Sir Robert (Bob) Watson: "The Risks of Doing Nothing"

Season 2, Episode 8

***Small Planet Heroes* Podcast**

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***This transcript has been lightly abridged for optimum coherence and flow.**

Kai: Hi, I'm Kai Chan. I am a professor and Canada Research Chair at the Institute for Resources, Environment and Sustainability, and also co-founder of CoSphere. And I'm joined here in the studio by Maia O'Donnell.

Maia: Hi, I'm Maia O'Donnell. I'm a recent undergraduate from UBC who focuses on Integrated Sciences, specifically focusing on microbial diversity in soil and general environmental sciences. I'm also an intern here at CoSphere and a producer of the podcast *Small Planet Heroes* as well.

Kai: We are super-excited today to have a friend of mine and a colleague from the Intergovernmental [Science Policy] Platform on Biodiversity and Ecosystem Services, which we will call IPBES, here on our podcast. It's Earth Day as we record this; it won't be Earth Day when you hear it, almost certainly. But Bob is one of the grandfathers of science assessment. And if that doesn't mean anything to you yet, that's okay, because it will by the end of the episode. Sir Robert Watson is a world-renowned atmospheric chemist and environmental scientist. His career spanned decades at the highest levels of climate, biodiversity, and atmospheric science. He was instrumental in shaping the Montreal Protocol, which led to the phasing out of ozone-depleting substances, and the structures that Bob put in place from that time evolved into the basis for bodies like the Intergovernmental Panel on Climate Change, the IPCC.

Maia: He has led as chair of two of the most influential scientific intergovernmental bodies–

Kai: And he's the only one who did that!

Maia: Mmm-hmm, including serving as Chair of IPCC for five years, where he oversaw the Third Assessment Report in 2001, which strengthened the evidence that human activities were the primary cause of global warming.

Kai: And then following IPCC, he became Chair of IPBES, that Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services, and that was through 2015 to 2019, during the time when IPBES sounded the alarm about the rapid decline of global biodiversity *and* the need for transformative change. So, this episode is fundamentally linked to this season's whole theme about the role of science in transformative change.

Maia: Beyond his research, he's been a key advisor to organizations like NASA, the World Bank, a Chief Scientific Advisor within the UK Government and the United Nations, working at the crucial intersection of science and policy.

[*Medley of Small Planet Heroes theme song*]

If there's a pit in your stomach from the way that we live
You want it to change, something's going to give

We've got stories that'll give us a glimpse
Of better ways to reconnect everything
We're small planet heroes
Small planet heroes.

Kai: Welcome Bob.

Bob: Hi.

Kai: One of the questions that we ask pretty much all of our guests in one form or another, is about which came first: your science (your kind of curiosity) or your purpose for that science? I'm guessing that you got into atmospheric science more in a curiosity-driven way, but tell us a little bit about that, please.

Bob: Well, I did a Ph.D. at London University, Queen Mary College, *purely academic*. [**Kai:** Yeah] It was looking at the time [at] halogen atoms and how they reacted with different molecules. I had *no idea* whatsoever they actually were important for understanding the atmosphere. So the Ph.D. was actually trying to prove or disprove some work that had been won by previous Nobel Prize winners in chemistry, Norrish and Porter. It wasn't until I started to do my postdoc at Berkeley, and I suddenly realized that all of the sort of chemistry I'd been working on actually mattered. It was actually fundamental to understanding the ozone layer in the stratosphere, and *that's* when it became much more interesting. It had *societal* relevance as well as being intellectually challenging.

Kai: You know, even though I can imagine–and I've been through that too–finding the policy and real world importance of the academic work, I also think that a bunch of our listeners probably think back to that time when you could imagine doing a Ph.D. in atmospheric chemistry and not realize how fundamentally important it is to global events.

Maia: I think maybe not the Ph.D. part [**Kai:** Right] but I'm thinking back to, like, the fundamentals of when you're doing like an undergraduate in science and when you're just learning basic chemistry, it's really hard to think about how the tiniest building blocks of the universe contribute to these *larger* phenomenons of *global* scale. Can you talk about that complete difference of scale, and starting at the smallest building block and then sort of building up to these larger systems that are also sometimes a little bit confusing to understand as well?

Bob: Well, the Ph.D. work I did and some of my postdoc work at Berkeley and the University of Maryland was studying how single atoms were reacting with small molecules, or how small–what we call free radicals–were reacting with each other. So it's not quite the atomic level, but one was looking at how atoms and radicals were reacting with each other. And so when I explained all this stuff to my mother or even my closest friends, they just yawned. Absolutely no interest, and I fully understood that. Once I could actually start to tell them this actually *mattered* in trying to understand ozone, trying to understand whether we humans were destroying the ozone layer that could lead to more ultraviolet radiation at the Earth's surface, which could potentially give you skin cancer. Suddenly, they *really* got interested in what I was working on. So it was the fact that it had this societal relevance that actually, for the rest of my career, became the driving force.

