All right, why don’t we go ahead and get started?

Don’t want to punish those who came on time, and I do think we’ll take the whole hour talking about this very important topic.

For those who are just coming in, my name is Carolyn Neuhaus, and I’m a research scholar at the Hastings Center, and I will be moderating this webinar.

This is a joint production from the Hastings Center and the Caribbean Research Ethics Education Initiative funded by the NIH Fogarty Center, and this marks the culmination of a one-year program in which bioethics scholars, including myself and one of our panelists, Dr. Cheryl Macpherson, led an exploration of climate bioethics in the Caribbean region, looking at the impacts of climate change on health and ethical issues as we both mitigate and adapt to a warming planet.

A major part of the rationale for this program and for this webinar is giving voice to individuals from the Caribbean, living in countries experiencing the destabilizing effects of climate change, who are not typically part of bioethical inquiry about climate change.

So, we’ve been working with nine Caribbean and Latin American bioethics scholars as they develop a project on climate bioethics.

You’ll hear about two of those projects today through videos that our scholars created. And our webinar will proceed with our panelists discussing the impacts of climate change on health in the Caribbean region and how to build resilience and themes from our scholars’ projects.

Before we begin, a quick word on the title of the webinar.

You’ll note from the title that our focus is on resilience, and by this we mean the ability to cope at an individual, community, national, and even international level with the shocks, uncertainty, and fear caused by both the immediate effects of climate change—such as hurricanes, fires, loss of coastline—and by more existential threats, which are pronounced in the Caribbean region as entire nations face inundation from sea level rise and devastation from weather events.

And we’re talking about nations that have historically lacked the political power to do much about the fossil fuel industry or global economic system. So, our panelists today are three women: two native Caribbean, Joy St. John and Georgiana Gordon-Strachan, and one expat, Cheryl Macpherson, who has lived in Grenada for decades.

Together they bring decades of experience and knowledge on the effects of climate change on health and healthcare systems, as well as efforts in the Caribbean to both mitigate and adapt to climate change.

I’ll introduce our panelists and then get right into the content.

Dr. St. John has had a long career in public health. She’s been the chief medical officer of Barbados. She was the assistant director general at WHO in Switzerland, where she held the portfolio of climate and other determinants of health. And most recently, she was the executive director of the Caribbean Public Health Agency or CARPHA from 2019 to 2024.

Dr. Georgiana Gordon-Strachan is the regional director of the Lancet Countdown’s SIDS initiative. And SIDS is something we’ll say a lot today. It stands for Small Island Developing States. Along with her colleagues, Dr. Gordon-Strachan collects data on the effects of climate change on health that can inform climate policies and motivate action. She also serves as the director of tropical metabolism research unit at the Caribbean Institute for Health Research within the University of the West Indies.

And finally, Dr. Cheryl Macpherson is a bioethicist who has been writing and teaching at St. George’s University in Grenada for over two decades. She is among the first bioethicists to publish normative analyses of climate change and has pushed the field to embrace climate change as a bioethical issue. She has also led the Caribbean Research Ethics Initiative for over 10 years and been a faculty leader of the Climate Bioethics Program that this webinar is a product of.

So, thank you for being here, panelists. I’m thrilled to be in conversation with you.

To our audience, just a quick note, please put questions as they come up in the Q&A box, not in the chat. We have someone who will be moderating the Q&A and feeding me questions as they come in. So, put them in any time. No need to wait until the end because we’ll be bringing them up as the webinar progresses.

Finally, we can get to our first question. I’ll go to Joy first, then Georgiana, and then Cheryl with the same question. And that’s: Can you tell me what keeps you up at night about climate change? What do you see as the most serious issue facing people in the Caribbean region today?

As a mother, I think about what could happen to my grandchildren and what would be their quality of life. Because I remember growing up, I spent a lot of my girlhood and teenagerhood outside playing cricket, going to the beach.

And no, it’s not that easy to be outside and have recreation for any period of time, especially the long periods that I had. As a mother, I think of that. But as a doctor, I also think of all of the health effects that can happen. And it’s not just heat.

A pregnant woman can have increased fetal loss. Children can have outcomes that are not conducive to their development, especially their health development. And then the mental fallout throughout the life cycle of the extreme weather events that are happening more and more often.

