

Dr. Suzuki: Creating a lasting legacy through environmental stewardship

January 25, 2022

Older adults are the fastest-growing age group in Canada. Together with our members and partners, RTOERO advocates for critical policy improvements to address urgent needs now and create a more secure and compassionate future for everyone. One of the three key issues that we are addressing is **Environmental Stewardship** – the responsible use of resources, conservation, protecting our air, land, and water. Improving in all areas is critical to a sustainable future. Individuals, companies, industry groups and governments all have a role to play in environmental stewardship. We need to maintain the viability of our ecosystems for ourselves, our children, and grandchildren.



Dr. David Suzuki is an award-winning scientist, environmentalist, author, and broadcaster. We were grateful to watch a Vibrant Voices webinar on January 25, 2022, with Dr. Suzuki as our featured speaker. In his impassioned address, he shared a compelling look at the state of the environment and offered insights to help humanity live well while protecting our environment. A record number of 1300+ viewers from Canada, the U.S. and Europe were mesmerized.

District 23's **"Birds and Cities: Threats birds face and how you can help!"** webinar hosted by Cheryl Paige earlier in the day served as a great opening act for Dr. Suzuki.

Dr. Suzuki began by acknowledging that he was speaking from the traditional, ancestral and unceded territory of the Coast Salish peoples – the Musqueam, Selilwitulh and Squamish, who cared for these lands and waters for thousands of years, a true example of sustainability

In Japan, the word “sensei” means teacher, but carries so much meaning - a sense of honour and respect for a noble profession. He was honoured to speak to RTOERO members, real sensei’s. The world is in dire need of education, but the right kind. As retirees, we no longer have to worry about a job, promotions or career limiting moves – if we offend people, so be it. If we have grandchildren, we have no choice but to stand up and tell the truth.

Greta Thunberg galvanized the world by skipping school every Friday because science shows that young people do not have a future. So why bother going to school to get an education. She is right if we do not change our path.

How did we get here?

Different religions try to explain it. DNA is able to determine the degree of relatedness between people. All trails lead back to Africa 150,000 years ago, the birthplace of our species. We are all Africans – upright furless apes. The grasslands of Africa were filled with animals in abundance and diversity beyond anything that we can see today. A complex brain compensated for our lack of size, speed, and strength. We learned from experience and passed it on from one generation to another. Social and Cultural evolution were orders of magnitude faster than biological evolution that relied on mutation and shuffling of genes. Humans created technologies that extended the capabilities of our bodies – spears, axes, digging implements, needles rope, etc.

We escaped the constraints of heredity and instinct. We invented the idea of **future**, a concept that let us realize that we can affect it by what we do in the present. **Foresight** allows us to anticipate the outcome of our actions – avoid danger and exploit opportunity. Stories by Indigenous people embed foresight – thinking ahead for seven generations. There are parallels in the bible - plan for a famine, build an ark.

Scientists armed with supercomputers are looking ahead at dangers and opportunities. **Unfortunately, people are turning their backs on science** and this survival strategy – from climate deniers to antivaxxers.

How did we get into the present crisis?

Two centuries ago, French scientist Joseph Fourier discovered the greenhouse effect of certain gases. By 1896, Swedish Nobel Prize winner Svante Arrhenius suggested that human use of fossil fuels could heat the earth and coined the term “**global warming**”. **President Jimmy Carter** took global warming very seriously in the late 1960’s. He turned down the thermostat, wore sweaters and installed solar panels on the White House.

By the mid 1960’s, the fossil fuel industry knew from its own scientists that burning fossil fuels was warming the planet and could be catastrophic by the year 2000. Rather than come up with alternate energy sources, the industry led by Exxon hired PR experts from the tobacco industry and **spent billions of dollars in a campaign of denigration of scientists and denial**, to keep the profits rolling in.

Ever since Rachel Carlson published *“Silent Spring”* in 1962 documenting the adverse environmental effects caused by the indiscriminate use of pesticides, public concern and interest in the environment rose and reached a peak in 1988, the year **Brian Mulroney** was re-elected PM. **Lucien Bouchard** was appointed Environment Minister. When asked by Suzuki what was the most serious issue we faced, he immediately replied *“Global Warming – it threatens the survival of our species. We have to act now.”* That year, the first global meeting on climate change was held in Toronto. The press release at the end of the conference began *“Humanity is conducting an unintended, uncontrolled globally pervasive experiment whose ultimate consequences could be second only to a global nuclear war.”* It called for an immediate national and international plan to confront the threat including a commitment to reducing greenhouse gas emissions by 20% below 1988 levels in 15 years. Study after study showed that the **targets could be achieved**, would save thousands of lives, and result in net savings of tens of billions of dollars.

Had we used our foresight and seized the challenge, we could have avoided the crisis we face today. But we didn't even try! Why! **Politics!** Doing the right thing made no political sense for Mulroney.

Solutions were needed. In 1990, Suzuki started the **David Suzuki Foundation**. Using the best scientific information available, it tried to identify the underlying root causes of our destructiveness to find concrete ways to change our path.

In 1992, 1700 senior scientists from 71 countries including more than half of all Nobel Prize winners, signed *“World Scientists’ Warning to Humanity”*. "Human beings and the natural world are on a collision course. If not checked many of our current practices put at serious risk the future that we wish for human society and may so alter the living world that it will be unable to sustain life in the manner that we know. No more than one or a few decades remain before the chance to avert the threats we now confront will be lost".