Kai: And, you know, it's hard for many of us to imagine those times, you know, *before* a kind of widespread, pervasive, existential sense of urgency about the environment. But was–was the

focus on the ozone layer a kind of curiosity for many people then or like, there was a time before it was a global phenomenon, right?

Bob: No, I got interested basically after I got to Berkeley, and it was very soon after that that Rowland and Molina hypothesized that these chlorine species could diffuse up into the upper atmosphere and then destroy ozone. So when I got that's where I got really interested in it, basically. I could see how my Ph.D. work, some of the work I started to do as a postdoc, could be very relevant to the theoretical modeling of what controlled ozone, the natural processes, and why and how us as humans were disturbing those natural processes. That's when it got really interesting for me. And then soon after, I actually recognized that while I could do more and more laboratory work, I actually said I actually think I'd be better off *managing* science than doing science. So I moved to NASA, the space agency in Washington, DC, and it was there that I put together the first international assessment, *truly* international assessment, on stratospheric ozone. So I tried to get scientists from *all* parts of the world to get together and to sort of assess, "What did we actually know?" How well did we know it? And how big a threat were these chlorine and bromine species to the ozone layer? Was it really threatening life on Earth through skin cancer?

Kai: A lot of this episode, we want to talk about the politicization of science and the obfuscation of science intentionally by some parties who have vested interests in some of these problems. But I'm curious: with the ozone layer, was there any of that kind of production of distracting science that *contradicts* the understanding of those CFCs, as you said, the chlorine and bromine species? Or was it mostly just science for science's sake that formed the basis of your assessments?

Bob: Almost identical to what's happening on climate change. There were some scientists that were deniers, a guy called, in particular, a guy called Fred Singer: just a complete skeptic about all of this. There were other scientists that felt there was no way that human chemicals could truly have a global impact, and so they challenged the theory. And then, of course, it was industry at the time who were producing the chlorine and bromine-containing chemicals: nineteen companies around the world, predominantly American, Japanese, and European, also just challenged the science. So very much it was a–I would say–it was a good exercise leading into climate change. So that [is] individual scientists as skeptics and you have industry as skeptics. You also had different views at the political level between Europe and North America, the USA basically. So it was all the same issues that we face today on climate change, of climate deniers for a range of different reasons, and Sherry Rowland in particular, who, along with Mario Molina, came up with a theory of chlorine-induced ozone depletion. He got *personally* attacked by people saying, "This is just rubbish, guys. They're just trying to sensationalize this." So it was an uphill battle for a while.

Kai: So the role of international assessment at that point then was to make sense of what was noise, right, and what was high-quality science and to demonstrate what was most likely to be true. And so, in a sense, it's a tool to ward off the negative inputs of industry and other players to obfuscate the truth, right? Because if the lower-quality studies are the ones that tend not to find evidence of, say, anthropogenic climate change, then that robust international assessment provides the foundation to say, "Look, you know, yes, there are reviews that say there are some studies that suggest that people are causing climate change, and there are some others that don't. So we really don't know." But then the international assessment process provides a much more rigorous way to deliberate the quality of those studies, including the quality of those reviews, to then say, "Look, we're actually *quite* sure on the balance of evidence that human-caused climate change is here."

Bob: Yeah. What I noticed was in the late 1970s, there was half a dozen assessments of ozone

depletion. The EU (European Union) did one, the British government, World Meteorological Organization, United Nations Environment Fund: all lower level. And actually what was happening is scientists and government were not saying whether these assessments complement each other or support each other; they were looking at the *differences* between them. So when I came along, I had to chair the NASA, NOA, FAA (that's Federal Aviation Administration)–the US one. I said, "We don't need yet another national assessment. We need an *international* assessment." At that time, "international" really meant US and largely US and Europe. Very few at that stage [were] from developing countries, but I tried to make it a more international assessment. I then got UNEP to support. But then by 1985, I got about half a dozen big bodies to support, including the United Nations, the World Meteorological Organization, the British government, the German government, the American government. And so I tried to get a thing to *rise above* local politics or national politics, and by then brought scientists in from as many countries as I could, because it's a global issue, ozone was, just like climate change or loss of biodiversity. And if you try and convince the world to act, you have to make sure you've got scientists from all as many countries in the world as you can. But also what's crucial is saying, "What do we know well and what do we still not know?" Very important to tell governments what's known and what's unknown, but you need both in order to try and put policy together.

Kai: Yeah, in the context of climate change, though, which was much more popularized, right, like people had opinions about whether climate change was human-caused or not across *all* of North America and more broadly. And it just strikes me that, you know, until recently, I don't think I realized the role of international science assessment in coalescing a consensus. It took a while, obviously, right? Quite a long while, much longer than many of us would have liked, but it did eventually succeed in coalescing a consensus that actually, climate change is at least partly–if not largely–human-caused, and we can do something about that. There was a time before that, right?