So, it keeps me up at night that my family in the future will not have the quality of life that I had and will have the risk of more health impacts.

Thank you. Georgiana, over to you.

Thank you, Carolyn. What keeps me up at night is the struggle to find hope. As small island developing states, we are most vulnerable, some of the most vulnerable countries to climate change. And every summer we have a hurricane season in the Caribbean. And every summer at the start of the season, I think we all put up a collective prayer, hoping that we won’t get hit by a hurricane. So, we live, we live climate change, we live the extreme events. And the sad part of it is that our contribution to greenhouse gas emissions collectively for all small island developing states is less than 1%. So, we’re very dependent on our neighbors to do something about it, the major emitters to do something about it. And I at least have this feeling that it is continuing unabated, and it’s very difficult for me to find hope in that situation, because I feel like we’re out of control.

What also bothers me is that I don’t think the urgency of the situation is understood because it’s not being acted upon. So, for me, it’s a struggle to wake up every morning and to find hope and not feel like I’m a sitting duck waiting for an extreme event or for other impacts of climate change to affect us.

Thank you. Yeah, you’ve hit on one of the most difficult and obvious ethical issues here, which is the injustice of climate change and the disproportionate effect of warming on populations that have not contributed in meaningful ways to climate change, which is something that will definitely get into more in this webinar.

Cheryl, I know that keeps you up at night, so why don’t you elaborate?

Thank you, Carolyn. I have a twofold answer to the question about what keeps me up at night, and I think it encapsulates both of Joy and Georgiana’s comments. The first is about heat, heat that’s affecting our region, but also temperate climates, too. And the second has to do with the inaction of our leaders, of our government leaders, our institutional leaders, our corporate leaders, to become more environmentally sustainable in the entities that they lead.

So, this is a La Niña year, and I’ve learned that, I’ve learned a lot. I’ve learned that this is a year where temperatures should be cooler around the world, certainly in our part of the world. And in fact, they’re not. January 2025 was one of the hottest ever in our region and around the world, with the exception of a few places across the United States.

As a result of that, of years of this trend of rising temperatures, we’ve lost the distinction between wet and dry seasons. So, the Caribbean has always had half the year is rainy season, half the year is dry season.

And this has really serious implications in many ways. One of the things is that we’re getting heavier rainfall when it does rain, which the region is very familiar with landslides and road washes, roads and homes damaged.

But this is getting much worse, much more frequent, much more severe. Water reservoirs are low, so there’s rationing of distribution. And what that means in our day-to-day lives in this region is that you go to turn on the tap in your home, even in your workplace, and it’s dry. And that happens either on set days of the week or set hours of the week. Sometimes it’s even just erratic. Sometimes you get water that doesn’t look too good coming out as a result of this when it’s particularly low.

It also affects our crops, so it’s affecting our food security. And I can tell you in Grenada for the past several years, what used to be abundant fruits and vegetables in the markets and the shops are just not there. And this is a real concern.

So, if I can just digress for a minute and say that when I was a child, we had a babysitter who had grown up in the 1800s, in the late 1800s, and she would tell us these wonderful stories about sitting in the field watching the animals and little creatures come out and the birds. And we grew up with a love of nature that I think is missing in so many lives today.

And when I would look at frost on the windowpane, people would talk about, “that’s Mother Nature.” And we just… I certainly don’t hear that.

I don’t know if others talk about it or hear it, but we’re missing that connection with nature. And I know I’m not the first to say that, but I think it’s important and it’s part of why we’re out of touch and not realizing how serious things are, as Georgiana said.

And so, my first worry has to do with the heat compounded by our willingness to see our unspoiled lands and areas developed with human encroachment on all these ecosystems. And the second is really this unwillingness of our many of our corporate and government leaders, not all of them—around the world, not just in our region—their unwillingness to really take it seriously and transition.

So, I’ll stop there. Thanks.

Thanks, Cheryl. I was wondering if you would respond directly to the challenge of the global injustice of climate change and what should we make of the fact that historically the biggest emitters are the high income and wealthier countries that are not taking action at the moment and those most affected and at least at this point whose livelihoods and lives are being upended are people who have not contributed to climate change.

There’s been quite a bit written about that in the bioethics literature and I just wondered if you could give a little snippet of that and where do we go from there?

