The Challenge of the Twenty First-Century - Setting the Real Bottom Line

by

Dr David Suzuki

My fellow human beings, thank you, Mr. President, for those kind words and your introduction. It is a great honour to be here today, to have this opportunity to share a few very simple ideas with you. I can't overemphasize the importance of the work that you are doing here. It has repercussions on the future of our children, our grandchildren and all the other species that share this planet with us.

Today, I would like to speak to you not as a scientist, nor a journalist, or an environmentalist, but as a parent. Please understand that I can't help but speak through the blinders and biases of my culture, that of a wealthy industrialized country. Next month, I will reach my 68th year. I have more of everything, including money, than I will need for the rest of my life. I have received honours and recognition beyond anything I ever hoped for, or wanted. I say all this to assure you, I have no ulterior motives. In the last years of life, my main concern is my children and grandchildren, with what they can hope for in this world. And to be quite frank, I am terrified. The rate at which the world is recognizing and responding to the scale and the severity of the global eco-crisis is far too slow and superficial. You are here to deliberate the fate of biodiversity on the planet and I urge you to look beyond the human priorities of politics and economics because, to quote a title of one of my radio series and books, it's a matter of survival. I would like to remind you why we are here, as the President mentioned, with the plea from a 12-year-old child that was delivered at Rio 12 years ago.

> "Hello, I am Severn Suzuki speaking for E.C.O - the Environmental Children's Organization. We are a group of 12 and 13year-olds trying to make a difference, Vanessa Suttie, Morgan Geisler, Michelle Quigg and me. We've raised all the money to come here ourselves, to come 5,000

miles to tell you adults you must change your ways. Coming up here today, I have no hidden agenda. I am fighting for my future. Losing my future is not like losing an election, or a few points on the stock market."

"I am here to speak for all generations to come. I am here to speak on behalf of the starving children around the world whose cries go unheard. I am here to speak for the countless animals dying across this planet, because they have nowhere left to go. I am afraid to go out in the sun now, because of the holes in our ozone. I am afraid to breathe the air, because I don't know what chemicals are in it. I used to go fishing in Vancouver, my home, with my Dad until, just a few years ago, we found a fish full of cancers. And now we hear of animals and plants going extinct every day, vanishing forever. In my life, I have dreamt of seeing the great herds of wild animals, jungles and rainforests full of birds and butterflies, but now I wonder if they will even exist for my children to see."

"Did you have to worry of these things when you were my age? All this is happening before our eyes and yet we act as if we have all the time we want and all the solutions. I'm only a child and I don't have all the solutions, but I want you to realize, neither do you. You don't know how to fix the holes in our ozone layer. You don't know how to bring the salmon back up a dead stream. You don't know how to bring back an animal now extinct. And you can't bring back the forest that once grew where there is now a desert. If you don't know how to fix it, please stop breaking it."

"Here you may be delegates of your governments, business people, organizers, reporters or politicians. But, really, you're mothers and fathers, sisters and brothers, aunts and uncles and all of you are someone's child. I'm only a child, yet I know we are all part of a family, 5 billion strong, in fact 30 million species strong. And borders and governments will never

change that. I'm only a child, yet I know we are all in this together and should act as one single world towards one single goal."

"In my anger, I am not blind and in my fear I am not afraid of telling the world how I feel. In my country we make so much waste, we buy and throw away, buy and throw away, buy and throw away and yet Northern countries will not share with the needy. Even when we have more than enough we are afraid to share, we are afraid to let go of some of our wealth. In Canada, we live the privileged life. We've plenty of food, water and shelter. We have watches, bicycles, computers and television sets. The list could go on for 2 days. Two days ago here in Brazil, we were shocked when we spent time with some children living on the streets. This is what one child told us, 'I wish I was rich and if I were, I would give all the street children food, clothes, medicines, shelter and love and affection'. If a child on the street who has nothing is willing to share, why are we who have everything still so greedy? I can't stop thinking that these are children my own age, that it makes a tremendous difference where you are born. And that I could be one of those children living in the favelas of Rio. I could be a child starving in Somalia, or a victim of war in the Middle East or a beggar in India. I am only a child, yet I know if all the money spent on war was spent on finding environmental answers ending poverty and in finding treaties, what a wonderful place this earth would be."