Maia: I agree. I think it's so interesting that we're–Bob is speaking about a time where the science was a *national* endeavor, and we're talking about the transition from it becoming a global endeavor. We're talking about this level of globalization that we've reached, and this was also in the midst of, like, the Cold War, and which is the closest we've gotten to nuclear war, and they managed to pass the protocol during that time. Maybe can you speak directly to that?

Bob: There's some incredible parallels between the ozone story and the climate story. To start with on the ozone story: it was a theory that chlorine and bromine could destroy ozone. It wasn't–and we first really started pushing this in the 1970s–the first assessment I shared–it really wasn't till about 1988 we had real definitive proof that we would destroy an ozone in both Antarctica and actually in the northern hemisphere. So it went from theory to observation. Well, on the climate issue, it was very clear that the climate was changing, but at a very small degree. And so at first, people challenged, "Was the climate really changing or not?" And there was for a long while differences between the ground-based observations and satellites and we had to resolve why there were inconsistencies, which we actually then did. But then the question says, "Okay, so the climate's changing. Is it due to human activity, or is it just natural?" And it really wasn't until the third assessment (the one that I was lucky enough to chair), that we could actually say that the preponderance of evidence says we cannot explain the observed temperature changes on natural phenomena. You have to invoke human activity, and that was the third assessment in 2000–released in 2002.

By the time of the next assessment, they said it is *unequivocal* that the observed–most of the observed change in climate is due to human activity. So first you need to prove the system's

changing, then you have to differentiate, is it a natural phenomena or human phenomena? And then once you've shown it is a human phenomena, then the issues become, “Boy, what can we do about it?” To what degree should we be able to adapt to a changing environment, whether it's ozone depletion or climate, and to what degree can we limit the damage to the ozone layer or the climate layer? And then that brings all the social issues, the economic issues, the technological issues, and a lot of ethical and equity issues between who's causing the problem and who will most suffer from the problem? So then it becomes a real interesting *political* issue.

Kai: Yeah, and it enabled the change from media stories that would represent the two sides, right? That there's this one camp who believes that people are causing climate change, and there's a bunch of evidence and another camp who believes something else. IPCC and the assessment reports enabled the transformation from that to a widespread recognition in *almost every fora*–not every– all right, there are certainly still places where climate denialism lives, but in almost every fora to recognizing that this is a problem and turning the conversation to “What do we do about it?”

Maia: I would like to go back to the moment you referred to when you spoke about the third report, and sort of the outcomes of that for you, just because, from our understanding (just because this was also widely publicized at the time) that *you* making that statement as the Chair of IPCC *that* was being highly politicized, and George W. Bush then took away your appointment. Could you–

Kai: Or not directly, maybe, but played some role. [**Maia:** Was one of the main circumstances for the removal.]

Maia: A lot of ecologists and just people in the climate change arena are now facing a lot of political persecution in the exact sort of same vein. Could you speak about that experience a little bit?

Bob: Yes, obviously I shared, as I said, the third assessment before, and there's especially parts of US industry–not all of the US, but parts–[who] *really* didn't like me. They felt that I was *too much* of an advocate for change based on the evidence, and that I made it an emotive issue. In other words, I spoke with passion; I wasn't just the bored monotone scientist. I actually was *passionate* about what was happening, what types of changes, based on the evidence, *could* support mitigating climate change, could support adapting to climate change. And effectively, a bunch of them said, “We don't want him to co-chair another assessment,” but it went to a vote! The US alone can't get rid of me, but they lobbied *very hard*, especially in Africa and other countries, that it was time for change. And they used it in a beautiful way. They didn't actually just attack me personally. What they would say, “Surely, climate change is an international issue. We've now had two chairs, one from Sweden, but Bob here, English and American. Isn't it time for a developing country person to chair these assessments?” So they backed Pachauri from India, and so they would use a very political, interesting political approach to get rid of me. Was it disappointing? Yes, obviously; I wanted to chair it, but it was actually a cloud with a silver lining. If I hadn't got dumped as the chair of IPCC, I would never have had the opportunity to share an international assessment on agriculture and then a series of international assessments on biodiversity. So at the end of the day, it actually turned out for me personally to be really interesting that I moved *beyond* ozone depletion, *beyond* climate change into issues of agriculture, issues of biodiversity. So actually, it's, you know, when everything happens that's negative, look for the opportunity it presents. Don't bemoan what you've lost. Look what you can actually gain from the experience. But you know, that's just my personality. The glass is always 90% full and 10% empty, so I use it as an opportunity say, “What was my next opportunity and challenge coming?”

Kai: I just want to say, Bob, how much I've always appreciated the way that you do bring that passion into these arenas, right? Science is consequential. We need to be dispassionate in the evaluation of the evidence. But doesn't mean that we need to be dispassionate about what we then do about it. And it's always been refreshing that you have *never* held back in those contexts.

Maia: I think the point that you're also making is a really good point, just because what's happening *now* with a lot of people, especially in America, in the environmental world, they're probably just feeling so displaced. And that's probably exactly what people who are firing these people want them to feel like. They want them to feel that they can't, that they don't have any autonomy, or that they can't produce anything to be helpful because that's the reason they were fired in the first place. So I think being hopeful in times of, like, extreme darkness where you feel like you're being persecuted, I think that's so important, especially now.