At the June 1992 Earth Summit in Rio, a watered down target from the Toronto proposal was introduced to entice U.S. President and **oilman George H. W. Bush** to attend. The new goal was to **stabilize** 1990 emissions by the year 2000. It was a **cap on growth**, but **not a reduction in emissions**.

Canada signed but didn't even try to meet the target as our emissions continued to rise steadily. Canada is extremely vulnerable to climate change – we are a northern nation already warming at twice the global average, and four times the average in the Arctic. We have the largest marine coastline in the world. Sea level rise is already hammering us. Glaciers that are a critical source of water that feed some of our great watersheds are vanishing with astonishing speed!

Our great areas of wild nature are our proudest boasts, but climate change is already pulling apart ecosystems on land and in the sea. Wilderness - old growth forests are our only way to remove and store carbon. Thirty years ago, 900 people gathered near Clayoquot Sound and were arrested for protesting logging of old growth. Yet those logging practices have continued unabated to this day. More than 1100 have just been arrested at Fairy Creek for protesting the same thing.

Burning fossil fuels affects every aspect of our lives – agriculture, forestry, fisheries, tourism, winter sports, the homes we live in, the clothes we wear, the food we eat, the way we move, entertainment, our jobs, our savings, our future.

In 1997 in Kyoto, the industrialized nations that had created the problem of climate change by our explosive use of fossil fuels, agreed to cap and reduce emissions by 5-6% by 2010.

In 2009 at the COP meeting in Copenhagen, **PM Steven Harper** offered a plan that shifted the base level of emissions from 1990 to 2005 as Canada was declared by delegates the **“Fossil of the Year”** as the **“absolute worst country at the talks.”**

In 2011, Harper pulled Canada out of Kyoto, the only nation to do so, because he knew Canada was not committed to the goal and our emissions had continued to rise. Harper declared that trying to reduce emissions was **“crazy economics”**, thereby saying the economy is more important than the atmosphere that gives us air to breathe, gives us weather, climate, and the seasons.

In 2015, **Trudeau** was elected and announced, **“Canada is Back!”**. He signed the Paris Agreement to keep the temperature rising below 1 ½ to 2 degrees compared to pre-industrial preindustrial levels by 2100. We should aim for 1.5 degrees. Science says he was right. Simple physics show us how much more carbon we can add to the atmosphere before we reach 1.5 degrees – the **Carbon Budget**.

In 2015, Trudeau bought a pipeline saying we need to triple the output of the tar sands to get the taxes to pay to reduce emissions. It is like saying: **“Cigarette sales are an important part of our economy. We know smoking causes cancer, so we will increase the sales of cigarettes for more tax money, not to stop people from smoking but to treat lung cancer.”**

In October 2018, UN’s **Intergovernmental Panel on Climate Change (IPCC)** declared that a temperature rise of more than 1.5 degrees this century will lead to climate chaos and must be avoided by reducing emissions by 45% by 2030 and 100% by 2050.

Our new Environment Minister came back from Madrid and announced, **“Canada is Committed to Net Zero by 2050.”** Sounds great, but how many elections will there be between now and 2050? At least seven – probably more. Every new government acts as though everything the previous government did was crap, so forget about that. How many MP’s today will still be in power in 2050? **None!** Who is accountable when we won’t meet the target? No One! **Net Zero by 2050 is NO COMMITMENT!** It is only a political promise - Canada has never even tried to meet a single political promise to reduce emissions.

It is as Greta says just **“Blah Blah Blah Blah”**.

The **World Meteorological Organization (WMO)** suggests that there is a 40% chance that we will reach 1.5 by 2030, let alone 2100. We are on a trajectory of a 2.7 degree rise or more by 2100. Most climatologists say that we have already filled our budget for 1.5 degrees.

U.N. Secretary-General António Guterres described the report from the IPCC as a **“code red for humanity”**. Rapid action to cut greenhouse gas emissions could limit some impacts, but others are now locked in. The **deadly heat waves, gargantuan hurricanes** and other **weather extremes** that are already happening will only become more severe.

When the very survival of civilization is in peril, the COP26 summit in Glasgow last November made no mention that we are in this kind of an emergency.

Back to the Future

For 95% of our existence, we were just an upright furless ape, following plants and animals on their migrations through the seasons, lugging everything we owned on our backs. We were hunter gatherers who knew very well that we are utterly dependent on nature for our survival and well being. After 50,000 years on the African grasslands, we began to move into new territories where we were an invasive species. We were smart and even with simple tools, we were a deadly predator. We had to learn to live in balance in our new surroundings. We gained priceless knowledge to live sustainably. This was the foundation for indigenous cultures around the world.

We are a small strand in a complex web of relationships with other species, and air, water, soil and sunlight. Other species of animals and plants are not resources for opportunity, they are our kin related to us in a shared history and in acts of generosity give themselves to us. In this web, anything we do has repercussions and, therefore, responsibilities. This ecocentric perspective **demands reciprocity**. We celebrate and thank nature for what we receive from her, and we acknowledge a responsibility to act properly so that she can continue to be abundant and generous into the future.

