what are the thresholds beyond which certain concentrations of chemical substances are actually harmful for the environment and for people."

Their responsibilities are increasing, the total number in terms of budget has increased a little bit. But when we adjust it, we find that the actual amount is very much like almost half of what it was in 1970s.

Serena Allen:

So I imagine the EPA would be in charge of something like trying to provide cleaner water for Flint, Michigan, or something along those lines.

Dr. Monalisa Chatterjee:

Well, EPA is an agency which does a lot of research to figure out what are the consequences that we can see from pollution.

Serena Allen:

Okay.

Dr. Monalisa Chatterjee:

They will give us like depending on state or the municipal government. They will basically do a lot of studies to figure out what are the concentrations? What are the acceptable concentrations? And beyond what point we should not be going when it comes to pollution levels. So that's one thing they do. Other things, of course, they do is regulation, they monitor and regulate, they figure out what kind of mechanisms can be put in place to actually manage ways to reduce pollution in the long run. So they give you thresholds, they give you mechanisms to reduce what are the risks associated with those kinds of pollution? Exposures.

They basically give you what you should be maintaining. And then what the actual state municipal.

Other agencies basically use that information to decide, "Okay, so we now know that we should not be beyond 30 parts per million for this particular chemical substance. And let's now check our water quality. And then if we find it, then where are the point sources where this kind of pollution is coming into our watershed? And then how do we figure out a mechanism to push against those polluters? Or tax them or incentivize. So that they actually reduce their pollution levels that's going into the watershed, which is increasing this concentration in the watershed. And then we're seeing elevated levels."

So, EPA will obviously work with a lot of state county agencies, but their main focus is to establish those in some sense.

Serena Allen:

Okay.

Dr. Monalisa Chatterjee:

Rather than going and saying that, "Oh, you must do this." The implementation part of it comes with working with other agencies, they are not the ones who are going to every individual and saying that, "You need to meet with the standard."

Serena Allen:

Right. So they may not be the people who would go and try to stop a problem with the water but rather say that, "This water is unsafe for drinking."

Dr. Monalisa Chatterjee:

Yes.

Serena Allen:

And then it would be up to the state or something.

Dr. Monalisa Chatterjee:

And then the other agency has to work with that then.

Serena Allen:

Okay.

Dr. Monalisa Chatterjee:

Yeah.

Serena Allen:

Right. So I guess then that would be a part of the role of individual states, but there must be something larger. I know that in the news recently, there's been a lot of buyback between California and the federal government about different standards we're putting on. Do you have any ideas about the role of individual states with environmental policy?

Dr. Monalisa Chatterjee:

Right. So individual states have some level of autonomy, in some sense. So, EPA is a federal agency.

Serena Allen:

Right.

Dr. Monalisa Chatterjee:

It does all sorts of research and figures out what the thresholds are, and what should be implemented, every state, every county, every city should be, what they should comply with, what they should be complying with. So they do that. But in addition to that, I mean, there could be states which are meeting with just what the EPA standards are, and they're happy with it. But there are also states like California, for example, who do their own analysis.

They, of course, want to meet with what EPA has already provided us. And then also do something from the state point of view, like if 30 parts per million is something that EPA has decided as the acceptable threshold for a certain chemical substance in the water. It's possible that a state may put on additional targets to meet beyond what the federal agency has already given.

And this is, again, depending on specific states, what their priorities are. Sometimes you have states which have a lot of freshwater. So, for example, some of the states in the Great Lakes area, they may have more stringent because they want to protect their water resources, they want to maintain it, they are having very unique problems and challenges with their water resources, they may come up with something which is very, very focused on their kind of problems.

Because EPA is giving us... And they will be working with the state EPA to distinguish what is the state specific challenges that they are looking at water, for example. Like, at the National, the Federal scale, EPA will have certain thresholds every state has to meet with, but then in addition to that, in some states, you may find that they are having trouble even meeting the federal EPA standards. But then there are also states depending on what kind of issues they are dealing with, what their political inclination is, what kind of political energy is there.