Bob: Oh, no question whatsoever. I mean, what's happening now in the USA is an abomination of trying to kill science. And Kai had said, well, largely, most people do agree with the state of knowledge on issues such as climate change, loss of biodiversity; but there are some skeptics, and they start clearly very much here at home. But also what happens is people and some governments and some in the private sector are still looking for an excuse *not* to act, even though the evidence is that we need to act; even though the evidence is it will actually be cheaper and economically beneficial to address climate change, that the cost of *inaction* is far greater than the cost of action. But things have to change.

One needs a major transformation of the energy system, the food system, the economic system, the finance system. And change is difficult for people, and so therefore people are looking for excuses *not* to change, even though all of the evidence is it will be *good* for us in the medium to long term, even if there's some short-term challenges. But there is an attack on science. There is no question at the moment. And unfortunately, when you really look at the countries that have prospered in the past (US, Europe, etc.), it was built on *knowledge*, whether that's natural science, social science, economics, technological science, behavior change. So the attack on science now can *only* be bad for the future. The science is solid on both climate change, loss of biodiversity, but there are still scientific skeptics, and there's certainly skepticism in some governments and skepticism in some of the private sector. So we are still battling against skepticism, and to be quite candid, very simply, other than stratospheric ozone depletion, we are not on a pathway to meet any of the internationally-agreed goals on climate, on biodiversity, on land degradation, on pollution.

We're not on target and on pathway for most of the Sustainable Development Goals of food security, water security, good health for everybody, a more equitable world. So we're struggling. The world is struggling to meet these internationally agreed goals. It's easy to agree to a goal; unfortunately much harder to put in action the policy changes, the technological changes, the financing that actually is required to meet those goals nationally and internationally. And the basic problem for me, to be quite candid, is trust: a complete and utter lack of trust from country to country, between government to government, between the government and the private sector, between the lack of trust of the NGO community, now a lack of trust in some of the *academic* community as well, and we've got to rebuild the trust. Because unless we all work together, we can't, we cannot solve these issues.

Kai: I agree with all that you said, Bob. But at the same time, I think in this conversation, we want to talk about the ways that the kind of denial, the skepticism, and the delaying, that that's actually

produced somewhat intentionally [**Maia:** Hmm] by vested interests who will not benefit as much from climate action as they will from prolonging the status quo, from prolonging the extraction of fossil fuels and their burning, or their conversion into plastics or the rest of it, right? And I just–I just want to go through the various kinds of interventions that they will make in order to further their interest, right? We have the kind of publication of basic science that takes a contrary view. We have the publication of review articles that don't distinguish between the quality of different kinds of studies, and basically throw up their hands and say, "Oh, look, we have some studies that are for human-caused climate change as an example. We have some that are against. Who's to say, right?" And then we have the lobbying of government officials, both nationally and then at Conference of the Parties meetings; we have the infiltration of the UNFCCC (the UN Framework Convention on Climate Change) and the COP meetings. We have folks lobbying behind the scenes, just as you've said, to remove folks just for their candor and passion like yourself, right? It's all up and down the chain, right? So the denial and the skepticism isn't emerging from nowhere. It's not coming from a void. It, to a certain extent, it's being produced.

Bob: I think what you have, and I'll use the US as an example, really, for the last 20 years, it's become a political football between the Democrats and the Republicans. With the Democrats *largely* recognizing climate change to be a serious environmental issue and also, but with the Republicans largely thinking it's anti-industry. I don't think they look at the hard evidence. They're taking an ideological position independent of the evidence. But even the Democratic Party has not been 100% supportive of actions in the US.

When I look around the world, it's rather intriguing. Climate change has become a political football in many places. So in Canada, for example, and Australia: depending which party is in power, they tend to oscillate between "We've *really* got to work on climate change" or "It's a non-issue." The only countries in the world, which, larger countries who have a consistent policy on an issue like climate change, is the UK, Germany, and France. Literally since the time of Margaret Thatcher or Chancellor Kohl a couple of decades ago now, they've always consistently felt [in] those three countries that climate change is a serious issue, "we need to act." There are slight differences depending on which party is in power in England (Conservatives, the Lib-Dems, Labor), but broadly speaking, they've been supportive. What that does is it tells the industry that there's a constant policy in place. When you've got places like Canada, Australia, and the US, where the policy bounces all over the place (Biden now versus Trump), there's no consistent–there's no consistent message to the private sector. They've got no clue what to do. And it's very clear to me that you can challenge industry, and as long as you've got a constant policy, they will rise to the challenge. [**Kai**: Uhmm hmm]. And unfortunately, most countries have not got a consistent policy, which really is a disadvantage to the private sector.