The Caribbean, the SIDS, and other countries of the region are particularly vulnerable due to their geography. So, they’re very far away, great distances, things have to be shipped in, a lot of goods and services. And more importantly, they have really extensive low-lying coastlines, which means we’re much more vulnerable to storms and sea level rise and all of those kinds of impacts.

And because of our socio-economic backgrounds, and there’s also been much written about this, the region doesn’t have the level of development that the wealthier countries have. And although that development is kicking in, it’s been very much slower than elsewhere. And there have been studies that show that with socio-economic development, obviously health improves, but also our use of energy and our production of waste increase significantly.

So, despite that, our countries are not the ones who are producing significant amounts of the emissions that are causing climate change. Most of those emissions are coming from large industries, corporations, the largest corporations. Globalization has had a huge boost for this problem.

And there’s no question that it’s an injustice that the wealthy countries and wealthy individuals who lead these governments and bodies are the ones who have contributed to the problem. And it goes on every year, and global emissions are continuing to rise.

Dr. St. John, I know you’ve been a leader in some of the conversations at the global level and in important international forums to represent the Caribbean SIDS. And I wonder if you could give us a picture into that world that most of us are not privy to.

Well, before I give a picture into that world, I’m going to say to Cheryl, it’s not all bad in this corner of the world. First of all, you have got the fact that even though we do not produce the emissions that alter climate in the way that other entities do, we contribute through Guyana and Belize a significant amount of green space that helps to keep the atmosphere good.

And I also wanted to say that globally there has been an improvement in the depletion of the ozone layer because globally we were able to get together and stop the production of chlorofluorocarbons that would come from air conditioners.

And then other specific policy initiatives of the Caribbean that have had an impact at the global level would be seen through the advocacy of the Caribbean at, I think it was the year before or I can’t remember which of the COPs, either last year or the year before, on this whole issue of loss and damage and the compensation for regions such as the Caribbean for the loss and damage from severe weather events.

It has been followed up by the World Bank setting up a fund for loss and damage. And I think that the countries of the region that were hard hit by Beryl have also applied for some of that funding. So, it is not all gloom and doom.

And that is a nice segue into how the Caribbean at the global level, and not just the Caribbean, the Small Island States is an association of small island states that does the negotiation of the language that gets things to happen.

And it was part of their work that was championed by the heads of government and other governmental leaders, for example, the Minister of Health of Antigua, which got loss and damage into the language.

The global situation with climate change is very much vulnerable to the whims and fancies of the powerful and the rich. But there is also the ethical issue of finding ways for, for example, subsistence farmers who burn forested areas to get clear spaces to farm. There needs to be the ethics of giving them something else to do to live.

That ethical dilemma has to be addressed. So, it is not all corporations, there are some basic cultural shifts that have to occur.

Great, thank you. You’re helping hopefully pointing out the different levels of action that are needed and that the strategies to go on in the face of injustice and the face of climate shocks and uncertainty and hopelessness are different at those different levels: at the individual level, at the community level, the national level, and the international level.

Since we’re talking about effects of climate change, now would be a good time to segue to our first video, which is by a scholar from our climate bioethics program named Zane Hernandez. He is from Belize and has been developing a project on the ethics of displacement. And here’s Zane!

THE EFFECTS OF CLIMATE CHANGE ON MONKEY RIVER VILLAGE – BELIZE

[Zain Hernandez (filming on site at Monkey River)

MMSc. Training Facilitator at BTEC

(Belize Training and Employment Centre), Beltraide.]

Hello, my name is Zane Hernandez and today I’m here to talk about a community that’s close to my heart, Monkey River Village.

Monkey River Village was once a prosperous community. It was a hub for tourism, and it housed more than 2 500 people. Today it houses less than 250. This is all due to climate change, which has caused coastal erosion to wash away the majority of this once prosperous community.

Football fields, houses, and even graveyards have been washed away into the sea. Families have been displaced. And it is sad to hear the stories of the people that remain when they say that a few hundred yards away the community used to reach out, but today none of that exists.

And Monkey River is not alone. Communities throughout the Caribbean, coastal communities, they are at the same risk, they face the same threat.

The interesting thing is that they are not the ones responsible for climate change. They have contributed minimal to nothing to climate change, yet they are the ones who face the brunt of its consequences.

Should we not have a moral obligation to help these communities?