All those factors will end up and how involved the stakeholders are, community, people are. All those factors will play a significant role in seeing what kind of additional steps the state is basically taking to protect the type of resources which they value extensively and the unique kind of problems that they may be seeing in those particular sectors. So, there would be

additional things... Like California, when it comes to air quality, California is very... Again, when it comes to water, California is very, very aggressive because we have a traditional issue that we are very uniquely experiencing.

Especially, in Southern California, how do we manage water resource between Northern and Southern California. So water is a very critical issue for California in general but in a very unique way. Because the type of water issues that we deal in this state level will be very different from what say Michigan is dealing. Michigan is dealing with a very different kind of water issues. When it comes to fertilizers and algae bloom and how do you maintain those? How do you reduce phosphorus and nitrogen from their Great Lakes?

That is a different kind of challenge. We are dealing with a different kind of challenge. Like how much water do we have? How do we transfer it? Our aquifers are they replenishing at all? This is a very different kind of water issue in comparison to what perhaps Michigan is dealing with. Michigan will probably have a set of policies that will address their specific types of issues that they're dealing with. And whereas California is dealing with another set of problems, and probably another set of policy mechanisms are being designed to do and are implemented to do and meet with those challenges.

So when EPA is more of a standard all across the country and then individual states depending on their own issues, they will find what is important and how they can approach it and implement something. Working with the state EPA and other agencies like the water board commission and lots of housing commissions and all sorts of different groups of people will come together to look at the problem and come up with solutions.

Serena Allen:

So each state definitely seems to have their own types of problems going on. And then the EPA oversees everything or releases data on everything but doesn't necessarily interact too heavily with the states, it seems like beyond these initial research and some types of regulation. Do you know if they provide any types of funding? I would imagine not since their budget is already fairly small for their responsibilities, but are they funding any of the projects in individual states?

Dr. Monalisa Chatterjee:

I'm sure that they are participating. So the federal EPA and then California State EPA, they have offices in the states as well. So the state EPA is basically what is connecting the federal EPA with other state agencies. And I'm quite certain that there is some funding channel that is linking the federal EPA with the state EPA and other state agencies, but like you are saying that the budget is really low right now. And they're constantly dealing with additional budget cuts.

So they, although, a significant portion of their budget actually goes towards grants and stuff to support all sorts of different kinds of research and assessments that's going on to figure out what is the quality of water, what we are meeting with, what we are not meeting with, but clearly they do not have the resources right now to very significantly fund any of these efforts, only some things which are already being assigned for a period of time.

I'm sure they're meeting with those, but I'm sure they're not going into something new at this point. Because they are basically functioning on a very bare bones structure to keep this whole thing operating.

Serena Allen:

Right.

Dr. Monalisa Chatterjee:

Yeah.

Serena Allen:

And I know that this is an issue that particularly, that the younger generation, those still in school care deeply about. We've been seeing over the past year or two now, the different protests going on internationally by students, particularly against climate change. And so I want to turn to our high school question of this episode. And this is coming from Akansha Taylor from Syosset High School in New York. And her question is quite similar to I'm sure the questions of many of the high schoolers who are listening to this episode right now. But why doesn't American policy attempt to regulate carbon emissions to the same extent that other countries do?

Dr. Monalisa Chatterjee:

Well, it comes back to how we function as a national community and how environment and economics are integrated in some sense. So when we're looking at carbon emissions, carbon emissions is something that is very energy dependent. We are a very energy intensive society. We are actually consuming a lot of energy to support the economy that we currently have. And economic growth is critical for us, in some sense. And that is one reason why we find it difficult to make a choice, which will actually end up sacrificing a little bit of the economy.

Not the whole, like it's not going to fall apart if we make some choices. But somehow we are a little nervous about making those little choices. Because when it comes to economy, if we move... And I think it's happening slowly, it's happening over time, people are realizing that when it comes to energy, and cost of energy, we find that renewable energy is becoming very competitive. It's actually quite competitive. But people are still a little resistant to it because we know that carbon or fossil fuel dependent energy sources have been reliable for the past hundred years and to move into something completely new requires an extensive amount of investment in the initial period.

And people are hesitating to make that change because there is some reluctance to do that because we do not know if that will go the long way. So, there is that hesitance, in some sense. But from all the research that we see, all the effort and assessments that we see, we find that there is no real reason to worry about it because renewable energy is very reliable in that sense. And we are seeing people hesitate. And then, of course, there are groups of people who

obviously do not want this change, do not want to implement and invest in a new infrastructure which will actually support and lock us into the renewable energies structure.

