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Helen Caldicott

LOVING  
THIS  
planet

LEADING THINKERS  
TALK ABOUT  
HOW TO MAKE  
A BETTER WORLD



ALSO BY HELEN CALDICOTT

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LOVING THIS

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PLANET

*Leading Thinkers Talk About How to  
Make a Better World*

Helen Caldicott



*I dedicate this book to my two radio producers: Scott Powell, whose persistence, perseverance, and dedication over the years assured the creation of my radio show, and to Jasmin Williams, my loyal and clever friend whose technological knowledge allows us to record and produce the show in a tiny Australian fishing village made famous by the fisherman and author Zane Grey.*

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# CONTENTS

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*Introduction: Delivering the Message to Love This Planet*

Maude Barlow

Bill McKibben

Lester Brown

Janette Sherman-Nevinger

Hugh Gusterson

Chris Hedges

Diane Curran

Vini Gautam Khurana

David Krieger

Carole Gallagher

Jonathan Schell

William Hartung

Michael T. Klare

Daniel Ellsberg

Antony Loewenstein

John Church

Rhett Butler

Martin Sheen

Arjun Makhijani

Lily Tomlin

Michael Madsen

Bob Herbert

Frances Fox Piven

Denis Hayes

Phil Radford

# INTRODUCTION

## *Delivering the Message to Love This Planet*

From an early age I discovered the tremendous importance of disseminating knowledge and information. As a young girl in Australia, with the Good Samaritan as a guide, I decided that I wanted to be a doctor so that I could help people. At the age of seventeen, a cloud developed on my horizon. Just as I was about to enter medical school, I read a novel by Nevil Shute called *On The Beach*, which described a nuclear war that killed everyone in the northern hemisphere. Eventually the radioactive cloud engulfed Melbourne, where I lived, signaling the end of human existence. That image branded my soul and remained with me throughout medical school, indeed throughout my life. While learning basic genetics during my first year in 1956, the United States and Russia were irradiating millions of people by testing nuclear weapons in the atmosphere. And it became obvious to me that many people would develop deleterious genetic mutations, and that they would pass inherited diseases on to their offspring.

I moved to Boston in the late 1960s, which were years of intense political turmoil. The civil rights and anti-Vietnam War movements were flourishing; Martin Luther King Jr. and Bobby Kennedy were assassinated; and Richard Nixon was elected president. Aside from caring for three small children, I had a part-time job at Harvard Medical School, and while not having much time to participate in any political activities, I observed a potent democracy in action.

Upon my return to Australia I discovered that the French were contaminating our land with radioactive fallout from their atmospheric tests. I decided to write a letter to the local paper describing how children could develop leukemia and cancer from these tests. Suddenly, as an informed voice, I was given access to nightly television news programs to explain to Australians how radioactive fallout could induce mutation, cancer, and genetic diseases. Within nine months of my writing that letter, 70 percent of the Australian populace rose up in indignation, prompting our prime minister, Gough Whitlam, to take France to the International Court of Justice, which forced France to move its testing underground. I had a revelation as I saw firsthand the extraordinary power of viable media to educate the public and promote democracy.

Soon after this victory I discovered that the same prime minister wanted to export uranium to be used in nuclear power plants around the world (Australia owns 40 percent of the global supply). I traveled throughout Australia, teaching the union movement about basic genetics related to the dangers of uranium mining. The mining and export of uranium was banned for five years, marking another victory achieved by education through the media.

In 1976 I joined the faculty of Harvard Medical School as a pediatrics instructor in the Cystic Fibrosis Center at the Children's Hospital in Boston. But at the same time that I cared for children at the clinic, my deep concern about all things nuclear persisted. The policy victories back home led me to revive a moribund Physicians for Social Responsibility in 1978, and over a period of five years, we recruited 23,000 members and created 153 chapters throughout the country. I encouraged the members to make full use of the media by writing op-ed pieces, appearing on radio shows and television programs, and conducting public meetings about the medical consequences of nuclear power and nuclear war. A nation that had been tightly in the grip of Cold War logic had been transformed. By 1983, 80 percent of the population opposed the concept of nuclear war, because they understood that it would create the final epidemic of the human race.

Deeply encouraged, I began initiating similar physicians' movements in many other countries throughout the world, including Canada, Australia, New Zealand, Japan, Belgium, Germany, England, Scotland, Ireland, Sweden, Norway, and Denmark. A massive global physicians' movement developed, helping to fuel a changing dynamic between Reagan and Gorbachev that eventually led to the end of the Cold War. We were granted the Nobel Peace Prize in 1985 for our work.

That was then, and this is now. The problem today is that science has been applied in industry, medicine, agriculture, and in many other aspects of daily life to do terrible things to society and the planet. For instance: we live in a cocktail of over eighty thousand chemicals in common use; agricultural corporations have introduced genetically modified food that is reaping disastrous consequences in the third world; nuclear power plants spill radioactive elements over nearby populations continuously, and they sometimes erupt with atomic vengeance to irradiate millions of unsuspecting people; coal plants emit carbon dioxide at a rate that is destroying the ecosphere by global warming; and thousands of nuclear weapons stand ready to be launched with a press of a button by either Putin or Obama to create nuclear winter, inducing the end of all planetary life.

The sophistication and misapplication of science has thus left the average citizen far behind. People are vaguely aware that things are not going well despite the fact that they are constantly being reassured by corporate shills and skillfully orchestrated advertising campaigns—by institutions such as Monsanto, General Electric, BP, Shell, Lockheed Martin, and Boeing—that the interests of the common man and woman are being protected.

In our world today the question then becomes, How does one educate the body politic in a time of precarious planetary ills? How do we relay life- and planet-saving information when so many people are addicted to media outlets like Fox, or similar radio and television entities, that trumpet climate change skeptics and give unfettered access to scientifically illiterate politicians? Many people, particularly the youth, turn to Facebook, Twitter, and other superficial media outlets, where it can be difficult to verify the accuracy of the information being shared. While not decrying the utility of the Internet and the remarkably efficient way that it can be used to spread ideas and obtain information, being well-informed is key to utilizing it productively.