"At school, even in kindergarten, you teach us how to behave in the world. You teach us to not to fight with others, to work things out, to respect others and to clean up our mess, not to hurt other creatures, to share, not be greedy. Then, why do you go out and do the things you tell us not to do? Do not forget why you are attending these conferences, who you are doing this for. We are your own children. You are deciding what kind of a world we are growing up in. Parents should be able to comfort their children by saying 'Everything is going to be all right, it's not the end of

> the world, and we are doing the best we can'. But I don't think you can say that to us anymore. Are we even on your list of priorities? My dad always says, 'You are what you do, not what you say'. Well, what you do makes me cry at night. You grown-ups say you love us. But I challenge you, please, make your actions reflect your words. Thank you."

Thank you. I don't mind being called Severn's father. I'm impelled by the same sense of urgency that Severn had back then, but my sense of urgency is because, for decades, leading scientists of the world have been telling us that we are facing a major global eco-crisis.

In November of 1992, the same year that Severn gave that speech, a remarkable document was released to the world. It's called 'World Scientists' Warning to Humanity'. It's signed by more than 16 hundred leading scientists of the world. These are not fly-by-night scientists, but the top scientists of the world, including over half of all living Nobel Prize-winners. And listen to what some of it said. 'Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future 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. Fundamental changes are urgent, if we are to avoid the collision our present course will bring about.' And then it goes on to list the areas - the atmosphere, water resources, oceans, soil, forest, species extinction, population - and then the mood grows even more deep, dark. 'No more than one or a few decades remain before the chance to avert the threats we now confront will be lost and the prospects for humanity immeasurably diminished. A great change in our stewardship of the Earth and the life on it is required, if vast human misery is to be avoided and our global home on this planet is not to be irretrievably mutilated'. And then it goes on to tell what we need to do. This is a frightening document, because I want to remind you that scientist are very, very shy about making strong statements in public, a very conservative group of people. So for such a noted group of scientists to sign such a document was quite unusual.

But if the words in the document are frightening, the response of the North American media was terrifying. There was no response. None of the major American television networks bothered to cover it. In Canada, our national television network, the CBC, our national newspaper, the Globe and Mail, didn't report it and in the States, both the New York Times and the Washington Post rejected this document as "not newsworthy". Now, when half of all Nobel Prize winners warn us that we may have as little as 10 years to avoid a catastrophe and this is considered not newsworthy it really is important to remind ourselves what do they think is important or newsworthy? If you remember over the last 10 years a guy by the name of O. J. Simpson? Do you remember Princess Diana, or Bill and Monica, or now apparently Justin and Janet? The media were consumed with these issues, not for days or weeks, but for months and years.

Since 1992, there has been a steady increase in scientific warnings and sense of urgency. The rise in atmospheric carbon dioxide and global temperature, the collapse of global fisheries around the world, species destruction, extinction and habitat destruction, toxic pollution of air, water and soil, lack of clean fresh water, poverty and inequity on a massive scale. Environmentalists rightly struggled to protect endangered species and threatened habitats and ecosystems. But when, as World Bank President James Wolfenson tells us, half the world struggles to survive on two dollars or less a day, yet the obscenely wealthy nations like mine continue to demand more and steady growth.

The inequities lie then at the heart of continual ecological destruction. A starving person who comes upon an edible plant or animal is not going to pause and say 'Gee, I wonder if this is endangered.' They are going to kill it and eat it. I would, and I suspect every one of you would. If we don't deal with hunger and poverty, we can forget the environment; people have other priorities. For all of human history, people understood that we are deeply embedded in, and dependent on, nature. All over the world, peoples' stories, songs and rituals celebrated that embeddedness, gave thanks to the creator for nature's generosity and abundance, acknowledged our responsibility to act properly to keep it all

going and promised to play our proper role, to share and not be greedy, as Severn said. To take only what we need, to respect all of life.