And we have seen resistance there because that would mean that resources will have to get transferred from them. And those groups of people will become less. I won't call them powerful, but less. It won't be as profitable for them because they'll have to transition to something new. And that's why we're seeing that this commitment is not coming in this country, particularly.

Serena Allen:

So the people that are right now holding the economic power over the market, I guess. I think of oil tycoons and different electricity companies, perhaps. Maybe they're not seeing the idea of maybe regulating carbon emissions or going into more clean technology as an investment opportunity, but rather a threat almost to the current economic infrastructure that we've known for decades now.

Dr. Monalisa Chatterjee:

Right. I mean, and we have to also understand that it's not just those groups of people who are providing us with energy, a lot of other things have also got integrated. So, for example, a lot of... You must be already familiar with all the investments that have already been made in the fossil fuel industry, right? So it's not just about those groups, but we are also integrated with that group, in many ways. In many, many levels. So to just shake ourselves off and often say, "We're going to just disconnect from them and move on to something else." Is a little tricky.

It's not going to happen so quickly. It'll happen over time. It's already happening a little bit, but then we have to find companies and economic activities, which are worth investing in and investing a lot of money in. So, for example, renewable energy we can invest in, but the renewable energy sector is not big enough to absorb all the investments. So, right now, if we transfer all the investment from the fossil fuel sector to the renewable sector, the renewable sector is not strong or big enough to be able to absorb all that investment..

So it's going to happen over time. And hopefully it's going to happen over time. But the only problem is that if we work with the economy to figure it out itself, in terms of, what is a good option for investment and all that, we find that it may take a little longer than what we have left. So that's the only trouble when it comes to... I mean, I think there's a lot of changes that's happening in the economy, people are moving to clean technology.

Fossil fuel industries are very... Companies are very nervous and very rightly nervous because people are moving away from them. Even there's a lot of movement as you know that people are not reinvesting in those companies anymore, or there is a push for not reinvesting in those companies anymore. So there is a lot going on. It's just that will we be able to transition in time to actually make significant reduction in carbon emissions? To actually... Not stop but at least reduce the climate change problem. That we cannot be sure of.

Serena Allen:

Right. And what happens? I'm sure that there's some people listening right now who aren't quite sure what happens if we don't change over. So just to play devil's advocate here, what happens if we don't invest in renewable technology? And we just continue with our current economic and environmental model?

Dr. Monalisa Chatterjee:

Well, we are already seeing widespread impacts, if not here. Like in the United States, we are not seeing serious gradual impacts yet. Although, some people will disagree. But let's say in the United States, we are seeing impact in terms of extreme events like the wildfires or the hurricanes and the all storms that we are experiencing these days and drought. And so very, very expensive consequences.

I mean, if you look at the economic costs, forget about even the human costs. Because in countries like the United States, we do have the infrastructure to not see a large number of people dying and especially when we are comparing it to developing countries where you will have thousands and thousands of people dying from any kind of tropical storm, but luckily, we have the right kind of infrastructure. Although, we do end up seeing at least thousands of people dying like for Hurricane Katrina.

But we have to keep in mind that economic costs of these events are piling up. So, we may not be seeing gradual problems like countries like Bangladesh or the small island countries. Which are seeing sea level rise and loss of freshwater and basically a threat to their entire existence that have already starting to show up for them. We are not seeing those kind of consequences, but we are seeing a lot of economic losses.

And this is only going to become more and more serious as we continue with our love affair with the fossil fuel in some sense. We have to find a way. So there has to be a societal, a political, a decision to make that change. Economy is doing it in its own natural process. The way economies transition. It's doing it. It's already happening. But we cannot wait for the economy, there has to be some steps that have to be taken right now while the economy is transitioning, to push the economy a little bit, speed it up a little bit. So that is required. Although, the economy itself is also doing it in some sense.

Serena Allen:

I want to talk about some of the countries that are really excelling at these initiatives. How does our budget compare to the budget of the most environmentally friendly countries and maybe not even our budget, but some of the policies or the citizens approach to different environmental and economic issues?