10,000 years ago, the last 5% of our existence, we discovered agriculture and that changed the course of human history. With a reliable source of food, we did not have to move around looking for things to eat. We could build permanent structures – houses and live close together in settlements that morphed into villages, towns, and cities. Specialization became a requirement. Religions developed to guide our behaviour and relationships with each other, and seem to suggest that we are special, different from the rest of life on earth.

By the Renaissance, Francis Bacon proclaimed that **“Knowledge is Power”** and science could be used in the advancement of society. Rene Descartes said **“I think! Therefore, I am!”**

The brain had become paramount, and we were smarter than any other species. Isaac Newton, the great mathematician and physicist, thought of the universe as a giant clockwork mechanism. It could be studied by pulling it apart and analyzing the pieces to see them, and by fitting them back together, how the whole thing works. That's called **reductionism**. Today, reductionism is the primary lens through which science proceeds to study objects, but it is fatally flawed. We cannot predict behavior of the whole from the sum of its parts because there are **emergent properties** that only result from their combination. In other words, the **whole is greater than the sum of its parts**.

Furthermore, by focusing, we fragment the way we see the world and we lose sight of the context within which the object of study exists. Geneticists think nothing of moving a gene from a shark that makes a kind of anti freeze into a strawberry plant to resist frost, but the anti freeze genes activity is embedded within the shark's entire genome, which is radically different from a strawberry genome. It's like putting Mick Jagger into the New York symphony, and then asking them to play together and make music. Context determines whether it's music or noise.

Paul Mueller discovered DDT kills arthropods, including insects and won a Nobel Prize in 1948. Studies of DDT were done in flasks, then growth chambers and finally control field plots. But in the real world, nothing exists in isolation - wind blows, rain falls, water moves, and DDT ends up in rivers and lakes, in fish, in birds and human beings with deadly consequences. But we only discovered biomagnification as a biological phenomenon when birds began to disappear, and scientists tracked it down. Reductionism,

powerful as it is, can't provide the whole picture. Yet, it's the way that most of science is now applied in bits and pieces that don't understand the whole.

The industrial revolution, beginning 300 years ago created the delusion that our intelligence enables us to escape the limits of our own biology, our muscles, and senses, and even the laws of nature. We created telescopes, microscopes, machines that work tirelessly around the clock, vehicles that travel faster than the speed of sound, we puncture Earth's crust, dive the deepest oceans, even escape gravity, and explore other planets. The only limit seems to be our imagination, and computers now imagine for us at the speed of light.

Go Forth and Multiply

It's easy to see why we think we're pretty special and intelligent, as we have exchanged *ecocentrism*, our sense of being embedded in nature, to *anthropocentrism* where, as the most important species, we are at the center of the action and everything around is for us. We just have to be more careful with the environment. But we're so smart, there are no limits to what we can do. And if we create problems, we can invent ways to solve them. So, we have built systems to guide and constrain us in the modern world - religious, legal, economic, and political that are embedded in our anthropocentrism.

Nothing illustrates that better than Christianity that declares Jesus, a human being, was the Son of God. So, we're all as gods and our Father, God, instructs us in Genesis to go forth and multiply and fill the earth and have dominion over all of nature. That's anthropocentrism writ large, and boy, we've followed it.

Laws defined property and human rights. But where in our legal system is the right of a bird to live as it evolved, or a forest to exist as a community of organisms, or a river to flow as it has for millennia. Quebec recently recognized the legal status of the Magpie River, but that's because it's treasured for its beauty and recreational values for us. And who are we to confer rights on everything in the first place?

Our laws delineate borders around countries, provinces, and property, but nature doesn't care. And I guess right now, Mr. Putin doesn't either. When fire broke out at Chernobyl, Swedish scientists announced an accident because of a spike in radioactivity over Sweden. Air doesn't stay within national boundaries. Alberta premier Jason Kenney doesn't know that when he tells the rest of Canada to butt out of Alberta's fossil fuel use. Salmon born in British Columbia waters pass through the Alaskan panhandle to travel along the coasts of the United States, Russia, China, and Japan. Yet each country tries unsuccessfully to manage salmon with its own national laws

Our Philosophy of Cancer

Our economic system is based on the philosophy of cancer - endless growth, which is impossible in a finite world. But when we think that growth is the very measure of progress, we never asked the important questions. What is an economy for? Are there no limits? How much is enough? Are we happier with all this stuff? Why is anyone allowed to be a billionaire?

The pursuit of endless growth is suicidal. As many ecologists say, the global economy is already far too big, and must shrink, because its growth has been through over exploitation of the biosphere. Now, when I say this, people immediately say ***“What? Do you say we are going to have to go back and live in***

caves?“ To which I say no, of course not. How about aiming for 1945 or 1950, when I was a kid, when the economy was many, many times smaller, but life at that time was pretty good.

And because the economy is built on human creativity, and human productivity, nature is considered an externality. So, when we destroy a forest, flood a valley, or burn down an ecosystem, that's just collateral damage, that is the price of doing business.

Last year, the UK economist Partha Dasgupta released a massive report showing that the economy is inevitably destructive because it pays no attention to nature, and all of the services she performs that keep the planet habitable for animals like us, things like removal of carbon from the air and return of oxygen by plants, the creation of soil, the filtration of water, the pollination of flowering plants, the capture of energy from the sun, and so on. All the opposition to the carbon tax, for example, is simply to avoid even paying to use the atmosphere as a **dump**.