But now we've forgotten those hard-earned and ancient truths. We've been transformed with explosive speed into a new kind of force on this planet that I called a 'superspecies'. In the 3.8 billion years that life has existed on Earth, there was never a single species capable of altering the biological, physical and chemical features of the Earth, as we are doing today. We have acquired the enormous scientific and technological muscle power that enables us to alter, extract and pollute the Earth. At the same time, we have become the most numerous mammal on the planet. There are more of us than all of the rats, than all of the rabbits and than all of the wildebeest on the Earth.

But of course, we're not like those other mammals and we have a huge appetite which is fed by a globalized economy that seeks resources from every nook and cranny on the Earth and constantly searches for new markets to sell its goods. The result, we've become a 'superspecies'. But we are a species that evolved in small family and tribal groups. We never had to worry about the collective impacts of all human beings on Earth. Suddenly, we have to worry about the collective impacts. And you all know very well, it's not easy to adjust to that perspective. Now more than ever, is when we must remember that we remain deeply embedded in, and dependent on, a natural world where everything is connected to everything else. But today we live in a world that has been shattered by a torrent of information that floods us with disconnected bits and pieces. In a time of globalization, products are disconnected from the seasons and their place of extraction and production. When the world is so fragmented, we can no longer see cause and effect relationships and when there is no interconnection, then there is no sense of responsibility.

A few years ago, at The Nature of Things, we decided to do a programme on asthma. Asthma is a disease that, when I was a boy, was unheard of. We didn't know about asthma. It was a rare condition, but today it affects one in every five Canadian children. We waited for the city of Toronto to issue a smog alert warning people to stay inside and,

when it was issued, we rushed down to the Toronto General Hospital emergency ward and it was flooded with people, elders and children brought because they were having respiratory difficulties. But what struck me was that many of those elders and children were brought in by parents who were absolutely frantic, but drove up in a huge sport utility vehicle that is one of the major causes of polluted air in the cities. We care passionately about our loved ones and their health, but we don't put together the way our own lifestyles are affecting our children and their health.

Ever since Rachel Carson's book 'Silent Spring' galvanized millions of people in the environmental movement, we've dealt with problems by trying to regulate, regulate human behaviour, how much and what we are allowed to remove from the environment and how much garbage and toxic materials we are allowed to put back into our surroundings. We've established ministries of the environment, passed environmental legislation, set up international agencies and conventions. But, it's crystal clear, this is simply not enough. And one of the major reasons is that our ignorance is too great to allow us to set the proper regulations to manage the way that we interact properly with the environment.

Let me give you a couple of examples; DDT was first synthesized by an organic chemist in 1800s, but it was not until the 1930s' that a scientist working for Geigy, Paul Muller, discovered that DDT kills insects. Right away, Geigy saw an opportunity to make money and began to say, "Through chemistry we will now begin to control one of the great plagues that has pestered humankind since the beginning of time". And, at the time that DDT began to be used, geneticists knew enough about mutation to say that, if you use a powerful chemical like this, you're going to select for resistant mutants and within a short period of time, you're going to have to get new chemicals because your population is going to be resistant.

Ecologists knew that insects are the most numerous, successful, diverse group of organisms on the planet. They're absolutely critical for ecosystems around the world. It's estimated for every human being on Earth there are at least 2 hundred million insects. So

long after we are gone from the Earth, do not worry, the bugs will still be around and flourishing. Maybe only one out of every thousand species of insects is a pest to human beings. It doesn't make sense to spray a chemical that kills all insects to get at the one or two that are a pest to human beings. That would be like saying we've a problem of crime in Kuala Lumpur, we'd better kill everybody in the city. It would get rid of crime, but it does not strike me as a very intelligent way to manage a pest.

We biologists, geneticists and ecologists, were just as caught up in the promise of science as anyone else and they did not say anything about their concerns over pesticides. Paul Muller went on to win a Nobel Prize for his discovery in 1948. But by the 1950s, bird watchers began to notice something funny was happening with birds. They were disappearing, and biologists tracked it down and discovered a phenomenon called 'biomagnification'. You spray in parts per tens of millions. Microorganisms absorb DDT, they don't die, they concentrate it, and at each trophic level of the food chains, you concentrate it. So by the time you get to the fatty tissues of the shell glands of birds, or the breasts of women, you have concentrated DDT hundreds of thousands of times. How could we have managed DDT when we didn't even know about biomagnification until eagles began to disappear and biologists tracked it down?