I say that we have to come together with organizations, governments, and community leaders to help these communities with their climate adaptation so that we can achieve climate justice.

Monkey River is just the beginning. It will get worse. We need to come together. We need to act now.

[This video was produced in partnership with the Caribbean Research Ethics and Education initiative (CREEi) and supported by the NIH Fogarty International Center award #3R25TW009731-11S1]

So, thank you, Zane, for the analysis. And Georgiana, if you wouldn’t mind coming back to join us. You are our climate expert scientist on the panel, and I was hoping you could contextualize Monkey River. It’s a really compelling story of one town in Belize, but we know it’s happening elsewhere, and I wondered if you could quantify that for us.

Okay, I must say thanks to Zane. I think his call, his appeal for us to come together, is a strong appeal and that we should pay attention. But I wanted to start by just talking about sea level rise and to say that 70% of the people in the Caribbean either live along the coast or work along the coastline. So, we are already vulnerable to sea level rise.

His community is not special, as he said. There are some other communities that are also having the same challenges with coastal erosion.

So, if I can use Jamaica as example, we have a very similar fishing village called Hellshire, and if you ever come to Kingston, it’s the best place to have fried fish.

However, when I was a child, there was a long beach. We used to ride horses along the beach. Now there is no beach at all. You step off the huts where the fish is being fried, and you’re right in the water, right on the sea.

And this is not the only place. We’ve seen this in many other places, and there is a big appeal for many Caribbean countries to firm up their shorelines, and work has been going on around this in many of the countries.

But the other thing that we need to think about as well is the lives and the livelihoods. And according to CARICOM, 182 000 people work as fisherfolk within the Caribbean region. So, if we lose our fisheries, it’s one of our main sources of protein. Chicken is the most popular source, but many countries use fish as a main source of protein, and fish is a good source of protein.

So, we really are in a difficult situation.

We’re not at the point yet. There is one country off the coast of Panama where people had to move because the sea level had risen so much that many people left that country. But we’re not yet at the point of some of our countries in the Pacific.

For example, in Kiribati, which is one of the Pacific islands, they’ve already brokered migration policies called migration with dignity together with Fiji. They bought land in Fiji to move their populations over by 2100, some by 2050. They also have made arrangements with Australia and with New Zealand, other countries that their nationals would work at. So, they’ve really looked at this in a serious way.

Tuvalu has been trying to secure its culture by having a digitized version of their culture. But we’re not as far down the road as yet, but we’re going there, we’re getting there.

The estimation is that we will lose 5% of our coastlines. And this is for many of our countries, Kingston in particular is one such city. So, when we look at what Zane has said, this is a clarion call for action. And sea level rise also includes coral bleaching, which reduces our fish stocks.

And just to add to that, from a Caribbean perspective, it’s estimated that we have as revenue for over 400 million US dollars that can be attributed to our fishing industry. So, this is really, really very important.

I hope I’m saying it right, because I think I’m not actually telling you how important this is. But it means a lot to a lot of people, because these are their lives and their livelihoods. And even if we take the fishing industry out of it, as I said before, 70% of Caribbean people live and work along the coastlines.

So, it’s not just the fishing industries, other industries, other factories, other government workers. Our main tourism is one of our main foreign incomes, foreign, okay… I don’t know why I’m stumbling on my words. Let me start again.

Tourism is one of our main foreign exchange earners. And if the beach keeps encroaching onto the hotel, we won’t have our sea and sand that we market ourselves with. So, this is a very important issue. Even though he only spoke about Monkey River, it is an issue for all Caribbean.

Right. And as you say, it really impacts all aspects of life from livelihoods to food supply. And then from our comments before, just the culture and lifestyle of being in the Caribbean and living life outdoors, you know, when you can’t…

I just love the image, Georgiana, of you on horses on the beach and eating fish. I mean, it’s such a beautiful picture of what life is like for people in the Caribbean that’s lost.

And that gets to some issues with migration that maybe we could talk about and with displacement, which means that, even if you could recapitulate and manage as difficult as it is to have these contracts with other nations and create sustainable housing and find work, the enormous loss of culture and lifestyle is something that can’t really be recapitulated in a colder place, let’s say, or just a different place than the Caribbean.

Joy, what do you think of that? I know you have a lot to say on this topic.

So, this whole issue of the threat to food security is something that concerns me. It’s not just a climate change issue; it is a non-communicable diseases issue.