Dr. Monalisa Chatterjee:

Yeah, so the budget part, obviously, in the last few years, we are not doing very well. First of all, it's very difficult to compare budgets like I was mentioning beforehand because some countries

have one ministry, which has environment. They're looking at environment in one ministry. Others have like 10 ministries, more spread out, several ministries, several departments are looking at. And then money is assigned to them separately.

And so to identify how much money goes into the environment is a little difficult to get a number on, but if we just go by how much federal budget goes to Environment Protection, like for the EPA, you will see in that link, it's about 0.2% of the current budget that we have in the United States. But we have countries like Netherlands, for example, and I'm not saying that Netherlands is the only one which is doing well but they're closer.

Again, federal government budget, government expenditure doesn't again take into consideration all the money that the state or the county or the city is also spending on environment. But when it comes to just the government expenditure that goes into environment, it's like 1.2 to 1.4% of their budget--of their GDP. So clearly, there is a difference. But then again, remember that it's difficult to compare because like, for instance, California is definitely spending a significant portion in comparison to the... I'm sure we're not doing a point 2% of our state budget going towards environment.

So there are at different levels, we can see. And we will probably have a different number if we look at all those things. And it's very difficult to do that. That's why you don't get that information anyway. But the thing is that the kind of things... I mean, some countries that are doing very well, at a national level, some countries are doing well at a more micro level like at a state level, at a city level. So I'm happy to sort of say that in the United States, at least, we obviously, are not doing very well at the national level, but we are doing quite well, at some state level, some in a city level.

A lot of our cities are very, very aggressive when it comes to... Even LA, for example, we have leadership which are very, very much into making this whole process as sustainable as possible. They're experimenting and they're focusing on sustainability quite extensively. So we cannot just compare the national aspect, we also have to see how different subgroups within the countries are doing. And yes, so, we have like, for example, Netherlands.

That's one of the countries which probably is doing a lot especially when it comes to sea level rise. They've historically been very focused on managing, working with the ocean because a large portion of their land was actually taken by and taken over from the ocean because they did not have enough land. And if you look at Netherland, historically, they have basically filled out land to create land for themselves. So they've always been very, very active, in terms of, managing the sea level rise.

So, initially, it was more like, "Let's claim the land from the ocean. Let's take the low lying areas, fill it up, and pump the water out and that we will have more land space." But now their approach has changed. They know that that is not the best way to do it because of climate change. And in any way taking something... Unnaturally creating land is probably not the best approach. And so they are now experimenting with how they can live with the ocean. Like how can they have flexible spaces of the ocean where the ocean can come in when it has to, and then ocean can go back and they can use some of that space.

Actually, adding flexibility and resilience in their concept of how do they engage with the ocean. So, at a national level, they've always been very focused on that, and because of climate change, they're becoming even more focused on that. But even if we look at cities in the Netherlands, we have Amsterdam, we have Rotterdam, we have all these places, which are actively at the city level, also trying to become sustainable urban settlements, reducing their carbon footprint.

And in many ways, they are also coordinating with cities all around the world. So you do see a lot of cities coming together and forgetting about their national role or national identities. It's the cities which are coming together to figure out, "What are the best practices? How do we reduce our carbon footprint? How do we make our... If not zero waste, but how do we reduce our waste? How do we recycle better?" So all these things. And in that sense, I think many of you know, cities from the United States are also participating in that and trying to accomplish those things.

So, at a national scale, budget is obviously a mess in United States. And also, the political will and the interest and this whole, "Why are we not transitioning?" Because we have leadership who are not thinking about it, they're not realizing or they're just choosing to ignore the actual consequences. And therefore, we're, in a way, going back rather than going forward, in some sense. Not realizing that this is going to actually end up becoming serious.

But then for happily and fortunately, cities and states are realizing that we cannot go back, we have to go forward. Not only because we want to maintain a certain quality of environment, we want to reduce the climate change process. We do not want serious consequences from climate change at our doorstep. Also because it's also good for the economy, it's good for the economy to move away because that's the new stress sector. And if you look at historically, if you look at there has been so many places, so many times in history, where economy has transitioned from one thing to the other thing.