CFCs, same thing, CFCs seemed to be a miracle of organic chemistry, complex ring molecules with a lot of chlorine stuck on it that were chemically inert. They were wonderful for using as fillers in aerosol spray cans. They didn't react with the ingredients. And so we began to use CFCs in massive amounts. But only years later we realized, because CFCs were chemically inert, they didn't break down. They hung around and accumulated and, in the upper atmosphere, ultraviolet light breaks chlorine-free radicals off CFCs, and chlorine is a potent scavenger of ozone. When scientists began to announce that CFCs were degrading the ozone layer, I didn't even know that there was an ozone layer up there to degrade. How could we have managed CFCs when no one could have anticipated what the effect would be ultimately?

And, mark my words, I am telling you as a geneticist, exactly the same thing is going to happen with genetically modified organisms. This is a revolutionary technology. We are creating organisms in ways that have never existed. It is a conceit to think that we know enough to anticipate what the effects of these new creatures will be when grown in the wild. We already have plenty of evidence in Canada, where we're performing a massive experiment by allowing these genetically modified organisms to be grown in open fields. We've already got evidence of totally unanticipated consequences, and we've been eating it now for five years in the food chain without the Government allowing us to tell where it is. So just watch the Canadians; we're doing the experiments for you. We'll find out how safe these GMOs are.

So, the dilemma then is that our ignorance is so vast, our technologies are so powerful, crude but powerful, that we can't anticipate what the long-term consequences of these will be. And over and over again we are going to discover completely unexpected surprises. I believe that we need to go back, to look back and rediscover ancient truths. Aboriginal people around the world refer to the Earth as our mother. They say that we are created by the four sacred elements earth, air, fire and water. This is not meant to be a poetic or metaphoric way of speaking, they literally mean that we are created by the Earth. And as I reflected on that, as a scientist, I've come to realize how profound that insight is, and how it is completely corroborated by the best science that we have. We are created by these basic elements of the earth. Let me just illustrate that with one example.

The minute every one of us left our mother's body, the very first thing that we needed was a breath of air, and from that moment on, to our last gasp as we die, we need air 15 to 40 times a minute. And we don't even think about it. We suck air deep into our lungs and we ought to think about the consequences. In our lungs the air encounters about 300 million alveoli capsules that fill our spongy tissues in the lungs. We need all those little capsules to provide the surface area that comes into contact with the air. Each alveolus is lined by a three layered membrane called the surfactant that reduces surface tension, so when the air comes into contact with it, it sticks to the surfactant. Carbon dioxide rushes out. Oxygen and whatever else that is in the air rushes in. The oxygen is picked up by

the haemoglobin and red blood cells and with, every beat of the heart, that oxygen is delivered to every part of our bodies. And when we breathe out, we don't exhaust everything in our lungs. If we did that, our lung would collapse. About half of the air in our lungs stays in our lungs. The point is you can't draw a line that says the air ends here and I began there. There is no line. We are the air. It's in us, it's embedded in us and it's circulating throughout our bodies.

And, of course, the air that does come out of my nose, very quickly, through the convection of the air, mixes in the air and, within minutes, every one of you will be breathing the air that was once in my lungs. When I tell children this, their immediate reactions is to go "oh yuk!" I guess they think they've got a bubble of air that is their own. We share the air. Air just because it is invisible is not a vacuum of empty space. It's a physical substance that embeds all of us. So just as I am air because it is always in us and fused to us, I am you because we are linked to that same matrix of air that connects us with each other and with the trees and the birds and the worms and the snakes.

There is a wonderful thought-exercise the American astronomer Howard Shapley did many years ago. He said what happens to a single breath of air as it leaves our body? Well, as you know, 19% of the air is oxygen. The reason we breathe the air all the time is because we need the oxygen. The oxygen goes into our bodies and much of it doesn't come back out. 80% of the air is nitrogen. It goes into our bodies. It's not as important as oxygen, but some of it stays in our bodies and doesn't come back out. But 1% of the air is an element called argon. And argon, if you remember your chemistry lessons, argon belongs to a class of elements called the noble gasses; they're so noble they don't react chemically with anything. They're too snooty for that. So you breathe in, the argon goes into your body, you breathe out and it comes right back out. So we can follow the argon as a marker for that one breath of air. How many argon atoms are there in one breath of air? It turns out to be 3×10^{18} , three followed by eighteen zeros. Take my word for it, that's a lot of argon. So, if we follow one breath of air let's say, that comes from our President here, comes out of his nose, within minutes, every one of you is breathing