Kai: Yeah, just to give the Canadian example here: carbon taxes, or carbon prices, were introduced first by the Premier of British Columbia, Gordon Campbell, who was more right-leaning. He was–it was called the BC Liberal Party, but at the time, there wasn't really a Conservative Party, and they weren't really associated with the federal Liberals, so they were much more on the Conservative side. In the first couple of elections, at least one after the introduction of that carbon price, that carbon tax, the NDP, which is more left-leaning, came out *against* the carbon tax, and they argued against it, right? Only later, once they came into power, to their credit, did they actually–or well, actually, I think I'm misspeaking there. Only later did they come around to the value of the carbon tax and support it [**Bob:** Yeah] when we already had a Trudeau government who was also supporting it. So, you know, but then, as you know, at the federal level, with Mark Carney, he has

stepped back from that consumer-facing carbon tax, and that's due to the politicization, just as you talked about.

I want to talk now about transformative change in particular. So you moved from IPCC to IPBES, as you said, and I–for one–am among those who are grateful that that spot in your career opened up as an opportunity for you to get out of the climate world and into the space of biodiversity and ecosystem services. You were the Chair during the time of the Global Assessment, which was the major production of IPBES, which was what concluded that up to a million species were at risk of extinction due to human activities, and that *only* transformative change was consistent with harmonious relationships with nature as implicit in the UN Sustainable Development Goals. When I came on to work as a Coordinating Lead Author for Chapter Five, which was "Pathways to a Sustainable Future," I was skeptical about whether we could get governments through the IPBES process to acknowledge *such* a fundamentally important truth. I'd looked to the IPCC; I'd seen the assessment reports; I'd seen the way that, for example, a growth in consumption per capita and in aggregate was baked into the shared socioeconomic pathways, such that it's not even really questioned as to whether we should be reducing that consumption. So I was skeptical about whether we would be successful in demonstrating the necessity of that bigger, deeper systems-level change. I'm curious as to whether you were surprised in the same kind of way that actually we managed to get them to see that there *was* a scientific case for that.

Bob: Not *particularly* surprised. I think the evidence was clear that the incremental changes that were being discussed weren't getting us where we needed to go. And in fact, I'm currently co-chairing what's called GEO 7, the Global Environment Outlook 7. And the whole thesis is built now on the work you did, Kai, and the IPBES assessment on the need for transformative change. And what we're saying is, I think you could summarize effectively the whole of GEO into two. One, you first cannot look at the four big environmental issues in isolation: climate change, loss of biodiversity, land degradation and pollution. They must be looked at together. They're highly interactive. So message Number One. Two, to address each of those together, even individually, let alone together, you need transformative change. And so you then say, "Well, what needs to be transformed?" The economic finance system, the energy system, the food system, the material system, embracing the concept of circularity, the way we manage the environment. And basically, without large-scale transformation, we can't get it. And then you have to say, "Ah, but you can't just form the economic system in isolation of the energy system or in isolation of the food system."

So the other half of the thing is you have to look at all of the systems that have to be transformed together as well. And to me, I mean, my personal view as a non-economist is *unless* we transform the economic system and the finance system, you actually can't transform the energy or the food system or the material system, because the perverse subsidies and the failure to internalize externalities without those being transformed, the energy system will always be unsustainable [**Kai:** That's right], and so will the food system. [**Kai**: Yup] So I think the work you and others did in IPBES has laid the stage for the concept of transformation to be fully accepted. However, now the question is, how to put it in practice? What we've realized with most of these assessments, we know what we need to do. The question is, how to do it. How do you make elimination or repurposing of subsidies or internalization of externalities? How do you make them politically and socially acceptable? So the question is, not what to do, but how to do it.

Kai: We've been having the same conversation for six years, right? Like–and longer actually! I mean, folks have been arguing for the elimination of perverse subsidies for much longer. But you know,

it's *almost* six years ago since the press conference for the IPBES Global Assessment, when nations agreed, *132 of them*, agreed that all that was one component, along with many other transformative elements of that transformative change that appeared to be necessary. And yet we're still having the conversation about how do you actually do it, right? It did not.

And so, you know, I was skeptical about whether we could get them to acknowledge the science, the scientific case that such system change was needed, but then I was a little *more* optimistic that if they *did* say that, that some progress would follow. And watching in those intervening years, it has been *so* upsetting, honestly, to go from this, like, moment of triumph in that room in Paris where the nations agreed and we finally had a negotiated summary for policymakers that had *strong* language (not only about the need for transformative change, but also some of the most important elements of that) to then having *years* of delay. Of just, you know, "Urgent transformative changes needed" in, you know, May of 2019, and we're still seeing the same thing in April of 2025.

Maia: I think, as a response to why that's happening, when you think about the implications of transformative change, and you think about the people who are in charge, transformative change is a threat to the status quo and the people who control the status quo. And if those people are *immensely* powerful, they'll do everything to try and stop transformative change, which I think is why we see specifically COP being led by oil executives now: it's because they want to take control of these narratives.