I often reference Thomas Jefferson's poignant observation that an informed democracy will behave in a responsible fashion. My experience over the last forty years has taught me that the best way to educate the democracies in the developed world efficiently is through the media. Independent media is therefore imperative in this day and age, and there is simply too little of it. Even public television now takes advertisements, euphemistically called "underwritings," from the Nuclear Energy Institute and other such iniquitous institutions, thus severely damaging its so-called independent status.

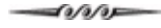
My belief in the power of independent media is what inspired me to create a weekly radio show. With the generous help of the Pacifica network, I interview the world's leading scientists and global thinkers on many of the issues that are threatening our very survival. The eye-opening knowledge and brilliant intellect that has been shared on the program served as the impetus for developing this book—a collection of some of the most informed and intriguing voices of our time.

In this book I have selected twenty-five interviews with the world's leading thinkers and scientists in which we discuss many of the most pressing challenges facing humanity today. The conversations cover an extraordinary amount of ground, including everything from the U.S. military-industrial complex, global warming, sea-level rise, and the destruction of the world's forests to the role of the media in politics, the WikiLeaks controversy, and how popular entertainers can influence important issues in our society. The book includes an astonishing interview demonstrating the absurdity of storing radioactive waste for one hundred thousand years, information on the persistent march toward



nuclear annihilation, and a moving discussion of the cancer epidemic arising from over one thousand American nuclear tests in Nevada. I talk to an expert on brain cancers related to cell phone use and reflect on the Chernobyl catastrophe, the coming global water deprivation, and the fragility of global agriculture.

While the discussions herein have been edited down for the book, the essence of each has been carefully maintained and is enriched through philosophical musings and social analyses on the subjects included. As I read the transcripts of these interviews, I had indeed forgotten much of what had been discussed. Not only did I find the interviews fascinating all over again, but I was stimulated by a renewed energy to continue spreading this important knowledge. My hope is that this book will inspire readers to genuinely love this planet and become actively engaged in protecting the health of our world and all its inhabitants.



I would like to thank the New Press for instigating this book and for recognizing the value of the radio interviews, which were conducted over a period of two years.

# MAUDE BARLOW

Maude Barlow is national chairperson of the Council of Canadians and former senior adviser on water to the president of the United Nations General Assembly. She chairs the board of the Washington-based Food & Water Watch and is a counselor to the Hamburg-based World Future Council. Maude is a recipient of eleven honorary doctorates, the 2005 Bright Light Award, and the 2008 Canadian Environment Award. She is the author of *Blue Covenant: The Global Water Crisis and the Coming Battle for Water*.



HELEN CALDICOTT: You're in Australia at the moment, and you're Canadian, so you've come to help with our water, right?

MAUDE BARLOW: I'm not here to say how wonderful Canada is at handling our water. If I'm critical about what Australia is doing, I'm critical about my own country as well. The only difference is that we have more water to be cavalier about.

HC: Let's look at the world water situation in terms of global warming, sea-level rise, people in Bangladesh and their wells becoming salty, and the like.

MB: The big story is that the world's running out of freshwater. In about grade six we all learned that there's a finite, fixed amount of water, and it goes around and around in the hydrological cycle and can't go anywhere. But that's not true, it turns out. A combination of polluting surface water and overmining groundwater and extracting our rivers to death takes water from where it's needed, not only for a healthy ecosystem and for the actual hydrological cycle to function, but also, for instance, in cities; when we're finished with it we dump it into the ocean, but we don't return it to the land. As a result, we are creating what scientists call hot stains. These are parts of the world that are actually physically drying up. These are not cyclical droughts but rather growing deserts.

One is northern China. China uses its water to produce many of the toys and running shoes for the world, so it is removing water from its watersheds for industry. China is creating an area of desert the size of Rhode Island every year. India has 23 million bore wells going 24/7 just pumping water out of the ground. Chile, big parts of southern Europe, around the Mediterranean and other points, all are in trouble. Mexico City is sinking on itself. They've taken all the water from under the ground. There are twenty-two countries in Africa in crisis, and every one of their 677 lakes is in crisis. The Southwest of the United States is in crisis, as is the Colorado River, which is declining. I would argue that Australia is one of these places that has built an economic miracle on the notion that there were unlimited water resources. It's not true. Close to a billion people live in water-stressed regions of the world. Close to a billion have no running water within a kilometer [about a half mile] of their homes. And every eight seconds, somewhere in our world a child is dying of a waterborne disease, because the number-on-

cause of mortality, more than HIV/AIDS, accidents, and war put together, is dirty water. So I feel that the global water crisis is the number-one ecological and human crisis of our time. Our governments continue to deny the problem and have these great hopes that somehow big technology will save us.

HC: What about overpopulation? What role does that play in water shortage?

MB: Well, it's huge. But it's not population by itself; it is population plus a certain kind of development—Western, urbanized, consumer-based. As our populations increased threefold, since the 1950s, our water use has increased sevenfold. And I've been in communities in, say, rural India, where there are very dense populations per square kilometer [about a third of a square mile], but they live the way their great-great-grandparents lived, and they take care of the water. They don't pollute and they don't waste it. In countries like India and China, we physically are using more water than we have. The statistics are so stunning; looking ahead at 2025, 2035, 2050, no one knows where the water that we will need is going to come from, and there's no way yet to manufacture new sources of water.

HC: Politicians in Australia are talking about desalination plants. We're either called to produce more energy, which aggravates global warming, or build nuclear power plants to desalinate water.

MB: There's a true belief here that these private markets and the "three Ds"—dams, desalination, and diversion—are an economic miracle. It's a myth. As you say, desalination is very energy intensive and it gives off CO<sub>2</sub> pollution. There are exorbitant expenses. It's important that we stop and remember that we're handing off to some parts of the environment what we don't want to continue to create in another part. Biofuel cuts down on fossil fuel for our cars, but we use land and water to grow food to feed those cars. We're creating problems with water to solve fossil fuel issues. With desalination you are abusing the ocean to provide water. Desal plants release a very intense brine back into the ocean. So there's the combination of the intense salt that gets stuck behind, the chemicals that's used for the reverse osmosis process, and then this aquatic brine that is sucked in and sucked back out. I've been hearing from technicians who say, "We're just going to build a pipeline and send it farther out into the ocean."