gazillions of argons atoms that came from that one original breath, that came out of his body. But the doors are open here. Out that breath goes across Kuala Lumpur, across Malaysia, around the world and, according to Shapley, one year later, if we come into this room every breath you take will have about 15 argon atoms from that one original breath our President took a year before.

So, on that basis, Shapely calculates, every breath you take has millions of argon atoms that were once in the bodies of Joan of Arc and Jesus Christ; that every breath you take has millions of argon atoms that were in the bodies of dinosaurs 65 million years ago; that every breath you take will suffuse the bodies of all terrestrial life-forms as far as we can see into the future. So air is this wonderful substance that gives life to all creatures on Earth, that connects us to the past and into the future. To me, air rightly deserves the notion that it is a sacred element, as our aboriginal brothers and sisters tell us.

We boast that we're intelligent. The basis of all of your deliberations here is that we are rational intelligent creatures. But what intelligent creature knowing the role that air plays in our very existence would then proceed to use air as a toxic dump and think somehow it's going to be diluted away and it'll be okay to set levels as to what the tolerable levels are. I have taken, I calculate, at least 350 million breaths of air. I've sucked air deep into my lungs and filtered whatever is in it. Do we think that all of our engines and all of our factories and all of our emissions are not going to be sucked into that air? I just told you what one breath will do around the world in a year. Do we think that when we dump stuff into the air, we are not dumping it straight into our bodies?

We are air, and whatever we do to the air, we do to ourselves. We think that air is this stuff that just goes to the skies. It's only about 10 kilometres deep. If you reduce the planet to the size of a basketball, the air would be thinner than a layer of Saran Wrap. The air is a very small amount. The crisis we face today with climate change is that all of our industrial activity and all of our vehicles are pouring our effluents into that Saran Wrap layer around the world. And it isn't much and it's building up. And the industrialized world at Kyoto acknowledged that we are using a disproportionate share of that and we

will begin to reduce the amount that we contribute to allow more opportunity for the developing world to have their share. We are the air.

In Canada, not long ago, coal miners took canaries down in the mines with them. Canaries are super-sensitive to hydrogen sulphide, or sour gas. When the canary keeled over the miners didn't say, 'Hey, Jack, come over here. This bird just fell over. What do you think, do you think it is dangerous?' They hauled their asses out of there, as fast as they could go. The reason they took the bird down was to give them a few minutes of early warning so they could get out. Today, canaries are falling all over this planet. Plants and animals can no longer survive because of what we're doing to the air and we are not paying attention, until what? Until our own children have become the canaries and we're still not paying attention. As I told you 1 out of 5 children in Canada now suffers from asthma and the rate of asthma, and asthma deaths in Canada is skyrocketing. We are the air. Whatever we do to the air, we do to ourselves.

Now, it's the same with the water and the fire. We are water. Each of us is over 60% of water by weight. Just a big blob of water with enough thickener added to it so that we don't dribble away on the floor. But, of course, water comes out of our skin, our eyes, our mouth and everywhere. We've got to keep drinking water to top up and keep the level, the balance. And when we drink water just because it's in a bottle that says "Kuala Lumpur", do you think it comes from Malaysia? You all know the water cycle, the hydrologic cycle, means that water cartwheels around the planet. And that water that we drink wherever has come from all over the world. We are water and whatever we do to water we do directly to ourselves.

We are the earth because every bit of the food that we eat was once living. And the vast bulk of those living forms came from the soil. And if you think that air is thin in that basketball analogy, a physicist friend of mine calculated what would be the thickness of the soil in which we grow all of our food. And he calculates that, if we reduce the planet to a basketball, it is one atom thick on the surface of that basketball. What a thin layer we have to produce 98% of the food that we consume on the planet. Whatever we do to the

earth, we do to ourselves, because we ingest all of that food and make it into our own bodies.