Bob: Oh, absolutely! No, I fully agree with you. We got acceptance in IPBES of the need for transformative change, but we have not seen any of it come into action. Almost no country in the world has really made any significant changes in subsidies, significant changes in internalizing externalities, putting in policies that are needed to transform the food system, the energy system, the material system. So we got acceptance of the *need* for change; we have not seen that transform, transform itself into action. And as we noted in the IPBES document, there are (and just has been said) *major* vested interests that *really* don't want to change the status quo for whatever reason. And so until we actually turn these challenges into opportunities, we're not going to make progress.

But in the US, when you have a government that doesn't–that actually now wants to leave the Paris Agreement–has actually walked away from IPCC, that they're not even part of IPCC–then the signal to industry is, "Hey guys, let's just dig for more coal!" You know, "Dig for more oil." I mean "Drill, baby, drill!" I mean the signal–and so the signal from the US not only turns much, not all, but *much* of the private sector on its head, but it sends signals to other countries in the world that are also sitting on the fence. And so we have a major issue at the moment of a US administration that does not want to see change nationally or internationally.

Kai: Yeah.

Maia: Speaking on that topic, what will be the future role of intergovernmental panels when we're now in a reality where some of the most powerful countries in the world–or specifically the United States–have become *so* isolationist and so reactionary, how–

Kai: And so, anti-science, right? Anti-evidence, you know?

Maia: Uhm hmm. How can intergovernmental panels face the future with this reality?

Bob: This is the first time it's ever happened. Even in the previous Trump administration and the previous Republican administration under the Bushes, they were still *very, very* strong participants in the science of assessments. This is *absolutely* unique where, in this case, President Trump has said, "We're walking away from IPCC, as well as walking away from the convention itself." So this is a totally unique situation that I *personally* have to hope gets resolved. Either the Republican Party and the Democrats say, "We must *at least* be part of the science assessment process. We need to at least understand what the science is telling us, so we understand what the risks are of doing nothing." And so, I have to hope at some stage this policy of walking away from the assessment process, IPCC. I don't know if the walk away from other assessment processes, such as IPBES and the chemicals process, the IRP (International Resource Panel). I've got no idea whether walking away from IPCC is just one step from walking away, but it is a real issue.

I'm optimistic no other countries in the world will walk away from the assessment process, so I do hope indeed that these assessment processes *will still stay strong*. There is an issue, though: the US, until recently, up to now, has been the strongest supporter [**Kai:** Uhm hm] of funding climate science, biodiversity science [**Kai:** Yup], land degradation, health science, social science, a leader in technology. Clearly what we're seeing is that there's also a walking away from funding the fundamental science itself. [**Kai:** Yup] That, to me, is *really devastating*, *really devastating*. And again, I would have to hope that these policies could be reversed, *even* during the time of the Trump administration. That's to say, [the] next three and a half, three or three quarter years. Whether there will be any reversal of these policies to walk away from some of the most basic science and some of the assessment processes, only time will tell. But clearly, with the US walking away, it sends a *terrible* signal to the rest of the world. The US *is* a leader in science and needs to be a leader in policy, well-informed policy. So this really is a *monstrous*, in my opinion, step backwards.

Kai: Yeah. Even if we don't have that specific walking away from the assessments and from the framework conventions, there–there seems to be an erosion of a rules-and-reason-based order, both within the US and also in other nations, such that, you know, there's not the expectation even anymore, that government policy is going to follow what the international assessments say, right? There's–there's all kinds of expectations that there will be significant deviation, right? And so even if the Trump government comes back to the IPBES–or sorry, the IPCC process and to the UNFCCC–it probably wouldn't change the "Drill, baby, drill" mantra, right?

Maia: I think even thinking about the impact Donald Trump has had on politics globally, just when you're looking at the behavior of leaders. We've seen a lot! We've seen, like, coup activity in countries that you like, in South Korea, in Brazil, we've seen these sort of attempted coups after January 6, where I can sort of *believe* that other countries may follow suit. But I could also believe that other countries, in response, will also sort of suit up more as well.

Kai: And so the question, I think, just to ask Maia's question in a slightly different way, is, what is the role of international science assessment in that world? In the world where we can't expect that it's necessarily going to lead, you know, even *indirectly* to government action on the parts of some of the world's most powerful governments? It's not like it doesn't have a purpose, but maybe it calls for a reinterpretation of that purpose.

Bob: I think it's absolutely essential that we continue to do these international assessments.

Kai: I agree.

Bob: I don't think there's any choice. Sooner or later, the world will take more rational decisions and individual countries will take more rational decisions. The fact that the World Economic Forum, the most powerful group of industrialists in the world, working with governments, have recognized that the environment is not an environmental issue alone. It's a development issue; it's an economic issue; a security issue. And so my view personally is–and that's why I'm willing to keep chairing something at the moment like GEO 7–is we have to keep putting the facts on the table. What do we know, what don't we know? And effectively, hopefully over time, both governments, individually and collectively, the private sector, individually, collectively, will use that knowledge we're generating and assessing for making evidence-based decisions, whether in government or in the private sector. As a scientific community, we must not walk away from doing the science, and we must not walk away from doing the international assessment, whether they're picked up today or not picked up today. I'm absolutely convinced, *over time*, they will be used, and they will be used sensibly, basically.