HC: They always say that.

MB: And then it will kill the ocean a little farther out. The notion that the oceans are here for us to abuse is really a dangerous one. There are a number of new books, one by a terrific Canadian author Alana Mitchell, called *Sea Sick*. What we're doing to the ocean is criminal, with the used plastic and the overfishing that's going on.

HC: What used plastic? Gyres?

MB: Yes, the great big whirlpools of plastic in the ocean that won't stop growing.

HC: There's a collection of plastic in the North Pacific. How large is it?

MB: The size of Mexico. The plastic breaks down, and then it gets into all the animals, the aquatic life. We really have to stop thinking of the ocean as the place where we can dump the problems that we haven't learned to live with on Earth. For me, desalination is what you do when you have run out of every single other answer. There's actually a place now, Salisbury, a suburb of Adelaide, where they're collecting the storm water and the human waste and recycling it through natural systems. They show that the city of Adelaide could provide water for its needs using this method at far less cost than their desalination plant. But they refuse to go to the natural model. We humans somehow think that building these new technologies will take care of things. It's a very expensive mistake.

HC: I used to live in Adelaide, and we all used to have water tanks to collect the rainwater from the roof. I now live in a small fishing village, and I rely upon rainwater. And it should be imperative in time of crisis that every single household on earth has a rainwater tank, and when it rains you collect the water from your roof.

MB: I absolutely agree with you. But we have come so far from that. Where does water come from? It comes from the tap or it comes from a bottle at Walmart. We don't have a relationship with water that says, This water must be returned to the land. It must be returned to the rivers and the aquifers. We've got to build our solutions on agreed-upon principles. And if we don't get those principles right, we're going to get the answers wrong.

HC: What principles would you follow?

MB: There are five I would suggest for Australia. The first is that the national government might declare Australia's water to be a public trust. Now I understand under the constitution in Australia, water does belong to the people in the states; but this principle has been compromised under the 1994 law that allowed the opening of water trading between private brokers and the sellers. That's the privatization of the Murray-Darling river system, the irrigators who got the water for free using public money, to grow food; now they own that water from this 1994 legislation, and now they are saying to the government, "Well, maybe we'll sell it back to you, maybe we won't."

HC: I've never heard anything so ridiculous.

MB: The government needs to say, That water does not belong to you, it never belonged to you, and it's only for you to grow food. That doesn't mean that there isn't a commercial use for water, but we need to regulate it. The first thing to do is the reappropriation of public water. The federal government has to say, Water belongs to all Australians, the ecosystem, and the future. Period. Stop. The next principle is watershed protection and restoration. If we don't let enough water back into these water systems like the Murray-Darling system, we won't have enough water. We'll be refugees here.

HC: The Murray-Darling river system goes from the north of Australia and Queensland through New South Wales, through Victoria, to South Australia. It's the only river system we have in Australia, and Australia is the size of the United States, so you can imagine how precious that is.

MB: The Murray-Darling is where most of the agriculture in Australia takes place and where much of the food is grown.

The third principle would be conservation. Conservation is the soft path, as opposed to the hard path of technology. It's a different form of food production, more local, more sustainable. You pass a law so that you have a very strict code of conservation—collecting the storm water, the gray water, new building codes, all of that. The next principle is fair allocation. We have got to create a world built on the notion of water justice. And that means no one should be denied water because they cannot afford it. We have to say that water for living comes first, and local sustainable food production comes before commercial use. I tell people about the state of Vermont, where they have a lot of good groundwater, and water companies were coming in and pumping it up and sending it to cities in California. They passed a law saying that water belongs to the people in Vermont; it's their aquifer system and their future. If you use more than a certain amount a day, you have to have it licensed. And we have the right to revoke that if we feel your use is unsustainable. So the control is always back to the people, through their government.

The last principle is one we're working very hard on at the United Nations, and that is that water

a human right. I just came from Istanbul, and the World Water Forum says it's a need, which means that the private sector can deliver it on a for-profit basis. If somebody has been helping himself to water for profit, then there's somebody else being denied that water. We need to establish once and for all that water is not running shoes, water is not Coca-Cola, water is what you need for life. And no one should be denied water from an inability to pay for it. We're hoping the nation-state constitutions will be amended to reflect this. We want a full covenant or treaty at the UN saying once and for all that water is a human right.

HC: I'm always shocked when I hear that corporations are moving into countries and saying, "We own the water, and you've got to buy it from us."

MB: In the global South the World Bank and the Regional Development Bank have promoted water privatization very strongly. For about fifteen years now the World Bank has extended money for water services in the global South contingent upon accepting private companies. Usually it's one of the two biggest companies, Suez and Veolia, who've run the water systems in France for many years, and who are about to lose their contracts for the first time in the city of Paris, which is about to go public. Everybody's very excited.

Suez and Veolia are all over the global South and in parts of the global North, delivering water on a for-profit basis, to people who can afford it. They have to take the same amount of public money that the public sector uses, but they have to profit from it, for their shareholders. Generally they lay off workers, and in some cases they triple the rate charged for water. There is a ferocious fight taking place all around the world, from La Paz, Bolivia, to Argentina, both of which kicked Suez out, and Atlanta, Georgia, which two years into a twenty-year contract said, Get out, don't come back. We can't believe what you did to our water system. But governments bought into the notion that the private sector can always do it better, especially in municipalities that are cash strapped. There's a fierce battle in the global South around this issue of the right to water.

HC: This is obscene, Maude, that the World Bank, which was set up to help developing countries and those of the third world, actually supports private companies who totally exploit the natural resources in the third world.

MB: It's a disaster. Even the UN under Kofi Annan supported privatization projects.

HC: Did he really? Why?

MB: I think that he really felt that playing with the big boys meant playing with the World Bank and the IMF. It was under Kofi Annan that the UN created the Global Compact, which is a voluntary agreement between the United Nations and a bunch of big corporations, some of whom are environmental and human rights abusers. Many of these companies have wrapped themselves in the UN flag. There's one for just the water companies, called the CEO Water Mandate, and it's all the big bottled water companies, all the utility companies. As somebody who's advising the president of the UN General Assembly, I criticize this corporate involvement in the one international institution left that has not been taken over by corporate interests. It's a very serious problem.