Like the whole industrial revolution started with industrial growth, right? Industries and commodities and ready tangible commodities like... I don't know. Like clothes and books and tables, like those kind of commodities. Everybody was buying those things. Now, the economy has transitioned into high-tech things, services. So it's not that the economy has never changed, economy has just kept doing the same thing because the main thing about economic growth, is that it's going to change, it's going to move to the next commodity, and next commodity. And that's how our economy grows.

And if we don't go with the next commodity, that the economy is identifying as a commodity worth investing in, then we are basically losing that opportunity in some sense. And the new commodity right now is something which is sustainable, which is clean technology base, which is renewable energy. And we are not going for that. So you're basically missing out on the next growth that the global economy is seeing and there are lots of opportunities there and we're not doing that.

We're not doing that because we're like, "Oh, no. We will go back to the old product." Which will probably go on for a little while but it's going to decline very rapidly. And by the time other countries and other groups of people will have already taken over the new commodities,

which is the renewable, right? Like you can see, countries like China and even Canada, for that matter. They are the ones who have the biggest solar companies who are producing solar goods and services.

Not only are they producing goods and services, they're also financing solar restructuring for small countries. So, for example, China has special banks, which gives out loans to different countries who want to restructure their energy system from fossil fuel base to renewable energy.

Serena Allen:

Wow

Dr. Monalisa Chatterjee:

So they're taking advantage of that growth that's happening. Whereas we are sitting here and saying, "We want to go back to coal."

Serena Allen:

Interesting. So there's not only economic gains to be made by switching our economy into renewable energy sources, but it also helps combat some of the very real threats we're seeing. There's just the very terrible Australia fires that happened and burned a huge majority of the area of Australia as well as different hurricanes and monsoons that have been happening at higher and higher rates.

And even though we see these environmental effects happening, and also we see that there's a potential in the market for environmentally friendly policy and technology. This is viewed as a very partisan issue, perhaps the most partisan issue on the American political spectrum at the moment. Why do you think this is happening? Why are people... Let's focus more, I guess, on the right side on the more conservative side. What are some of the reasoning they have for not supporting these issues?

And I think in LA, we get a very one sided part of this argument where it makes sense to invest in it and this is definitely what's happening, and even people changing in their diets. But for some reason, there's still a large section of the country who doesn't believe in this as an occurrence, I guess, or something worth investing in. Why do you think that's happening?

Dr. Monalisa Chatterjee:

I'll step back a little bit. At a societal level, we are constantly dealing with values that we assign at a personal level. Like what value do we assign to say, biodiversity. What value do we assign to our own right to live in a certain way. So there is this constant tension between, to some extent against coming from my own personal view, there's a constant tension between what we need to do as a community, as a society, for the broader outcome, and what that means at a personal level.

So, I think we are in that point in this timeline or in history, where we need to re-look at individual choices, and what is good for the community. So, individuals, we all function as self-interest, we are seeking self-interest and trying to get as much as possible. And if you look at American values to some extent, and even Western values to some extent, or now, global values to some extent, we know that it's the individual choice, the individual freedom.

Those are very important and I absolutely agree that those are very critical when it comes to human rights in some sense. But when it comes to human rights, what we have to also look at, not just human rights, we have to look at environmental rights and rights of ecosystems and rights of natural environment and nature's rights, basically. We have to look at that. So it's kind of a conundrum which is coming from the human rights versus rights of nature.

So, we want to make choices, which is good for us, which we think we want but that would mean that we are basically going to consume resources, we're going to use nature in a certain way. But if we want to make the right choices for nature and the environment, then we'll have to probably give up a little bit on human rights. But that's the thing that we are dealing with in society. So, like when it comes to, again, every individual, every community, every group of people, every group that you're looking at, they all have a different placement between the human rights and the nature's right.

Some are a little close to nature, and they're like, "Oh, yeah. I'm going to become vegan, I'm not going to consume these things because, in the end, it's good for nature and environment. And it's not very important for me to have meat, animal products." And others are like, "No." And others are a little bit close to human rights and less close to nature rights, and they're like, "Oh, no. It's my individual right to eat what I want. It's important for my diet, this is what I like, this is what I desire, I can afford it. I'm going to do that."