Mark Carney in his book *“Values: building a better world for all”* points out that Amazon, the colossal company, is valued by the economy in the hundreds of billions, while Amazon, the greatest ecosystem on the planet, is only valued economically when the forest is destroyed, and the land becomes productive for human uses with dams, cattle ranches, soybean farms, and cities. Today, our actions are leaving enormous ecological deficits that are not on today's payrolls but will be paid for by future generations because they must live with a profoundly degraded planet. Mark Carney points out this is an **egregious abrogation of intergenerational responsibility** that is the consequence of the current economic paradigm. It is suicidal when our very lives and wellbeing are made possible by nature, while the economy itself rests on nature for raw materials, energy, and waste disposal.

My parents were married during the Great Depression of the 1930s that shaped their values and outlook, which they inculcated in me and my sisters, constantly repeating aphorisms like **“Save some for tomorrow”, “Share”, “Don't be greedy”, “Always help your neighbor, they are your community”, “Live within your means, and work hard for money to buy the necessities in life. But don't run after money as if having fancy clothes, the latest car or a big house makes you a better, more important person.”** These vital lessons seem quaint and irrelevant in today's high consumer world because the economy demands constant growth.

Anthropocentrism

And we are told that democracy is the best political system ever built. A system in which government policy and action are guided by the voting patterns of all citizens. In our system of governance, the Minister of Fisheries and Oceans, isn't there to protect fish in the oceans, but the people who use them. The Environment Minister doesn't represent and protect the environment, but us. The Minister of Forests doesn't fight for the trees, and on and on it goes, you get my point. And those most affected by what governments do or do not do, our children, future generations, and for that matter trees, fish, birds, oceans, the atmosphere – **THEY DON'T VOTE!** So, they're not on the political agenda. We cannot get out of the crisis we face through the existing legal, economic, and political systems when they are so profoundly based on our anthropocentrism.

In wars, we've always fought each other. We've never had a battle, except when invaders come from outer space, when we have to fight together for survival. Our diverse cultures, languages and customs

obscure the fundamental fact that every human being belongs to the same species, because we are animals. And biology defines the most important elements for our survival, and well being.

We are all Animals

In the late 1990s, I was asked to give a speech at the first Green Buildings Builders conference in Austin, Texas. There were about 3000 people in the audience and a lot of children. And at one point I said to the kids, **“Now kids, if there's one thing you remember from my talk, remember, we are animals.”** I was stunned by the reaction. A woman came up to me mad as hell said, “Don't you call my daughter an animal! We're HUMAN beings.” The very idea that we are animals is so repugnant, because we think we're different. I said to the woman, “Madam, I'm a biologist. If your daughter isn't an animal, is she a plant?”

The Dilemma

Let me show you what the challenge is. Five years ago, I received a call from the CEO of one of the largest companies working in the tar sands of Alberta. Could I meet with you here? Of course, I replied, I'm not into fighting. The next day, he showed up at my office, and I thanked him profusely for coming and said, what an honor it was, and so on and on. Before you come into my office, I'd like to ask a favor of you, I told him. I want you to leave your identity, as a CEO of an oil company outside the door. I want to meet you face to face as one human being with another. I want to find out, what do we agree on? Because otherwise, if we don't start from a platform of agreement, what's the point of arguing about climate change and carbon taxes and pipelines, and jobs.

That's not what he had come down for. But he was a good man. And he meant well, so reluctantly, he came into my office. I know this isn't what you expected, I told him. So, here's what I have in mind. We live in a world that is shaped and constrained by laws of nature. And there's nothing we can do about that. We have to live within those laws. Physics informs us we can't build a rocket that will travel faster than the speed of light. The law of gravity says if I trip on the rug, I'll hit my head on the floor. And the first and second laws of thermodynamics dictate that we cannot build a perpetual motion machine. Those are laws of physics, and we can't change them. In chemistry, it's the same. The atomic properties of the elements determine freezing points, melting points, boiling points, reaction rates, diffusion constants, and all of that limit what we can and cannot synthesize. And biology tells us every species of animal and plant has a maximum number that can be sustained indefinitely. Exceed that number and populations will fall, because that's dictated by what's called the **carrying capacity** of an ecosystem or habitat. Now, humans are not limited or confined to a habitat because we're smart. We can adapt to very different circumstances. But we all live within the biosphere, the zone of air, water and land where all life exists. And the biosphere determines a carrying capacity for humans and that's based on our numbers and how much we consume.

Every scientist I've talked to agrees we are far beyond the carrying capacity of the biosphere, primarily because of the hyper consumption of the industrialized world. And biology informs us contrary to what that woman in Texas said, we are animals. And as animals, our most fundamental need is **air**. If we don't have air for three to four minutes, we're dead. If we have to breathe polluted air, we're sick. Air is created and maintained by all plants on land, and in the oceans. So clean air should be a sacred gift from nature, that all of us have a responsibility to protect for future generations.

Each of us is 60 to 70% **water** by weight, or just a big blob of water with enough thickener added so we don't dribble away on the floor, but it leaks out of our skin and our eyes and our mouth and our crotch. If we don't have water for four to six days, we die. If we drink contaminated water, we sicken. We are a part of the hydrologic cycle, when we drink water, then excrete or secrete it back out, filtering and adding whatever was in that water. So clean water is like clean air, a sacred gift from nature, that we have a responsibility to protect them pass on in a pristine state.