HC: They're being bought off. What happens to the poor people in these countries? How can they afford water?

MB: They can't. In Johannesburg, South Africa, Suez came in, and they bring water into the townships, but they installed prepaid water meters. And I remember standing in one of the townships with burning tires and garbage and what you call "flying toilets" where they defecate into plastic bags.

and just throw them. You can imagine this place when it rains. Then they suddenly have water coming into these communities, one of these pipes per block. But between the pipe and the tap is a water meter. You charge up your electronic key and then you touch this water meter that counts every drop. When you're talking 85 percent unemployment in a community like that, people laugh. Well, laugh and cry. And then they take their buckets, and they walk five kilometers [three miles] to a river that has cholera-warning signs on it, and they carry it back for drinking water. Or they buy water from private vendors at many more times the amount than they would have had to pay had they been able to hook up to the system. But they can't.

HC: Why don't they break the meters?

MB: They do. And what I love is that, in South Africa, some of the municipal South African water workers install the meters during the day and come back at night and show the people how to do that. It's one of my favorite stories.

HC: All this privatization of water. Soon we'll be walking around with oxygen bottles on our backs and they'll privatize the air.

MB: You know, in a way, carbon-emission trading is exactly privatizing the air. The whole notion of being able to buy your way out of polluting is a form of privatization of the air. I've just written a report called "Our Water Commons" about how to take back this notion of the commons, which was very much a part of thinking in many communities around the world. The modern enclosure of the commons has been privatization of these areas that we thought were sacred. I would include health care.

HC: Certainly in America.

MB: And education certainly needs to be seen as part of the commons. But there's nothing you can point to that more urgently needs to be designated as part of the commons than water. Bottled water is really one of the ways that we start the privatization process. Because if we've decided we're not going to trust that tap water, and you're only going to go to bottled water, then you're not going to care what comes out of that tap, and therefore you're maybe not going to want to pay taxes to make sure that that tap water's clean or that the infrastructure was upgraded or that the source was protected, because you've lost faith in it.

HC: You don't know where the bottled water's coming from.

MB: There are so many studies that tell us that bottled water is probably not as safe as tap water in many places. We had a big scandal in Canada, when it was admitted by the food protection agency that they haven't inspected the bottled-water plants in over six years. It's completely left up to the industry to regulate.

HC: Think of Coors beer, next to the Rocky Flats plutonium production plant where there was a huge fire. People have no idea where this water comes from.

MB: I know. In Canada we've now had twenty-seven municipalities, most of them are cities, ban the commercial sales of bottled water. This has been a real campaign. We've had dozens of school boards across the country ban bottled water, and the Federation of Canadian Municipalities at their annual meeting passed a motion for a full ban across the country. They will not buy or sell a single plastic bottle or container on their premises. And it makes sense. If you are putting all this money into cleaning water and testing it, regulating it and protecting the source, why would you then compete

with that by providing bottled water sales? A lot of restaurants are moving to their own filtering and so on.

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HC: You don't need to filter tap water in the developed countries.

MB: It's perfectly safe and foolish to worry about it. But a lot of people have bought into the mythology. I walk down the streets here in Australia, and with all of the water crises, people are guzzling bottled water. When plastic is left in the sun, even in a car, the sun's rays heat the plastic up and then you put the bottle into the fridge to cool it down. You shouldn't be drinking that water.

HC: No, that's right. And production of plastic produces nasty carcinogens, which are thrown into the air.

MB: And CO<sub>2</sub> emissions.

HC: Plastic turns into dioxins, and then stays in the rubbish heaps for thousands of years. People at swimming pools are guzzling bottled water—everyone has to have a bottle, and if it's not milk, it's water.

MB: In my province in Canada, Ontario, there was this kid who came up to the mic, braces and all, he must have been about fourteen. He said, "I can't imagine being without my bottled water," and he was really serious. And I said, "Well you're not going to believe this, but there was a time when people ventured out without their hydration vehicle."

HC: And people also think—this is a medical myth—that the more water they drink the healthier they are.

MB: That came from the bottled water companies.

HC: Did it?

MB: Absolutely. If you do drink eight glasses a day, and this is in London, Ontario, every day for a year, it will cost you \$1.88. If you go to a vending machine, it's going to cost you \$2,190. When I tell people that, I say, "You want to save money? There's a good spot to start."

HC: Let alone the strain on the poor old kidneys that have to filter out all that extra water.

There are two other things I'd like to cover. One is industrialization. In China they are using huge quantities of water to make sneakers. It is industrialization that's (a) using the water, and (b) polluting it, right? We've really gotten out of control, and isn't that reflected in what Wall Street did through the excessive use of capitalism, and where it's led us all?

MB: Yes, absolutely. And I keep saying, If we don't trust these people with our money, why would we trust them with our water? We have really allowed unbridled pollution. Actually, I'm working here with a group called SOS that is calling for a one kilometer [about a half mile] buffer zone around all waterways where mining is taking place. Industry has been given a free rein in all too many parts of the world.

HC: In the middle of our desert in southern Australia there's a huge uranium copper mine called Olympic Dam, and they're using 33 million liters per day out of the Great Artesian Basin, which is ancient archaeological water that feeds cattle stations and aboriginal people who use mound springs. That water then becomes polluted with radiation. It either is evaporated in ponds, the birds drink it and they die, or it goes back into the underground water system, and we don't know how long the

water's been in the Great Artesian Basin. And they're about to enlarge Olympic Dam by five times to make nuclear power plants and nuclear weapons.

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MB: That's appalling. I go back to my principles. If we say that water is a public trust, and a human right, and has to be preserved in the ecosystem, we would place a priority on it that would be based on the soft path of conservation and source protection. You wouldn't be allowed to do that. We need politicians who will see beyond the four years that they're in office.

We're in the same situation in northern Alberta, with the massive destruction of our water table to provide energy for the United States. We have uranium mining in northern Saskatchewan, and now in southern Ontario and Quebec. One of my favorite quotes is from Martin Luther King Jr., who said "Legislation may not change the heart, but it will restrain the heartless." We have to have laws, and they must be based on a set of principles that put water in the center, and nature in the center, and the government must say that everything we have and are has come from nature, and if we destroy it we destroy our future as well. If we truly understood that, what you describe about the uranium mining would not be allowed to continue.