Maia: These panels are just so critical for our survival as a species. Is it possible that we'll also see an even further expansion where we've seen, you know, previous expansions where they place criticality on, you know, including Indigenous voices. Is it also possible that we'll also see some expansion into the world of talking about political misinformation, or even political systems themselves and their implications for these things?

Bob: Yeah, I think that. I think the–I mean, one of the biggest issues(in which Kai is much more of an expert than me) is, I think we have to talk about what governance structures do we need in place. And when you talk about governance structures, you have to talk about vested interests. You have to talk about communication, including miscommunication. You have to talk about trust. You have to talk about all of these things. And so this, I think some of these issues are harder to talk about than others in an international process where you have to have all governments approve the final document word for word. But to be honest, I think, as Kai almost himself said, certainly implicitly: we did get the concept of transformation in the IPBES document. We did get the issue of vested interest in the document. And so I do believe we've got still hope that we can actually do this.

Now my only concern is that we've got stovepiping. And what I mean by that is we have climate assessments, we've got biodiversity assessments, we've got land degradation assessments, we've got pollution assessments, we've got health assessments. We start–the UN is starting to put together through UNEA (the United Nations Environment Agency–not Agency–Assembly), an SPP, a Science Policy Process [Panel] on Chemicals, Waste and Pollution. But will it then be stovepiped from the climate assessment, the biodiversity? So one of the challenges, I think, is, how do we get the assessment processes to work together better? How do we get the multilateral environmental agreements of UNFCC, CCD, CBD, etc., to work together? So we've got all the different elements there; it's how do we actually make them work together?

Because I think one of the obvious outcomes of the IPBES document or the IPCC or GEO, is we've got fundamental stovepiping at the national level. Even at the national level, you can't address any of these issues unless the finance minister works with the energy minister, works with the water minister, works with the agriculture minister, etc., etc., etc. So the first challenge is, how do you put national governance structures together? And then you got then too, how do you make the international scene work? So my view is we need to talk about all of these issues. The importance of Indigenous knowledge, the importance of Indigenous people–absolutely central. And I think that has been brought more and more into these processes.

Kai: Bob, I agree completely that we need to keep doing the science and the assessments. I would say that most people look to COP for the answers. Right? They sit, they observe, they hope that this is the time that decision-makers are actually going to act in accordance with the science, right? Most people see themselves as passive observers in this context, and when things don't go well, it's like, "Oh, that–that sucks. It's, you know, why are they delaying? It's so hard, you know." And, and I think what this conversation reveals to me, and in a sense, you know, what the whole experience for me, sitting on that global assessment and then watching a lack of action, was to realize that we actually need to play different rules. We need to *demand*, as outsiders, the uptake of this science in government action. We can't assume that there's any kind of a conduit between the science and the government policy, right? That that's going to happen as a matter of course, in the way that it might have happened with the Montreal Protocol, right? It was like, the science was there. I mean, it obviously then–advocates and activists were also important, but it seemed more straightforward then, right? That once the science was there, then the policy action would follow. And now our *raison d'être* for CoSphere is to help folks be more in touch with the science so they understand it more completely, so that they can lobby *more directly* for the kinds of transformative changes that are necessary, rather than just assuming that the governments will take it up from there.

Bob: Yeah, the question is, "How do you demand action?" As you know better than me, this is not a trivial issue, basically. I mean, when people ask me now, "What can I do in order to help move the climate agenda forward?" And my number one answer is, elect politicians that care about these issues. Don't elect politicians that don't care or even oppose these issues. Get in touch to make sure that the private sector knows you want to buy goods and services that are sustainable. In other words, your *real* power is not just saving water when you brush your teeth, turning off the television or the lights when you go out of a room. Your *real* power is your *vote* and your *pocketbook* to get change done, basically. And so the question is, "How do you then *stimulate* enough of the people to vote for the right sort of politicians, to *use* their pocketbook to try and push change?" And so they're the two, I mean, to me, they're the two most important things they've got basically.

Kai: Over the course of this second season, we've had conversations with a whole bunch of folks coming in from *very different* positions to make *really important* contributions in different ways. And you're one of them, right? Your contributions are *thoroughly unnoticed* by most people in broader society about [**Bob:** Sure!] what you have done to enable science assessment to play such a fundamentally important role in ozone depletion, climate change, biodiversity, ecosystem services, right? And so what we're hoping is that we can enable people to find ways that are equally powerful even if they don't get the kind of news coverage that Bono's support of action against AIDS did. [**Bob:** Yup!] I want to thank you.

Bob: A lot of challenges ahead of us, Kai.

Kai: Absolutely.