We can go a lot longer without **food**, four to six weeks. But then we die. Every bit of our nutrition was once living and most of them grew in the soil, which is itself created by composting and excretions from life. There is not an ounce of soil on Mars to grow food, or on the moon. Clean food and soil join clean air and water as gifts from nature with our responsibility to maintain their richness. And every bit of the energy in our bodies that we need to move and grow and work and play is **sunlight**, captured by photosynthesis in plants and converted to chemical energy. In the process of photosynthesis, carbon is removed from the air while oxygen is added back. All energy released by burning coal, oil, gas, wood, peat and dung is also sunlight stored by plants.

These are irrefutable facts. And I would add that all these life-giving elements – **earth, air, fire and water** are **sacred gifts** from all the rest of life that is called biodiversity, then handed on to us by our ancestors, laden with responsibility to care for and pass on to generations yet to come.

Other things Mr. CEO, I told him - other things, capitalism, socialism, the economy, laws, corporations, governments, markets, currency, these are not forces of nature. We invented them. So, we can change them to conform to nature and natural law.

If you shake hands in agreement with what I've said, I concluded, I promise, I will do everything I can to help you and your company.

He was a good man. He loves camping with his children. He goes to church on Sundays. He's a successful businessman. But he couldn't, or he wouldn't shake hands with me. Because if he were to meet his shareholders and tell them "**I had a conversation with Suzuki and realize whatever our company does, we must not compromise the air, water, or soil!**" he would be fired in a minute because that's not his job. His job is to make money, the more and the faster, the better. So, he is trapped within a system with its rules and boundaries set by humans, not nature.

Environmental, social, and governance (ESG)

Remember that as corporations talk about corporate ESG criteria, it's all greenwashing because they don't address the fundamental root problem that is driving our destructiveness. Incremental change, a new law or regulation here, an economic incentive or attack there, a new park, a political promise to meet public protests are not enough because we need **transformative change**. That means switching from anthropocentrism to ecocentric ways, from being super consumers to restoring nature's generosity.

The great opportunity today is that there are still people who live through ecocentric values, who fight for their territory, which is everything to them because aside from the benefits they gain from nature, they have an overwhelming sense of responsibility to protect and care for the land.

Indigenous People - we are all in the same canoe

Of course, I was speaking of indigenous people all over the world, the only people with a track record of living sustainably in place for 1000s of years. No corporation or government can make that claim for even a decade. We settlers must rediscover indigenous values to shape our policies, our strategies, and actions, because clearly the dominant paradigm doesn't work.

I'm not saying indigenous people have all the answers - they don't because the world is radically changed from the one in which their cultures were developed. It took Haida months to cut down a great cedar tree to build canoes, long houses, and totems. They would burn little bits, then chip the charcoal with stones, then burn and chip for weeks. Today, one person with a chainsaw can do it in minutes. And here, environmentalists can provide support with **EBM (ecosystem-based management)** based on the science of ecology. What indigenous people offer is the way they perceive our relationship with nature that guides and shapes their actions.

And I'm always amazed that despite all that has been done to stamp indigenous people and their cultures out of existence, they are willing to teach and share with us. They tell me again and again, we are all in the same canoe, we must paddle together.

The principles of **UNDRIP (United Nations Declaration on the Rights of Indigenous People)** and the recommendations of the **Truth and Reconciliation Commission** provide a path to social justice. But just as important they guide us to find a better way of living on this planet. We cannot go back to the way things were before the COVID Lockdown.

Thank you.

Questions and Answers

Q1: I have been an environmental educator, my whole teaching career. I feel discouraged and frustrated that my work has not made more of a difference to our planet. What do you do to keep yourself positive and hopeful?

A1: Despair right now is a luxury we can't afford. I've agonized over this, but we can't afford to. I've got grandchildren who are everything to me and, however bleak things look, my message is we don't know enough to say it's too late. And to me the hope lies in action. It is in doing and trying, that we define that we're species worthy of being respected, but also in the doing and trying, we attest to the fact that there is hope. I know how tough it is for an environmental teacher to go on year after year trying to get the message out. But you have influenced people and if there are 1000s of people like you, that will add up. So don't carry the weight of the world on your shoulders. You're doing your bit in trying and continuing to try. You attest that there is still hope.

Q2: Education is key to making change. We must also learn to ask better questions of our elected leadership to hold them to account. What do you think about that?

A2: As an environmentalist, I have spent the past 40 years learning from indigenous people. They're the ones that have taught me and allowed me to see the world in a very different way. When we did a film on logging in Haida Gwaii, I knew that the Haida had a very high level of unemployment and many of the loggers were Haida. Yet here were the Haida fighting against logging. When I asked one of the leaders, **"Why are you fighting the logging? You're an artist - what difference does it make?"** And he said

“When the trees are gone, then we'll be just like everybody else, I guess.” At the time, I didn't know what he meant. Until I thought about it. I realized he was saying we don't end at our skin or our fingertips. To him being Haida meant being connected to the air, the water, the trees, the fish. All of that is what makes them who they are. And that's one of the most profound lessons I've ever had. Because I then began to look at the world differently. That simple suggestion changed how I see the world and it led me to write a book called **“The Sacred Balance: Rediscovering Our Place in Nature.”** So, I think the opportunity is there as and when I look at the way indigenous people have changed in our perceptions and status in society. How many meetings do we have now where we begin the meeting by acknowledging whose territory this is? And in acknowledging that, I think we also should be acknowledging that their perspective and guidance which has protected these lands, should be the guiding principles of the way we go into the future. There's a real opportunity there.