And the same ethics that is off-kilter, that allows action that affects the climate in such a way that the Caribbean is affected by severe weather events, is the same off-kilter ethics that allows substandard food or food that has the incorrect nutrient proportions too high in sugar, salt, and fat to be directed towards the Caribbean, which does way too much importing of its food.

I think one of the ways that we need to look at this whole issue of climate is also look at the balance that we have to have in the initiatives that we mount to combat the negative effects of climate change.

So, while she was talking about Hellshire—which I loved as a student, that’s the first time I tasted fish and festival, still love festival—I remembered that in Barbados, we had a similar issue.

And in Barbados, we have tourism, that is our main thing. The beach is a huge reason why tourists come. So, to address this whole issue of coastal erosion, there was an initiative to combat coastal erosion. But it also produced a walkway along parts of our coast that are very popular with both locals and tourists.

And so, we’ve got a balance, which also combats NCDs. So, people love to walk there, especially on an evening to get their exercise, to help them be healthier, and it combats coastal erosion, which comes about by the rising sea levels.

Another thing that I have thought about is: because of rising sea levels for parts of our region, like Barbados that have low-lying coastal areas, there has been an intrusion of saltier water and sometimes brackish water.

Some solutions have been found to that, which also go along with another negative side effect of the changing climate: this whole issue of drought. And so, there are desalination plants that have come up that take that brackish water that has intruded and treat it. So, that augments the water supply that is especially bad during drought.

So, the creativity of the Caribbean and other regions that are negatively impacted by an ethical practice can sometimes solve more than one problem, all at the same time.

That’s fabulous. Yeah. And that’s the kind of solutions-oriented thing we’re excited to highlight today.

I just want to point out another ethical tension—and maybe Cheryl, you can jump in here—between sometimes implementing solutions to immediate problems like the food security problem, which can be ameliorated by increasing importation, by increasing imports of fish or chicken, for example, but in ways that exacerbate climate change in the long term. And so, finding solutions that both meet the immediate need of people affected today, but in a sustainable way, seems to be sort of the trick. But that’s not always possible, and I wonder, Cheryl, if you want to come in on this sort of generational justice question.

There’s so much has been written about intergenerational justice. I’m not really sure how to summarize other than what you said, Carolyn, which is so true. But I guess I would like to just comment on Zane’s call for us to come together for a little more solidarity and the idea put forth by, well, quite a few bioethicists, but one in particular, James Dwyer, who’s written about environmental migrants and something that we can all be thinking about perhaps to help overcome generational justice issues and others, is our respective responsibilities and potential to do something as professionals.

The idea is that there is structural injustice. Many have written about it, but we as professional people, regardless of our discipline, have privilege in society. We have educations that have enabled us to live probably a little bit better quality of life than many, at least a little bit less concerned with where the next meal is coming from than many have. And it also has given us a certain amount of influence over students or patients or others.

And because of that privilege, we have a certain responsibility. Or we can certainly reflect on it with respect to environmental migrants and other aspects of climate change. What is it we can do? I’m not sure. Each of us will have to figure that out for ourselves, but I’d like to use that as a motivating call for all of us to reflect on and think about what we can do ourselves in our routine work.

Thank you, Cheryl. And you’ve served me the perfect segue to our next video.

I’m going to go there now, but I do want to highlight that we wear many hats and thinking about what we do in our hat as a professional and what we do in our hat as a citizen of a village and what we do as a global citizen. And again, thinking about different kinds of actions to take in these different spheres of life and finding the motivation in these different areas, which we hope adds up to something meaningful, both personally and meaningful later.

Danny, thank you. Hold on. Before you start, I just want to tee up this video. It is from a veterinarian in Mexico, Dr. Eréndira Peña, who has a very innovative idea for engaging veterinarians as a professional community in climate change surveillance and adaptation. Thanks, Danny.

THE IMPACT ON CLIMATE CHANGE ON ANIMALS IN QUERÉTARO, MEXICO

[Rosa Erendira Peña Trujillo

Veterinarian Physician and Zootechnician

Owner — Novapets Veterinary Center in Querétaro, México]

Hi! I am Eréndira Peña, a veterinarian from Querétaro, México. In my practice, I take care of many pets and small animals from the health effects of climate change. Our pets are part of our daily lives, they share our environment, and even environmental stress. They are directly exposed to the same environmental risk as us. So, they manifest the same disease as us and are susceptible to the same risk factors of disease caused by climate change, including vector-borne disease, like those from ticks, which are more widespread. Dogs and cats also experience thermal shock in current heat waves, and I have seen more cases of skin cancer due to increased exposure to UVA and UVB radiation.