And we are fire because all of the energy that we need to grow and move and reproduce, all of it is sunlight. The sun is the ultimate fire that gives us the energy that is captured by plants through photosynthesis and we then consume and store in our bodies. Surely it seems to me that in whatever we do, in whatever sector of society, earth, air, fire and water then should be elevated to the level of sacred elements. That what we do is we understand that they are the very foundations of our very survival. And the ultimate miracle of life on this planet is that biodiversity, the web of living things on Earth, is the very source of the four sacred elements, creates, cleanses, and replenishes the earth, air, fire and water. That may seem like an obscure connection to make, but let me show you what I mean.

Let's suppose scientists have made a great scientific breakthrough. They have invented a time machine and let's suppose that this entire room is a giant time capsule and this podium, is a console and I'm going to dial back to four billion years to where there was no life on Earth, and I am pushing the button and boom we are back four billion years ago and of course we all want to see what was the world like, four billion years ago when there was no life. We open the door, out we go and in less than two minutes everyone of us is deader than a doornail.

Why? Because before there was any life on Earth, before there was any green things on Earth, the air was absolutely poisonous. It was rich in carbon dioxide but there was no oxygen in it. It was only when cynobacteria and then plants evolved, that through photosynthesis they liberated oxygen as a by-product and over millions and millions of years, they transformed the atmosphere into the oxygen-rich one that we all depend on for our survival. And to this very day, it's all of the green things that are removing carbon dioxide and putting oxygen back into the atmosphere.

Ok, I knew that, so, before we dial back, if you reach under your chair, I put a big tank of air in it, so, if you put the tank on and the helmet on, turn it on and out we go. Ok, so you've got a tank of air we are going out and I would imagine after a while you would get thirsty. Where would you find water that you would feel was safe to drink? The water that we drink, especially in a town like Vancouver where it comes from three old-growth watersheds, the water is filtered. Life becomes a part of the hydrologic cycle removing heavy metals and toxics as the water percolates through the ground and is filtered by the roots, soil, fungi, and microorganisms. Before there was any life, you wouldn't know what water was safe to drink. Ok, we knew that too. If you reach further, I've got a glass bottle of water there with a straw on it you can put that on your helmet.

After a few more hours, before there was any life on Earth, what would you find if you got hungry and wanted to eat? And, of course, the answer is, there's no food at all, because every bit of our food was once living, and even if we brought seeds to plant, because we're going to stay for a while, where would you find soil on Earth, because it was life that created and to this very day, creates the soil that we depend on. Well, so there was no soil before life arose.

And, finally, if night falls and it's a very warm world, because it's rich in carbon dioxide. But let's suppose that we get lonely and we want to light a fire, where would you find anything to burn before there was life on Earth? Every fuel that we use, whether it is coal, gas, wood, oil or peat, all of that are dung. All of that comes from life. It's sunlight captured by plants and stored. There was no fuel to burn before life arose. Well let's suppose that we brought some wood and paper, and we pile up the paper and kindling and wood. We take a match and strike it and guess what? No fire. Because of course before there was any oxygen in the atmosphere, there was no fire anywhere on the planet.

So the point is biodiversity is the very source of the elements that we need in order to survive. And yet we are tearing at the web of living things, in a way that threatens the diversity and the health of this web of living things. We justify a lot of our unsustainable activities by saying "Well, we must manage the Earth now, we must manage ecosystems,

and manage resources in the proper way". Who would ever dare to say that we know enough to manage anything in the natural world? In order to manage, let's say, a candy store, you would need at least two things to manage it sustainably. You would need an inventory of everything in your candy store and you would need a blueprint to tell you how all of the elements in your inventory interact. Then, maybe, you'd be able to manage that candy store sustainably.

In terms of the world, in terms of biodiversity, how big is our inventory? How many species are there? We don't know. The estimates I have seen range from 2 million to 100 million species. Scientists now think maybe 10 million excluding the microbial world. Maybe 10 million species is a reasonable number. We don't know. How many species do we know? How many species have we given a name to? Between 1.4 and 1.6 species. So we know maybe a million and a half species out of 10 million? And that only means someone has given a dead specimen a name. It doesn't mean we know anything about how many are there, what's their range, what do they eat, how do they reproduce, what do they interact with. It just means that someone has given a dead specimen a name.