Bob: And so, you know, my view is I, when I look at the science policy interface, there's the fundamental science that needs to be done, there's the assessments that have to be done, and then there is at the national and international level, people that need to be putting goals in place, but then *implementing* them, basically. And one of the concerns I've got is how it's very easy to lose one's way. So for example, on climate change, we had the whole concept we need net-zero emissions by 2050. We do, absolutely correct, but it's a *fundamental problem*. So every government in the world has said, "We will get to net-zero by about 2050, plus or minus a decade." The problem with

that is, it's–and they're very happy to get up and make these statements. But it takes away from the fact, what are you going to do between now and 2030? Because we can't hold current politicians' feet to the fire for promises in 2050! They're not going to be politicians in 2050. We can, if they say, "This is what we can do in the near term, between now and 2030." We can hold their feet to the fire for near-term action, [**Kai:** Yeah] whether in government, in the private sector, etc., but they've almost taken what I call an easy way out of *primarily* talking about 2050 [**Kai:** Uhm hmm], not talking about 2030. And we've got to get this dialogue more focusing on what needs to be done between now and 2030 for the environmental agreements and the SDGs both. Because we can actually–we need to turn the *rhetoric* into monitorable implementation actions. We've got to take the debate *away* from 2050 *back to* 2030.

Kai: Yup, that's why the net-zero legislation in Canada for the Path to 2050 actually does include necessary milestones and reporting on progress towards that, so that there is *always* crucial work for the government–the federal government–to do. [**Bob:** Exactly, yeah.]

Bob, I want to thank you for this really wonderful conversation. I think it was a perfect way for us to bring in these conversations that, in a sense, started the whole initiative of CoSphere and our podcast *Small Planet Heroes*. So thank you so much for joining us.

Emma: And now for a short message from one of our conservation allies:

[*Medley of Waterbodies theme song, no lyrics, instrumental*]

Colleen: False Creek matters a lot to me just because it allows me and others to really connect with nature, even though we're living in a giant city.
Fin: We're fundamentally connected to the water bodies and the surroundings that we're in.
Michelle: Blue spaces in particular are good for our mental and physical health.
Zaida: Welcome aboard! I'm Zaida and this is *Waterbodies*, a podcast from False Creek Friends.
Matt: The reality is that False Creek is actually quite alive.
Kai: How do we navigate the protection of these places that we love?
Mutuma: What do you imagine False Creek might look like in the next 10 to 20 years?
Eli: False Creek can become a beacon and a place to showcase the conservation efforts that are happening throughout the rest of British Columbia.
Soudeh: What it means to be a steward of a land.
Mendel: Watch, listen and subscribe to *Waterbodies* wherever you get your podcasts and visit falsecreekfriends.org to learn more.

[*Medley of Small Planet Heroes theme song*]

Sam: Thank you for listening to this episode of *Small Planet Heroes*. *Small Planet Heroes* is a production of CoSphere, a project of the University of British Columbia. UBC is situated on the unceded territory of the Musqueam First Nation. Our guest this week was Sir Robert Watson. Check out our show links in the episode description to learn more about their work and other ongoing projects. *Small Planet Heroes* was created by our Executive Producer, Dr. Kai Chan. This episode was edited by Maia O'Donnell. Production is by me, Sam Blackwell, Maia O'Donnell, Emma Jarek-Simard and Clare Price. Your hosts this week were Dr. Kai Chan and Maia O'Donnell. Our show coordinators are

Clare Price, Sam Blackwell, Maia O'Donnell, Dr. Nancy Kang, and Emma Jarek-Simard. Special thanks to Jai Ranganathan, Bilal Bartai, Elizabeth Ye, Katie Kathierson, Dr. Nancy Kang, Anahita Seraji, Dr. Sarah Klain and Zaida Schneider. Our theme song was written and performed by Daniel Forrest. Our interviews are conducted and recorded at UBC Studios. If you would like to join our Community of Small Planet Heroes, check out cosphere.net.

Maia: If you would like to support us, subscribe to our podcast channel, rate the show, and follow us on Instagram @smallplanetheroes. If you enjoyed this episode, feel free to share it and spread the word. Thank you for listening.

Selected Links to Things Mentioned or Discussed

IPBES

Intergovernmental Panel on Climate Change

Ronald G.W. Norrish – Facts - NobelPrize.org

George Porter – Facts - NobelPrize.org

Putting the pieces together (Rowland and Molina on ozone depletion)

what's up with the weather: the debate: dr. s. fred singer (on climate skeptic Fred Singer)

Profile: Climate chief Rajendra Pachauri - BBC News

THE 17 GOALS | Sustainable Development

UNFCCC

Global Environment Outlook (GEO-7)

International Resource Panel (IRP)

United Nations Environment Assembly

Intergovernmental Science-Policy Panel on Chemicals, Waste and Pollution

Convention on Biological Diversity

UNCCD

Bono - ONE.org US

Net-zero emissions by 2050 - Canada.ca

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Institute for Resources, Environment and Sustainability

CHANS Lab

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Editing for this episode by Maia O'Donnell

Theme song by Daniel Forrest

Transcripts by Sam Blackwell, with the help of Otter.ai, and with Dr. Nancy Kang