This is a problem for our beloved pets, and it is also a problem for farm animals. The main ethical problem is that animals are suffering because of climate change. But there is a little attention to this from the scientific community, veterinarians, and the population in general. We have a moral responsibility derived from the high degree of domestication, and their dependence on us to address this suffering.

I propose that the veterinarians join the scientific communities and public health agencies and participate in the epidemiological surveillance of the effects of climate change on non-humans. This will both improve the lives of animals and also benefit humans. Knowing what’s going on in non-human populations can guide medical and public health decisions for humans too.

[This video was produced in partnership with the Caribbean Research Ethics and Education initiative (CREEi) and supported by the NIH Fogarty International Center award #3R25TW009731-11S1]

Wonderful. Thank you, Eréndira. I hope you were here to watch your wonderful video.

Cheryl, I want to go to you with the first question on Eréndira because her proposal is situated within an approach to ethics called One Health. And I wondered if you could just give us a primer on the One Health ethics.

Thanks. Sure. One Health has a lot of meanings to a lot of people. It’s basically an interdisciplinary or multidisciplinary approach to health that’s concerned with humans and animals and ecosystems. But I’d like to give a quick example because it is so much more complex than what that sounds like.

We can think about mosquito-borne infections in this example: as the world warms, mosquitoes are moving into new locations where they now can survive where they couldn’t previously. And they breed and they have feeding behaviors, which is when they bite us, and they spread infectious disease. For example, Zika virus had never been in the Western Hemisphere at all until I think 2015—Joy could correct me on that. And among the first places to identify it in the Western Hemisphere was the Caribbean region, I believe through CARPHA.

In addition, we have dengue fever, which is causing many problems and a lot of morbidity and some mortality across the region. That has, as I understand it, increased about 10% roughly in the past 10 years with rising temperatures and mosquitoes moving into newer locations.

So, in order to control that, one of the main approaches would be vector control, getting rid of the number or keeping the number of mosquitoes in a given location lower. And to take a One Health approach would be to try to coordinate and integrate information from a huge range of disciplines that one wouldn’t necessarily think of at the outset, such as entomology, mathematical modeling, geospatial sciences, as well as health in human and animal medicine.

So, One Health is very complicated and the One Health ethics, which I would understand as a sort of sub-branch of bioethics, is concerned with who we’re prioritizing. Are we prioritizing humans too much and hurting too much the environments, the ecosystems, or the animals? And, of course, animal welfare is a huge concern in veterinary medicine as well as in bioethics.

So, One Health ethics is interested in the interconnections, the interdependencies, which are as important, if not more so, than the interconnections and in how we prioritize and whose interest are we really acting in.

Thank you. Dr. Gordon-Strachan, so Erin Jarrett talks about pets, and I wondered if you could also talk about the impacts of climate on farmed animals and where we go from here, maybe thinking about a One Health approach that lifts all boats.

A One Health approach is a really good approach because it helps us to, as Cheryl said, look at the interconnectivity between human health and the environment and animal health. So, it’s a brilliant approach.

To look at farmed animals, I’ll use chickens as my example. And I’m using chickens because chickens are the main animal protein source in the Caribbean and many Caribbean people who are on this call will recall that last year we had a shortage of chicken to the extent that one fried chicken franchise had to raise their price because the price had gone up because it was scarce.

One of the challenges with chickens is that they do not have sweat glands and therefore cannot regulate their body temperature. So, when the external temperature goes above 32 degrees Celsius, they automatically or almost automatically go into heat stress.

Now, the sad thing about the heat stress is that it increases their mortality within a chicken farm, for example. And we know that about 30% of our local chicken is supplied by the domestic farms, smaller farms.

So, for example, in one report, a small farmer, a small farm holding, she had 300 chickens and in one night she lost 100 chickens because of heat stress. And this was something that was happening in many of our chicken farms.