In terms of understanding the biology of species, E.O. Wilson at Harvard says that we probably know less than 0.1% of the species we know. But we don't have any kind of detailed of biology on them. So how can anyone say that we know how to manage the natural world, the world of biodiversity? It would be a grand statement of arrogance to say that. The only thing that we can manage is ourselves. We can manage our own species more or less. And that's what we have to do.

Nature has had 3.8 billion years to evolve, to evolve exquisite mechanisms for abundance, diversity and resilience that we depend on for our survival. Natural systems are priceless for the knowledge that they contain. Humans should apply the strategy of bio-mimicry, to emulate nature's subtle mechanisms, instead of constantly trying to bludgeon nature into submission. We need a fundamental shift in the way we live on this planet. We need to recognize our complete dependence on nature. We need humility to realize how ignorant we are. We have to reign in human technology and activity. We

have to protect and restore every bit of nature we can. Every human activity must incorporate an ecological perspective. And, finally, I think we should celebrate every part of our relationship with the natural world.

Let's start with air, water, soil, fire and biodiversity. We should be celebrating and reminding ourselves that's how we must live.

I must just give you a very quick conclusion. Are there things that can be done, in view of this perspective I have just given you? A few years ago, I decided to write a book to see whether there are solutions at the level of individuals, of companies, organizations, and governments. To my amazement - I thought it was going to be a very thin book - I wrote "Good News for a Change, Hope for a Troubled Planet". And I could have written book after book after book. The good news is, lots of good news out there. The bad news is our so-called leaders in governments and in business don't seem to want to pay attention to the good-news stories. And that's why we decided to take our fight to the people in Canada. We worked with the Union of Concerned Scientists to come up with 10 simple things that people can do to be most effective at lightening our effect on nature. We call this "the nature challenge", we're challenging Canadians across the country to commit to doing at least 3 of the 10 things that we've said are the most effective ways to lighten our footprints, and we now have over a 100,000 Canadians. I'm aiming for a million Canadians because once we get that, I believe politicians will have to respond.

And, finally, I just met, the day that I left for Malaysia, I met with our new Prime Minister Paul Martin in Ottawa and gave him a blueprint that our foundation has come up, which calls for a sustainability within a generation. And Mr. Martin made a commitment that he would exceed all of our expectations of him in terms of the environment. I have great hope, thank you very much.

Capital in the Twenty First Century. Although both methods are declining in Europe, their impacts can already be felt: as markets recover, the unbalanced distribution of wealth is still a real and present factor. The First Fundamental Law Of Capitalism Helps Us Find National Income And More. To truly understand the complexities of global capitalism, one must understand its history, theory and carefully examine current trends.Â The calculation of the rate of return is a simple formula making capitalismâ€™s first fundamental law a powerful tool. The Second Fundamental Law Of Capitalism Helps Us Understand The Its Monitor. The second fundamental law of capitalism says that the rate of capital/income (Î²) is equal to the rate of saving (s) divided by the rate of economic growth (g). In the twenty-first century, a new form of bottom-up, net-centric, commercially led space innovation is emerging that promises cheaper and more timely technological developments to those nations that can effectively tap into them, thus reshaping traditional definitions of space power. This study first sets a baseline by focusing on Cold War space power determinants, next analyzes recent changes among the three leading spacefaring nations, and then looks into the future, factoring in the expanded role of commercial space start- ups and military space alliances.Â The twenty-first century began with an all-consuming terrorist strike against the US homeland in the form of the 9/11 attacks. Request PDF | The challenges of strategic management in the twenty-first century | Markets around the globe are set to experience increasing turbulence in the coming years. That means greater uncertainty for companies' strategic |Â The main challenge for modern strategic management is the signicant degree of volality, uncertainty, and compleity of the environment in which decisions are made (Geissler & Krys, 2013;Wolf, 2007), and the ability of organizaons to adapt uicly is the most important compeve advantage (eeves & Deimler, 2011; igby & ilodeau, 201Â CNM's performance in identifying and extracting narrative elements was evaluated through an experiment using real-life narratives from a reminiscence study.