HC: In the southeast of Australia we're getting hardly any rain; it really is drought stricken. I know you're against us taking water out of the Murray Darling river, but it's terribly frightening.

MB: My point is that we mustn't underestimate that we're all contributing to this global warming by our abuse of these water systems. If we were to return water to watersheds, and really retain water, and restore the ecosystems, the rain would return. The water becomes a moderating influence in climate change.

HC: And trees and forests play a large role.

MB: We cut down trees. Trees drink the water, and they shoot it back out into the hydrological cycle. If you take over water-retentive landscapes, the rain will leave. And you create deserts. Understanding the water cycle is part of understanding the larger issue, and it's also part of the solution. Your former prime minister, Howard, would say, "There's nothing we've done; it's global warming." It's kind of like, Global warming made me do it.

HC: He was a scientifically illiterate man, as are most politicians.

MB: I think that your current government is trying really hard. I do feel a difference in the acknowledgment of climate change, but they're still allowing privatization of the Murray-Darling. And I think in the end the issues are startling and need to be looked at in a very powerful new way.

HC: Our current government is still in the pocket of the coal companies, the natural gas industry, the uranium companies, and nuclear weapons, so from my perspective on global warming and nuclear weapons, they're very guilty.

MB: Well, we've got a powerful citizens' movement growing everywhere, and in so many ways you've helped. 🌿



# BILL MCKIBBEN

Bill McKibben is an American environmentalist and writer who has published *Eaarth: Making a Life on a Tough New Planet*, *The End of Nature*, and *Deep Economy: The Wealth of Communities and the Durable Future*. He frequently writes about global warming, alternative energy, and advocating for more localized economies. He leads the organization [350.org](http://350.org), which in 2009 coordinated the largest ever global rally of any kind, with 5,200 simultaneous demonstrations in 181 countries.



HELEN CALDICOTT: You've published a book called *Eaarth: Making a Life on a Tough New Planet*. I want you to tell us how you're feeling about things now. You understand what's happening to the earth in a very deep way.

BILL MCKIBBEN: I wrote my first book about climate change twenty-one years ago. The only thing I didn't know back then was how quickly all of this was going to happen. And the answer is, A lot more quickly than we feared. The last twenty years have seen a rapid development of big, systemic change in most of the physical systems on the earth. Clearly we're moving out of what scientists called the Holocene—the ten-thousand-year period that governs the rise of human civilization. We're moving out of that into something else, and that something else is in great flux, and it's very dangerous, and we got an intense feeling of it in the northern hemisphere this summer [2010], by far the hottest and most brutal summer that people can remember. Nineteen nations set new, all-time high temperature records. We were talking with our [350.org](http://350.org) colleagues in Pakistan in May when one of them said, "Very hot here today." I was surprised, because it's often hot in Pakistan, and it had been the hottest day ever recorded anywhere in Asia. The temperature had reached 129 degrees Fahrenheit.

Those kind of numbers are in themselves horrific. We got a good sense of what they meant in practice when we saw things like the continued rapid melt of the Arctic this summer. The volume of ice has reached a new record low. In Russia, they had the worst heat wave ever recorded across the middle of Russia. Moscow had day after day of 100-degree heat and horrible fires. That was enough to convince the Kremlin to stop grain exports to the rest of the world—from the third-largest grain exporter on the planet—a move that instantly spiked the cost of corn and wheat around the world. We saw it most tragically in Pakistan. Warm air holds more water vapor than cold, and that sets us up for these tremendous downpours and floods. Across the headwaters of the Indus up in the Hindu Kush produced the most devastating flood anyone can remember anywhere. Twenty million people out of their homes, on the move, between a third and a fifth of the country underwater. Just epic.

HC: Biblical?

BM: Yes. The thing that's scariest is that this comes with human beings having raised the average global temperature about 1 degree. Climatologists tell us they're confident that if we keep burning

fossil fuel, that number will be 5 degrees before the century is out. If 1 degree melts the Arctic, v  
really do not want to find out what 5 degrees does. Your original question was the right one, abo  
how one is personally feeling. That's why I wrote this book with the odd title, *Eaarth*. The clima  
still looks the same. It has the right number of continents, gravity is still functioning. But in ve  
fundamental ways it's a different planet than the one you or I were born onto, and that shift has bee  
profound. We need to start noticing, because it's that noticing that will drive us to the action that  
necessary to prevent more destruction in the very near future.

HC: By the time politicians, and in particular corporations, wake up, it's going to be too late, right?

BM: Well, not too late. This is all relative, right? It's already warmed 1 degree. We've probably go  
another degree in the pipeline from carbon we've already emitted. But we have enormous latitude  
keep it from getting worse. There's a world of difference between a 2-degree increase and a 5-degre  
increase in the global temperature. One will produce a difficult century, the other may produce a  
impossible one. And we still have it within our power to make that choice. You're right: we have t  
move pretty quickly. And at the moment, the politics of this is almost as discouraging as the scienc  
The failure of the Copenhagen talks in December 2009 and the inaction of the American Congre  
earlier really seem to have doomed for the moment any chance of comprehensive legislation. I thin  
what we have to do is build a powerful movement around the world, and especially in the Unite  
States to kick the offensive back. This is a hard task. We're up against the most profitable industry th  
world has ever seen. Fossil fuel makes more money for its patrons than any other industry. Sinc  
we're not going to match them dollar for dollar, we have to use our bodies and spirits and creativity  
blunt their advantages.

HC: I think most young people have a very deep sense, intuitively, that their future looks really grim  
Do you agree?

BM: We find an enormous willingness among young people the world over to take real action. The  
seem hopeful and optimistic. Maybe they're being more brave. We find it everywhere, from Austral  
to Latin America to Africa to Asia to North America. It's really profound to see. On 10/10/10  
[October 10, 2010] there will be a truly enormous global work party on climate change.\* We'  
expecting 7,000 events, a huge number of them across the Antipodes, and most of them organized b  
young people.