And you’ll recall that 2023 was the hottest summer on record. And during that time, we had several of them dying. It also affects the size of the yield, so the chickens are smaller. It affects the number of eggs that they lay. And it also affects the shell, the quality of the shell. So, the shell is a lot thinner.

So, I just wanted to raise this because it is a challenge. During Hurricane Beryl, the Minister of Agriculture for Jamaica reported that they lost 300 000 birds, right? And this was just birds from chicken farms from the southern end of the island. And because of that, by November, there was a shortage in chickens.

And so, when we think about climate change and we think about heat in particular, because that’s one of the major problems that we have within the Caribbean, I don’t think we’re monitoring it. I’m not sure that we’re paying attention enough to the impact of heat. But our farm animals are adversely affected by increased heat and also adversely affected as we’re seeing here with Hurricane Beryl, the effect on the number of birds that were lost in Jamaica being 300 000.

So, when these things happen, our food import bill actually goes up. And right now, we import about 60% to 80% of our basic foods here in the Caribbean. So, our food import bill is already high.

Now, our farmers were very concerned about this, because once we start importing chicken from outside of our region, what happens is that it’s difficult to stop the importation once the yield has yet ramped back up.

And the farmers are always very concerned about this, because it means a loss to them. So, they will hold on.

And I really am imploring that we think about these things.

When this happened, there was a manual that came out, just to grab a little bit from Dr. Joyce St. John, who’s trying to show us that while this is happening, we’re still innovating. So, to say that we’re not putting our hands up and being in despair. Many solutions were put forward. The government also tried to distribute more chickens, more chicks. And this happened in Barbados, also in Jamaica, and in other Caribbean countries as well.

So, they’re looking at ways to ventilate the chicken coops in a natural way. And several other experiments have gone on to try to assist this problem.

So if, in fact, the temperature outside is over 32 degrees, which we have experienced last summer—I think we went up as high as 34 degrees Celsius—then we will have this impact.

And again, just like with the fishing industry, it affects lives and livelihoods. Because people who have invested a lot in farming chicken, using poultry as the example, end up losing a lot when all their chickens die, or a vast majority of their chickens die within a very short period of time because of the external heat.

Yeah, thank you. Dr. St. John, I want your optimism on this. That there will be creative solutions. And I know you know the leaders in the Caribbean region who are actively working on this. So, what do you make of it?

Well, I was struck by what Cheryl said about Zika. Because I was, at the time, the director. And we were alerted through what had happened in Brazil.

And I can remember, I had an intern at the time. Unfortunately, he died soon after. But I said to him, I need to have a surveillance system for the Caribbean so that they can track if they are having microcephalic babies.

And so, we started on One Health within human health. So, it would have been public health, it would have been epidemiology, it would have been neonatology, it would have been obstetrics and gynecology, pediatrics. And then, fast forward to 2023, and I went to a WHO symposium. I was chairing a panel. One of the panelists was from Eastern Asia, and he was talking about an outbreak of Zika that he was dealing with at the time. And I remember being startled because we had not seen Zika in the Caribbean region for a long, long time.

And then a couple of weeks after, we detected a case of Zika in one of the member states. This time I was back at CARPHA. And so, we think about the whole issue of how climate change impacts the lifecycle, especially of viruses. We know this is an issue with dengue.

And so, the climate change impacts on health are that severe that whenever people say the Paris Agreement is also a health treaty and some people balk, I understand why. Because climate change and how it impacts health throughout the lifecycle is insidious.

Then I was thinking about the chicken story in Barbados. I have a feeling that although Jamaicans like chicken, that Bajans outstrip them per capita.

And not only did we have an issue with chickens dying because of the heat, but we also had an issue with keeping up our chicken stocks because of the effects of H5N1 and trying to quarantine or pull to stop the spread of H5N1 in the poultry industry in the US where we used to get a lot of our laying eggs.

So, the Caribbean has had to divert their supply chain from the US. So, you see the economic impacts.

And when the Barbadians were not getting their chicken, it became a political issue because they wanted to string up the Minister of Agriculture.

So, climate change has political impacts. What are the solutions? The political will to say, “I am going to stop this and find something else to do.”

Thanks. I’m looking at the time and that is a good segue to our final question. And that is, the topic here is Building Resilience. And we’ve talked about these different levels of resilience, the ability to bounce back, to cope with the effects of climate change and other destabilizing, globalizing things like war or politics or supply chain issues, and the ability to survive, to go forward.