Q3: Can we use the current tools, government, and laws to reverse the damage or should we use new words, new laws, to basically undo everything and redo everything? And if yes, where do we even start?

A3: We're in a desperate state here. We need science, but its power is in description. We look at parts of nature, and we see things that happen, but it's very poor at prescription - prescribing what we should do, because we still don't know enough, and science only looks at in fragmented ways. We must be very, very careful in the technologies we devise. The crisis of climate is a double crisis. We're releasing far too much carbon into the atmosphere for nature to reabsorb. For billions of years, nature has reabsorbed what we put into the atmosphere, but now we've overwhelmed it. We're putting far too much out, and we're destroying the very means of removing and sequestering that carbon, which is our areas of wilderness. So, we've got a double crisis here of loss. In our anthropocentrism, we think, oh, we need geoengineering. We've already mucked up the atmosphere, but now we need to engineer the atmosphere. Rather than saying the highest priority is to stop making it worse by putting out more carbon, we must **Shut down the fossil fuel industry!** No politician has got the nerve to say that, not even our Minister of the Environment, our dream candidate. Steven Guilbeault is a seasoned environmentalist. He can't say that because it's just too destructive of the power systems on the planet. I meet so many people that say well what can I do? I'm a drop in the bucket. Well, enough drops can fill any bucket. Let's get started ourselves. Let's start reducing our energy use and that is very easy. Stop consuming all this stuff. You know, as I told you, my Mom and Dad said, **“You need to work hard for money to buy the necessities in life.”** Well, what are the necessities? You go to Walmart and see all this stuff? How much of that would you say is a necessity in life? We got into just buying stuff and well, for God's sakes **Stop It!**

Here's a bugaboo I have - we were very poor after World War II ended and we wore, all of us - my sisters and I, wore blue jeans. Because blue jeans denim wears like iron. And I've always worn blue jeans right up now into my adult life. And when I go out and see young people who paid hundreds of dollars for brand new jeans already ripped to shreds, I go “What the hell is this?” You're clearly saying “I don't give a shit about the environment. I just want to look good.” What the hell kind of animals are we!

Why do we need the latest iPhone? It's just a telephone for God's sake. But why do we need the new one, all this stuff? We have a huge opportunity, every one of us, to begin to reduce our footprint and COVID taught us Canadians are willing to make enormous changes. And what we discover in these times of shutdown is wow, you know, I'm spending more time with my kids! We've got to learn to live in a different way. And we've got to start. We need technology. But that's not the answer. I think that we

must give nature a chance. We must let nature flourish again. We've got it all wrong. We've got parks, where we put fences around wilderness areas. Wrong place. We've got to put fences around humans. **Stop taking over the planet!**

The Brundtland Report, **"Our Common Future"**, in 1987 came out of the United Nations. It said we should protect 12% of the land base for nature. **12% of the land!** We're one species out of 10 million, and we want to take over 88% of the planet for us. That's nuts, but that's the way it is. We've got to put fences around ourselves and start living wisely. We've removed ourselves from our habitat by creating cities. That's where we live now. Then make our cities more compatible with the natural world. That's where we've got to confine ourselves, make them more livable, and make them make more ecological. That's where we have to grow our food. That's where we must deal with our waste, so on and so on. And guess what? It's going to create jobs of all kinds! We have to make a major transformation. When COVID hit, our government began to spend 10s of billions of dollars. Wait! Where the hell is all this money coming from? We environmentalists would go to Ottawa begging for a few million dollars for public transit, for retrofitting homes, and suddenly we spent over \$300 billion dollars on COVID. Money isn't the issue. Jobs will be created because we've got to change our habitat. We've got to change the way that we live on this planet.

Q4: It is overwhelming to decide what to focus on. What top three environmental actions could a family undertake?

A4: This is a question asked repeatedly. We want to do something that has significance. There are books written on **"10 Ways to Save the Planet"**, **"100 ways to a green future"**. There are all kinds of suggestions out there. For me number One is stop adding and contributing to the greenhouse gases that are already in the atmosphere. One of the biggest challenges is airplanes - **flying**. I did a lot of flying and when I told my boss at the CBC, I'm not going to fly anymore for **"The Nature of Things"**, that had enormous repercussions. We can do a lot around the house – how you transport yourselves is one. I'm really fortunate in that one of my daughters and her family now live upstairs and so the boys go to school a kilometer away. I get to pick them up from school twice a week and am **"shocked at the number of parents that are still driving their kids to school and picking them up."** If you really care about your future, **stop** driving the children to school. We've got to stop our hyper consumption and clothes are one of them - fashions. Buy used clothes or whatever. What the hell does it mean to look good? I think of our consumption, our use of energy. We're retrofitting and converting our house so that it's much better insulated. We're electrifying everything, getting off natural gas. We need big changes and that can only come from our political system. Our children can't vote but we must be **proxies** for them. I've been saying to young people who've been galvanized by Greta, **"Look, your parents have to be eco warriors on your behalf. That's their job!"** And some kids say, **"Well, you know my daddy works for the oil companies."** I don't give a damn! If you can't convince your father, then how are we going to change the world? So, every child has got to say Mum and Dad **"You've got to be warriors on my behalf and you've got to go and tell those people running for office, that my future is important to me and they're going to vote for people that will act on that."** So we have to be politically active at every level, locally, provincially and federally. **Be politically active.** That's your job. We've got to **reduce our own personal footprint and the family's footprint.** And we've got to **support the groups that are working on providing solutions.** There are lots of solutions out there.