HC: What are they going to be doing?

BM: Well, you name it. Everything on that day will be aimed at having some practical effect o  
climate change. So people will be putting up solar panels, people will be digging community garden  
laying out bike paths. Across Auckland there are hundreds of bike mechanics who will be making sur  
that every bike in the city is working well so that people will be able to ride to work. In 2009 at o  
first attempt at a huge global political rally, we managed to organize 5,200 events in 181 countries  
CNN called it the most widespread day of political action in the planet's history. It's going to b  
bigger this year. People may be discouraged by events in Copenhagen, but they haven't given up. Th  
point of this day will be to show that there are things we can begin doing in our communities. W  
know they won't solve climate change by themselves—for that we need legislation that resets th  
price of carbon—but we want to send a credible message to our politicians. At the end of that da  
people will put down their hammers and shovels, pick up their phones, and call their president, the  
prime minister, their politburo and deliver the same message all around the world: I'm getting

work, what about you? If I can climb up on the roof of the school and put in a new solar panel, you might be able to climb up to the floor of the Senate and hammer out a little legislation. That's the kind of change that we really need.

HC: It's really a revolution of a kind. I'm in the Antipodes, in Australia, and we are just one huge quarry. In fact, we're a third world country. One of the most lucrative raw materials that we export is coal. We're just full of coal. I can go out on the shore and see thirty huge cargo ships waiting to line up at Newcastle to load themselves with coal and go to China. When politicians talk, and journalists talk, they talk about jobs, they talk about money, and they don't talk about what's going to happen to the planet if we keep burning coal. And *the* most concentrated form of carbon is coal, and we really have to stop burning it, or we're doomed.

BM: The only thing that's going to change politicians' minds is a political movement that really pushes them. Australia's come closer than most countries on Earth, and that's because people rallied so well. You had an election that was fought on climate change. Mr. Rudd won and then backed away and that cost him dearly. Those are good reminders that politicians need to hear. It's extraordinarily tough because of the concentration of money and power in those industries. Even if you're just thinking economically, we're making an extraordinarily shortsighted set of decisions. We're suckering the economies and industries of the past. We've known how to burn coal since the early eighteenth century. And yet it's pretty clear that the energies and industries of the future revolve around sun, wind, and renewables. Australia may buy itself ten to twenty years of coal-based prosperity, but it's going to be at the cost (a) of an uninhabitable planet, and (b) of sacrificing all of the next emerging economies to places like China, where they've begun to take seriously the revolution.

HC: You are right about Australia, because Prime Minister Rudd came in vowing to do something about global warming. He produced legislation that was almost worse than nothing, just to placate the corporations. And he got kicked out by his own party. The Australian people have spoken on global warming, and they're really annoyed. Still the politicians stand there listening to the corporations, a lot of which are foreign-owned, that are mining our coal. The profits go offshore, and not many jobs are created. The whole thing is crazy. We could be the leading global energy superpower by covering Australia with solar panels and windmills and geothermal energy. We're just waiting to use our natural resources.

BM: Yes, a coalition of people, Beyond Zero, put out a white paper in Australia explaining how the country could go carbon-free by 2020 with a real push to make use of all those things that you have in abundance. There's never been a place more favored with sun, with tide, with wind, and it's too bad that the fascination with black rocks is continuing.

HC: It's these blasted corporations and these very, very rich men who dominate the political scene. We come back to capitalism when you look at your Congress and our Parliament and how they're run by those who have the power, the money, and the access. A coal man can go to Parliament and meet with the secretary of energy for an hour, and yet someone from the Green Party—and, interestingly, the Green Party now holds the balance of power here—who cares about the future might get fifteen minutes with an assistant to the secretary of energy.

BM: I predict that it won't change. We won't match BHP Billiton, Rio Tinto, and Exxon Mobil dollar for dollar. I think we better figure out a better currency to work in. And that's what we've been trying

to do at [350.org](http://350.org). Australia's been one of the places that's best for our organizing. Our wonderful Australian coordinator, Blair Palese, and her crew have done an astonishing job. It's always going to be an extremely tough fight, simply because, beyond the financial power of the industry, we all benefit at some level from using fossil fuels every day. There's a certain kind of inertia that goes with it.

HC: We almost need to become Gandhis. There's always another way to approach it, and we're always searching for that particular asymmetrical approach to overturn the powers that be at the moment. I love to talk to you about what initiatives China is taking at the moment. I think everyone needs to know about that.

BM: China's a very interesting case. I was there doing a story for *National Geographic*. On the one hand, we've all seen the pictures of the enormous, smoky, coal-fired power stations, all the pollution that's plaguing China as it goes through rapid industrialization. All of that's very real and dangerous, although it must be noted that the average Chinese person uses about a quarter as much energy, and hence produces a quarter as much CO<sub>2</sub>, than the average American or Australian.

The other part of the story is pretty exciting. The Chinese are quickly emerging as the biggest users of renewable energy around the world. I was in cities of seven hundred thousand or a million people where virtually every building has solar hot-water panels on the top. When about a quarter million Chinese take a shower, the hot water is coming from solar panels on the roof. They're by far the world's leader in installed solar capacity and installed wind capacity. They're making some remarkable strides. So the race between a green China and a black China is not yet decided. But I dare say they've done more than the United States as far as using renewables. And that's a pretty shocking thing to say. Last week in the United States we were caravaning around a couple of the solar panels that Jimmy Carter had put on the White House roof, and that Ronald Reagan had taken down. We were trying to convince the Obamas to put solar panels back up on the White House. We didn't have much luck, but we learned that one of those solar panels from the Carter White House is now in the private museum of the Chinese solar baron Huang Ming, whose company put about 60 million of these solar arrays on buildings throughout China.

HC: I read about your attempt to get the panels back on the White House roof. What happened?

BM: We talked to several high-ranking White House staff people. They wouldn't tell us why they didn't want them. Maybe they're afraid anything associated with Jimmy Carter would be seen in a bad political light. I think they're making a mistake. I think people love solar panels, even people who don't believe in global warming seem to like them. They'd get a lot of credit for putting them up on the White House, just like they got a lot of credit for putting a garden in the White House lawn. But they're not willing to do it right at the moment.