One thing, especially on this food supply issue, is the adaptability of a system to say, “okay, we’re going to source chickens from here versus there and being able to do that somewhat quickly.” And that’s very difficult.

So, in one minute or less, given the timing we have: What excites you most about this? Where do you see the most opportunity for building resilience? Is that at the individual level, community level, the industry level, or international?

Joy, one minute or less.

I see resilience and sustainability as a package. And I think there are world events going on that are forcing leaders and their populations to realize that there needs to be a greater resilience nationally or, as in the case of the Caribbean, CARICOM regionally.

CARICOM has a lot of CARICOM institutions that are specialized entities. Mentioned CARPHA, that’s the one for health, there’s one for climate change, agriculture.

There was in the Caribbean an all-of-society approach to COVID-19. And so, we know, we have tested the ability through the CARICOM mechanisms to address an existential threat to lives and livelihoods once we come together and have resilience and sustainability as our focus.

Thanks. Cheryl.

Yeah, I think it’s nice to go out on a slightly positive note. Although there’s very little that we as individuals can do about mitigating at the levels that need to be mitigated, which is the political will that Joy was talking about, there are positive things that we can do. And one of the things that came out of our scholars, and I want to just give a quick plug to the nine of them and their essays, soon to be released on the Hastings Center website as voices in bioethics from the Caribbean, is that each of them has indicated ways that community resilience can be developed and the value of developing it in the ways that they offer. And each of them reflects on their own socio-cultural, economic, geographic milieu and environments.

And it’s so important that we pay attention, that we listen to the community level, the community engagement, to learn what is appropriate for them, to build capacity for things like surveillance or disaster preparedness.

Maybe more importantly to what Joy was saying, which I think was so very strong, is just the idea of enhancing knowledge, educating, discussing, and I think I’ll close with that.

Thanks. Yeah, and I want to point out the connection between building community resilience, whether that’s a geographic community or a professional community, and fomenting the political action that can hold leaders to account.

And I think that an important sort of theoretical but also very practical thing to keep in mind is that the community level action, which sometimes feels small, maybe, raises the awareness and knowledge and organizes people to create that political will, which is an important connection.

Dr. Gordon-Strachan, what excites you? We heard about your hopelessness and now we want to know what keeps you going because we know you’re doing a lot.

I think what excites me is that there is a groundswell around this within the population and at the national and even community levels.

And my feeling that we can have political will is also associated with the push from the communities. If the community says we need to do something about this, the politicians don’t have much of a choice. They will go ahead and do something about it.

And I think I’m hearing Climate Change a lot more in the media, in the open spaces, among people, because we’re living it, it’s getting hotter and we’re feeling it. And that gives me hope that we will rise up. It sounds like a revolution, but that’s not what I mean. We will rise up and we will decide. The communities will push for better conditions for themselves. One, because it is not fair. And two, it is difficult to have to be constantly rebuilding, constantly rebuilding. And this has so many other implications for the value of your property, for insurance that you have to pay, and all of these things.

I think we’re at a point where if you didn’t know about it before, you know now, and you need to do something. I think the urgency to action is not turned on as full as I’d like, but I think the dial is turning on that.

Yeah, thank you. And I just want to plug Donna McCoy’s innovative idea in the Q&A, which was to have billboards at the tourist beaches, warning the tourists in the Caribbean region that their beloved vacation spots may soon not exist and as a way to motivate action. And I think that speaks to all sorts of creative ideas that we can do to create the urgency and build the political will to take more action on this.

Thank you, Dr. St. John, Dr. Macpherson, and Dr. Gordon-Strachan for your time today and for all of the work you’ve done for many, many years.

And yeah, to those of you who are watching and have tuned in, thank you so much.

One final thank you to our funder, the NIH Fogarty Program. And I just want to say if you’ve enjoyed the conversation and the videos that we’ve shown, please do check out the new essay set from our nine Latin American and Caribbean scholars called Voices in Bioethics from the Caribbean, which is live today. I’m very excited.

We’ll also have this webinar recording with a Spanish translation available on the Hastings Center’s website within a few days.

And if you’re interested in keeping up with the Hastings Center and Hastings Center News, please consider signing up for our newsletter.

Thank you so much and hope you all have a great day.