Q5: We keep hearing that talking about climate change with friends and family is one of the most powerful individual actions anyone can take. And in my experience, practically no one talks about it in personal family conversations. Almost never. And this includes people who are well informed and very concerned. We talk about COVID nonstop, but rarely do we broach the topic of climate change with other people. Why do you think this is?

A5: The problem is that we're all embedded in the systems that are making us see the world and act in ways that are destructive. Even as we try to have the conversation, we're still trapped. The crisis is that the way we perceive the world shapes the way that we behave towards it.

Years ago, I was in a tiny village in the mountains in Peru with anthropologist Wade Davis. He told me the kids in this village are taught from childhood that mountain is an apu deity. As long as that apu casts its shadow on our village, it will determine the destiny of all of the people in the village. And he said to me, think how those kids grow up and treat that mountain compared to a kid in Trail, BC who's taught those mountains are full of gold and silver. The way that we see the world shapes the way that we act towards it. Is a forest a community of organisms or just timber or pulp? Is a river the veins of the land or an opportunity for irrigation or a dam? Is another species, our biological kin, or is it a resource? The way that we see shapes the way we act, in the way we speak to each other, and that's the challenge when we confront, for example, our systemic racism. And we see that all the time in terms of the way indigenous people are treated. It's not just a matter of one or two rotten apples in the barrel. It's that we're embedded in a system where we don't even see that we are being racist because of the assumptions that we have, and that is so very difficult. I am so grateful that there are indigenous leaders now are out pleading their case, fighting for their people. This is an opportunity for us to broaden the conversation. Our educational system has been caught up in the same conundrum. Here's an opportunity to reach out and bring this perspective in from the indigenous community. Believe me, they're very, very pleased to be respected and brought in for this conversation.

Q6: Dr. Suzuki. I've taught my entire career 36 years in Biology and Environmental Studies. And I feel that very, very little has been understood in terms of climate change. Retired, I continue to be involved in committees that encourage a big garden, growing your own food and families minimizing our footprint on this planet. What can I tell my grandchildren so, that they keep that flame of positivism glowing bright?

A6. I thank you for a career spent teaching environmental studies. The reason that it appears to have had so little effect is that the heart of environmentalism is a threat to the status quo, the structures within which we exist. I was galvanized by Rachel Carson 1962, when her book came out. I had returned from studying in the US for eight years, and I was ready to be a hotshot scientist. I never thought about the problems or the constraints of science. But when I got caught up in the environmental movement, all about the environment was about me. We're worried about pollution affecting children. But it's also affecting birds. Whooping cranes are going extinct, and that's tragic because I'm the animal that gives dignity to the birds and when they go extinct, it's a diminishment of me. It was still a very anthropocentric way of looking. My experience with the Haida in the late 1970s made me realize I'm just as caught up in the system as everyone else. The change really came when I realized that real green environmentalism says "Everything is connected to everything else, and whatever we do has repercussions. Our well being and our very survival depends on that web of relationships - we're not at the top controlling everything. That changes everything. It is the hardest thing to even recognize in

ourselves, let alone to get our students to understand. But once you get it, everything changes. I was involved in the peace movement in the 1960s and 70s. The most powerful group I felt in that movement were retired admirals and generals against nuclear war. These were people who were in the military saying **“We need nuclear weapons. It's a deterrent and we got to be better than the Russians.”** But when they retired, they didn't have to play that game. Suddenly, they said **“This is crazy! More nuclear weapons don't make us safer. It's more dangerous!”**

Retired teachers are in the same position. You don't have to kiss anybody's behind to get a raise, keep your job or get a promotion. You can now speak the truth. And you can stand with Greta! Sadly, her cause has been affected by COVID, but Greta started a massive movement of young people. The real power is when all of you retired people without a vested interest in the status quo can join up with young people to really speak the truth for them and their future. I really see elders and youth being a powerful force and saving us!

Q7: Money talks in politics. Please comment on institutional investors such as pension plans, purchasing carbon offsets, to arrive at a carbon neutral world. Is that an effective strategy as economies transition to alternative fuels?

A7: When Bill McKibben started the divestment program in universities, I thought he was just supporting the system, and it's too late. But I've been amazed at the impact that movement has had, and there's no question that by shifting where those investments go, you can affect the economy. The problem for me is that it's still supporting the economy. Please do those things, but we need a fundamental change in the economic system itself. Partha Dasgupta had an important book report come out. Mark Carney talks of ways to move the economy in the right way, but they are still supporting the continued growth of the economic system by basically tinkering with the system to keep it going. The economy itself is the driving force, and it's just too big. It's too disconnected from the foundations of the way we're living. That's the real challenge. The degrowth movement to shrink the economy is very powerful. The Ecological Economics movement is premised that the economic system is embedded within a social system why, which in turn is embedded within an ecological system (the biosphere).