The good news is that on October 10, 2010, there will be other world leaders stepping up to the challenge. There is the wonderful president of the Maldives, Mohamed Nasheed, who is the leader of a country facing submersions in this century as the waters rise, and a country at this minute undergoing a hideous onslaught of bleaching of their vital coral reefs from warm water. Mohamed Nasheed will be up on his roof, of his official residence, installing solar panels on that day. It will remind other world leaders that they could get to work, too.

HC: Germany is one of the leaders in renewable energy, is it not?

BM: Germany has put what's called a feed-in tariff that has allowed them to dramatically raise the amount of solar they've got online. If you are a German householder, and you put a photovoltaic panel

on the roof, the electric utility pays a premium price to you for the power that's coming off of your roof into the grid. Germany is not a particularly sunny place; most of it is well north of the United States. But despite that they're probably the world leader in installed photovoltaic capacity.

HC: I want to move on to Exxon. I want you to tell us what they've been doing in terms of propaganda, injecting doubt into the debate, and the role they have played in inhibiting moves to prevent global warming.

BM: Exxon has provided a lot of the funding for disinformation groups in the United States, but also in much of the rest of the English-speaking world. They're not alone in doing this. Jane Mayer wrote a beautiful piece for the *New Yorker* about the billionaire Koch brothers, oil and gas and other resource barons in the United States, who have been devoting hundreds of millions of dollars to this task.

HC: And to the Tea Party, too?

BM: Exactly right, funding the Tea Party. We see now a powerful campaign by them, to get voters to overturn the landmark law in California that's the closest the United States has come to doing anything substantial about climate change, funded by these same forces.

HC: The climate skeptics funded by Exxon Mobil and these other corporations say the data's not really there. The Intergovernmental Panel on Climate Change, which is a huge international body of scientists looking at climate change, made one mistake. And if you make one mistake their whole database is ruled invalid. It's a very superstitious, ignorant way of thinking and approaching the problem.

BM: I think the right wing has done a commendable job of winning this fight. They have a fairly easy job, because they've got so much money. It's powerful. They're very good at this, and doubt is their product. All they need is doubt, because all they need is delay. The sad and ironic part of it is that everybody, including them, know that in sixty, seventy years from now the world will have moved on from fossil fuels. We'll have run out of many of them, and we'll be doing sun and wind. The problem is, if we wait sixty or seventy years we will have wrecked the planet for eons to come. If we do it in the next ten or twenty, it'll be more wrenching, but we'll stand some real chance of preventing the onrushing environmental destruction.

HC: They won't live to see the end results of what they've been doing. Do you have any spiritual beliefs that guide you, or are you coming from a scientific, rational perspective?

BM: I'm a Methodist. A large part of this for me is the incredible moral outrage of what's going on. The sheer fact that those people that cause the problem suffer from it less than those that don't cause the problem should be enough to spark a kind of moral outrage in all of us. Nobody in Pakistan is causing the climate to change. They're not burning enough fossil fuels to be more than a rounding error in the calculations. And yet they're underwater.

HC: Do you have training and education in science?

BM: I'm a journalist by background. My first job was at the *New Yorker*, where, in fact, *The End of Nature*, my first book on climate change, was serialized. My specialty is in talking to scientists and translating what they have to say so that people can understand it.

HC: Have you tried to get to the Obama administration?

BM: We did with the solar panel trip. The Obamas haven't taken a strong leadership role on climate

issues. They decided to pursue health care reform instead in the first couple of years in office. The guy's got a tough job, he's in a tough pinch, and one hesitates to criticize too much. At the very least they could've been doing a lot more symbolic leadership on this issue than they have. The decision was made, I think, to not talk about climate change and instead to talk about things like green jobs. One result is that there's been very little push back to the right-wing forces that are trying to downplay talk of global warming. The poll numbers for skeptics increased over the last few years. We need to spend the next couple of years building a strong and committed movement that will be able to really take advantage of the next openings when they come. Be they political or be they the openings that the natural world is going to continue to give us as conditions deteriorate.

HC: Yes, it's very scary. Do you want to say anything about the Tea Party?

BM: They've clearly seized on a kind of generalized American anger with the inefficiency and unproductivity of our government and its leadership. It's too bad that they've taken an exclusively right-wing direction. All forty candidates for the Senate from the Republican Party announced that they don't think climate change is real. That's a very scary and difficult place to be in. I think it's a political calculation among people at the top. One of the things that's quite distressing is that it has become an article of true faith within the conservative movement that global warming isn't real. And it's a strange position for conservatives to be taking. One would think that if you are conservative, i.e. interested in stability, in keeping things as they've been in the past, then you would be at special pains to keep from trying to double the amount of carbon in the atmosphere and just seeing what happens. That's a pretty reckless, indeed radical, course of action to be pursuing.

HC: Let's get back to *Eaarth*. You talk about what's happening to the planet: warming, drying, acidifying, flooding, burning, but you also talk about solutions. I first want to ask you about your attitude to nuclear power, and then we'll move on to the other solutions.

BM: It isn't about solutions so much in the sense of, here's one technology, here's another; it's about rethinking the world. I think one of the things we have to come to grips with is that economic growth, the main driver of our politics around the world for the last couple of generations, is no longer an intelligent goal. We've probably grown as large as it's smart for us to grow, and somewhat larger. Therefore, one of the things that we really need to do over the next period is figure out how to scale down.

In recent years our financial system had gotten too big to fail, and yet it failed. It's important to realize that our energy and our agriculture systems are at least as overbuilt, vulnerable, brittle, prone to failure, and interlocked. If they start to go down they'll take a lot with them. The final solution is that is to decentralize some. When I think about nuclear power it's often in those ways. You're the expert on the health and safety risks, and I confess that those worry me less in certain ways than (a) the tremendous costs associated with trying to generate power in this way—you might as well burn \$20 bills, and (b) the inherent centralization. We're at a moment when we have the real possibility of switching toward the sun and the wind, and with them a kind of democratic, dispersed, decentralized power. It would be a great shame to try to figure out yet another completely centralized, highly expensive form of energy to indulge in. At the very least we're running out of the money to do it with.