So it's where we individually stand between those two things. And clearly, in some places, we stand a little close to nature. In other places, we stand a little close to human individual rights. So that is why we're seeing this-

Serena Allen:

The divide. Definitely. And I think it's an unclear line. I think a lot of times we like to paint the other side as evil in one way or another. I mean, you have the stereotype of the left socialist vegan or something like that. And then on the right, you have this stereotype of jerky eating, littering straw user, something like that, right?

Dr. Monalisa Chatterjee:

Right.

Serena Allen:

And we think it's very black and white. But a lot of times, I think it's a lot more complicated, which is what you're saying. No one necessarily wants anything bad for the world or for themselves or for their families. But if you're working in a coal mine, and that's your only source of income, that might be very difficult for you to support renewable technology because it's

your job on the line there and something along those lines. Yeah. So I think it is very complicated

And I think you really tap into a great point there. But I'm curious more on your opinion. So this is the question we're closing out the podcast with for all the different topics we've discussed but what is your opinion on how we could better approach environmental policy from a non-partisan lens to better allocate American tax dollars?

Dr. Monalisa Chatterjee:

I think that we have to open up conversations with people who are thinking differently in some sense. And when it comes to any kind of environmental issue, we have found that if we look at it from a philosophical point of view, we are going to only find differences. Some people will say, "I want this, I want that." We'll spend years and we will never come up with some solution.

Serena Allen:

Right.

Dr. Monalisa Chatterjee:

So from a pragmatist point of view, I would say that we need to... Instead of saying how we look at the same thing differently, we have to focus a little bit on how we look at the same thing. What are the similarities in our views and values? And starting from there. So the common grounds, I think. Identifying common grounds is very important. And also, I think we're already trying to do this but it's also politically driven in some sense because like I said, when it comes to economy, economy is constantly transitioning.

Something that was in high demand 20 years from now, it's not in high demand. Every generation has to train differently, you cannot train every generation the same way because the kind of skill set that we are looking for is going to be different. What happens to the children who are in elementary right now, they will not benefit from the same type of education that you got or that I got because, obviously, the world has changed.

What is required, what is in demand, what kind of skills that are going to be required, all that is going to change, we need to recognize that. And this is something that people want to hold on to the old life. And I think to some extent, we have to understand that life is always going to change, the economy's always going to change and we have to figure out a way to work with that. So I think there has to be a lot of conversations in some sense.

And also, yes, we need the right kind of leadership who are open to having that conversations themselves as well. And right now, we're not in that situation at all, people are just not ready to talk with each other. And any kind of situation which doesn't allow these kind of conversations to happen. It's never going to come up. It's never going to end up producing any results. We're going to just continue to separate rather than find a way to converge.

So I think, in my own personal opinion, I think we need to have conversations, we need to forget about ourselves a little bit and talk about like... Let's get your view a little bit, that kind

of open ended conversation. And also, we need to be ready for change in some sense, rather than holding on to past and glorifying past that worked for that group, that generation. Knowing that it's not going to work for us and our future generation, and how do we change our society, so that what we are giving the generation that's coming in, is basically what they need to make it work in the period when they are the leaders then.

So I think that is what is most critical at this point. I know, it's an abstract idea. It's not very specific like let's change this to this. But we have to remember that it's not going to happen unless we're thinking about some transformations in our system. A banded solution is not going to do it. It's not going to be just like, "Okay, just add this policy and we will be able to resolve this problem." Clearly, there are some philosophical issues, approaches we need rethink those things as a society and be open to changes that are bound to come.

Serena Allen:

You just heard Dr. Monalisa Chatterjee talk about environmental economics. Thanks for listening. Dr. Chatterjee described how we are witnessing a changing economy that celebrates climate friendly products. I think that's true and provides a great incentive to invest in the environment, no matter what your political affiliation is. If you enjoyed today's episode, be sure to check out our other episodes and share this one with a friend.

To learn more about environmental economics or what Dr. Chatterjee does, please go to bedrosian.usc.edu/paycheck, where you can also provide feedback or request topics for future episodes. The Policy Paycheck is sponsored by the Bedrosian Center, an Applied Research Center with the sole Price School of Public Policy at the University of Southern California.

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