Just this morning, The Guardian reported that McKinsey, one of the world's most influential consulting firms stated that **“Reaching net zero climate emissions by 2050 will require a fundamental transformation of the global economy”**. It estimates that \$9.2tn will need to be invested every year for decades to limit the global temperature rise to 1.5C and end the climate emergency. The sum is a 60% increase on current investment levels and equivalent to half of global corporate profits! Billions are beyond my comprehension, but this is \$9.2 trillion!

The other thing is crypto currency now - it is just the nuttiest thing I've ever seen. What the hell is cryptocurrency doing for the benefit of the planet? Or of human beings? Nothing. It's just speculation, on speculation on different things that you know. I was in Papua, New Guinea many years ago where their most important currency was this shell of a very rare marine snail. And they traded that around.

What the hell is this whole economic system built on? And that's what cryptocurrency is. Now there's no sustainability built in it – it is just money making money, and money grows way too fast for real things. A few years ago, Dr. Clark at the University of British Columbia pointed out that forests in BC add fibre grow at the rate of 2% a year. If you cut down less than 2% of your trees a year, you can have those trees forever. But it makes no economic sense. Cut all the trees down, take that money and put it in the

bank. You'll make 5% or 6% if you invested in Papua New Guinea or in Indonesia on their tree plantation, I mean their oil trees. You can make 20 or 30% invested in computers. Why invest in your forest? When money grows faster than real things, it's just crazy! Sorry for doing the rant and rave.

Q8: How can we mobilize people of all ages and all backgrounds? Everyone?

A8: You're asking me, a total failure. I was really inspired by what Terry Fox did and I keep trying to mobilize that excitement and support and it's completely failed. So don't ask me. I don't know. But I think that you know this a time of enormous change. I have two examples of what we're capable of.

First is when Britain went to war with Germany. We were part of the Commonwealth in 1939. Canada went to war. Seth Klein has put out a book called **"A Good War: Mobilising Canada for the Climate Emergency"**. If you look at what Canada did in response to that war, here was an emergency. For the first few months after we went to war, Canadians sat around going, "Whoa! What the hell do we do?" We began to mobilize - when Canada went to war, we were producing 40 airplanes a year. By the end of the war, Canada was producing dozens of war planes every week. We had 130,000 people working in the aviation industry. We were recruiting women into the workforce. We became the fourth largest airplane manufacturer in the world. We set up 28 Crown corporations to do what the private sector wasn't doing, and then hired people, executives from corporations at \$1 a year to run the Crown corporations and then the government set a limit on how much profit you could make during the war. You couldn't have profiteering coming out of that. We had victory gardens, we had war bonds. When there were only 11 million people in Canada, a million of us signed up to put our bodies on the line and go to war and fight. Now, that's what we do when we have an emergency.

Second was when I was studying in the United States in 1957. On October 4, we were shocked when the Soviet Union launched Sputnik. I didn't even know there was a space program. In the months that followed with Sputnik going over us beep, beep beep, the Americans launched an Air Force, a Navy and then an army rocket blows ups. The Russians launched the first animal – a dog, the first man - **Yuri Gagarin**, the first team of cosmonauts, a first spacewalk, the first woman - **Valentina Tereshkova**. The Americans said we got to catch up to these guys. In 1962, President Kennedy said, "We choose to go to the Moon in this decade." They went to the moon and back and were the only country to do so.

A foreigner in the United States, all I had to do is say, "Eh, I like science" and they threw money at me. There were incredible opportunities - they just poured money and supported us, and they are the only country to land on the moon. Sixty years later when Nobel Prizes are announced, American scientists get most of them. It's because Americans made the commitment to catch up. Every year NASA publishes a magazine that lists hundreds of things that spun off the American space program from GPS through to 24-hour news channels, laptop computers to cell phones; you name it - they all happened because America said, **"We've got to beat the Russians to the moon."**

That's what we have to do with climate! We've got no choice. This has got to be the way we go. And that's why I've been supporting Seth. He's got a climate emergency unit that is trying to drive this notion of an emergency into every sector of society, the health area, the artists, artistic, we've got to have everybody coming in saying this is an emergency. And we've got to treat it like it's **THE EMERGENCY**.

Q9: What are some very important questions to ask future political candidates?

A9: One of the problems we face is that the parties are whipped! We've had very good people in the Federal environment ministry, but they all must fall in line. The last Minister of the Environment, Jonathan Wilkinson would answer me in minutes whenever I emailed him. But when I asked him *"You bought a pipeline, you're announcing all these grand things like net zero 2050, but you're not telling us the truth. Tell us how bad the problem is! You've got every right to say the previous governments have done a bad job, but you've got to tell us how bad it is and what we really need."* he could not do so. When we have a Prime Minister who said in 2017 *"No country would find 173 billion barrels of oil in the ground and just leave them there"*, he must toe the line. The only party that doesn't whip its members and allows them to speak whatever they believe is the Green Party. Whipping is terrible because we vote for candidates who once elected cannot deliver because they must go along with the party whip. The best we can do is ask ***"What will you do in terms of climate? And will you do that regardless of what your party whips demand?"***