HC: Let's get on to other solutions. You've obviously thought about this in great depth. How can we as a people at all levels bring a halt to this catastrophe we're facing?

BM: The important legislative solution is to put a stiff price on carbon that reflects the damage that

does in the atmosphere, so that we'll use less of it. Once that starts to happen a lot of other good things will happen as a result, because the way the modern world works is a direct reflection of the constant availability of cheap fossil fuel. For instance, we can move quickly to a much more localized agriculture. At the moment we have an industrialized agribusiness approach that's heavily energy intensive. It uses immense amounts of fossil fuel. It's replaced human labor with fossil fuel, such that in the United States we went from 50 percent of us farming 150 years ago to less than 1 percent now. We're never going back to 50 percent, but last year, for the first time in 150 years, the United States Department of Agriculture reported that the number of farms in the United States was increasing instead of decreasing. That's because we have this rapidly spreading set of farmers' markets, the fastest growing part of our food system. Sales have been up 10 to 20 percent a year now, for more than a decade and a half. That's exciting. It would go much faster if we weren't directly and indirectly subsidizing agribusiness to the tune of billions of dollars a year. But even so, progress has been made. Much more will be made when oil costs what it should cost. At which time shipping a tomato five thousand miles will be seen for the crazy act that it is.

I think the same thing could happen in energy. The great vision for the future—what the engineers call distributed generation—is millions of people putting energy into the grid and taking it out. I have solar panels all over my roof; on a sunny day like today I'm a little power utility. It's a much nicer system in all possible ways, right up to and including the things that have been troubling the sleep-deprived Americans for the last decade. A terrorist could theoretically take an interest in my solar panels, climb up on the roof, and smash them with a hammer, but if he did, deadly solar particles would not flow out into the atmosphere. I'd have a problem, but it wouldn't crash the grid. In a tough century we're going to need to work on making problems stay problems and not turn into disasters.

HC: Do you sell your solar power back to the grid?

BM: Yes. The stuff that we don't use directly, absolutely.

HC: That's wonderful. We have subsidies now in Australia to build solar hot water systems and solar panels. I've got a vegetable garden that I adore. I fertilize it with horse manure, since there are lots of horses around here. I don't have to buy artificial fertilizer made with fossil fuel, and it's such a lovely feeling to go out and pick my salad at night, or my spinach or kale. It's got no pesticides, it's clean as a whistle, and I grew it myself. It makes eating much more enjoyable, actually.

BM: Absolutely. I just made squash soup with the squash from our fall harvest this year. The apples have come in in Vermont. We're right at that magic moment in early autumn.

HC: When you think about centuries ago, people lived in New England and Vermont right through the winter without importing raspberries from South America and tomatoes from California, because they bottled their beans, they preserved. You can use the ice for refrigeration. Just have a little cupboard sticking out of your house, and you can store things the whole winter.

BM: There's lots of stuff we can do that would be wiser than the things we are doing. To me, the emblematic thing is that the clothesline would allow everyone to dry their clothes without having to think of the alternative. You can either hang your clothes on a clothesline and dry them for free, or you can go have somebody mine coal for you, ship it to where you need it to be, build a power plant, burn it, build a set of transmission lines, have somebody else build an expensive appliance, run the appliance from the lines into your house, and essentially use them to heat up your clothes and spin them around for a while. Both accomplish the same thing, but one is a marvel of complexity the

degrades the planet that it lives on and the other is a marvel of simplicity that doesn't trouble anyone and might get you a few minutes outdoors every day to feel the sun on your back. Yet something like a third of Americans aren't even legally allowed to put up a clothesline, because they're in gated communities where they're not allowed to, because people might think they look bad.

HC: GE makes dishwashers, clothes dryers, washing machines, nuclear power plants, nuclear weapons, missiles, the whole thing. Social engineering has been very clever to brainwash people into thinking they need a dryer, where in the winter in Vermont you just hang your clothes on a clotheshorse next to the furnace and in the summer you hang them outside. We've always dried our clothes outside in Australia, and they smell so nice.

BM: You can hang them outside in the dead of winter, frankly, then shake the ice right off. They actually dry faster. They freeze-dry.

HC: America could survive without carbon energy production and nuclear power and fulfill its energy needs. By 2040 or 2050, with all the renewable technologies, America could be carbon-free and nuclear-free.

BM: Until we build a movement as strong as those other guys are, they're going to keep winning. There's no great mystery to it, and at some level, no use complaining about how the world works. It gives you some idea of what you have to do to make a change. We've managed to do that at some points in history. This is a uniquely difficult one, because everybody's implicated in the whole mess. We all use fossil fuel all the time, and we all like the things that it provides. But we've got to deal with it. It's not an ideological battle in the end; it's humans versus physics. I'm saying, You're not going to out-argue physics. It's declared its bottom line: 350 parts per million [ppm] CO<sub>2</sub> in the atmosphere if you want the planet to work the way it's supposed to work. And since we're at 390 right now, and rising, that's our problem.

HC: I think about how things have changed. When I was a kid—I'm seventy-two now and getting on—we had a little radio and electric lights, when I lived in Melbourne, Australia, but that's all. And now look at my house. I've got all this electronic equipment.

BM: I'm fairly sanguine about the ability of computers and computer networks to be an important part of things going forward. You can do about a thousand searches on Google for the amount of energy it takes to drive your car a kilometer [about a half mile]. So if we learn to travel in different ways, that will help. It's not a cure-all, but I know that we couldn't have done the kind of organizing we've done in the last few years without these kinds of technologies.

HC: We can also turn all of our appliances off at night. Stand-alone power uses about 6 percent of the electricity that we currently use.

BM: It's completely wasted, and the minute that we have a serious price on carbon, everyone will do it every night. I think the key is probably to put a stiff price on it and collect it from Exxon Mobil, and let them run the price up at the pump, and then rebate all the money back to people. You get a check every month for your share of the sky. And that'll allow us to get the price signal we need without being beggars in the process.

HC: You're doing fantastic work, but it's got to rise to the point where the politicians can't ignore us.

BM: Amen. That's what we're trying to do. Movements take a while to build, and it'll be a beautiful and powerful one. ~



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