

WITH Dr. Kenneth P. Green, *Environmental Scientist*



Dr. Kenneth P. Green is a member of the Frontier Centre Advisory Board and Project Director of "30 Years of Environmental Progress." An environmental scientist by training, Green has authored numerous policy studies, magazine articles, newspaper columns, an encyclopedia, book chapters and a textbook for middle-school students entitled *Global Warming: Understanding the Debate*. Currently a Resident Scholar with the American Enterprise Institute, Dr. Green studied environmental policy at the state level in California, and studied Canadian environmental policy for three years at The Fraser Institute. He was interviewed his presentation to a Frontier seminar in Winnipeg on June 17th, 2009.

Frontier Centre: What was your objective in creating this index of environmental indicators in Canada?

Kenneth Green: The basic purpose is to correct some of the misconceptions people have about environmental progress. Whereas most people think that the environment is degrading and is worse than it has been in decades, in fact most indicators of environmental quality show great improvement. The environment has gotten cleaner, air and water are cleaner, forests are more healthy and more protected and Canadians are generally not using resources above the level of sustainability in Canada at this point.

FC: So what does this study tell us about the state of Canada's natural environment?

KG: It tells us that Canadians are getting things right in that they're bringing their pollution levels down to the point where it's sustainable from an environmental and health standpoint. They're using their resources to obtain maximum economic benefit while avoiding environmental degradation. They have the direction right although there are still some areas that need work, such as urban ozone and particulate pollution. But overall the progress is positive and is as good as can be expected when you're a developed country and you have a thriving economy and a growing population.

FC: If the data shows that most of the news concerning our environment is actually positive, why do we hear so many negative stories about the environment in the media?

KG: Partly it's that bad news sells. You rarely hear good news stories in the major media. The other reason is that there's a huge chorus of special interest voices with their own agendas who are constantly pushing the media to carry more extreme reports. So between the activities of the NGO's, the big PR firms that they contract with, and the media's innate bias against industry, it's very rare that you actually hear the good news about the environment.

FC: What are the major issues and indicators on which you focus in this study?

KG: We took a somewhat traditional approach. We were looking at air, water, soil and eco-system indicators, air pollution and water pollution and water use, protected areas of forestry and forestry standards. So we were looking at a broad selection of indicators that have good data and that we think are representative and make good bellweathers for the state of the environment in Canada.

FC: Can you tell us a bit more about carbon dioxide? We often hear that Canada's performance in this regard is poor compared to some of our peer countries. What did you find in your analysis of this indicator?

KG: Carbon dioxide levels are going up in Canada as they are virtually everywhere, both in the developed world and in the developing world, as a consequence of industrial development and economic growth. Canada, in particular, has serious challenges with regard to controlling CO₂, bringing its CO₂ levels down, or slowing their rate of growth. Canada is a very large, long distance, cold weather country. There's a lot of heating, and a lot of cooling that goes on. There's a lot of driving and transport of goods to market. Canada is also very resource-intensive in terms of producing natural resources for exports and for use in manufacturing here. So Canada's CO₂ emission rate is increasing but there are good reasons for that increase. If you look at the detail and ask how is Canada doing in terms of improving its efficiency, that is putting out less CO₂ per unit of GDP, Canada's doing quite well with that and they're becoming less CO₂-intensive over time.

FC: Some environmentalists, like Lawrence Solomon, say that the earth has become more lush and green because of rising CO₂ and they don't seem to see it as a problem. If CO₂ is a plant food and it is pumped into greenhouses to promote faster plant growth, why are others fussing about CO₂?

KG: They're not fussing about CO₂ because of their effect on plants. I think that most people agree that if you give plants more CO₂ they grow better. The concern is that the CO₂ might cause heat to be retained in the atmosphere and warm things up. If you warm things up then there can be effects on the earth like rising sea levels and droughts. Also it's not understood how much water there is if you have massive plant growth in a lot of places and you don't have the water for the plants then you're not going to see the growth that you'd expect.

FC: But if CO₂ levels are rising in Canada and around the world, how come global temperatures have been steady or even slightly declining over the past decade?

KG: That's a great question. And it's an open question because 10 years is a reasonable amount of time but it's not an absolute wealth of data. What it does show, since this cooling period is not accounted for in any of the predictive models that have been used, is that the models are wrong in predicting that greenhouse gases are driving

temperatures and that greenhouse gases are the control or thermostat for the earth's atmosphere. It is inconsistent with the fact that we're seeing greenhouse gases rise significantly and yet the temperatures stabilize and even cool. It gives added weight to people like Lawrence Solomon who are sceptical that the atmosphere is very sensitive to carbon dioxide and methane and so on and argue instead that the is not that sensitive and therefore you won't see significant warming as a result of CO2 or greenhouse gas emissions.

FC: So if the models are wrong is it unwise to be moving down certain policy tracks like carbon trading systems, higher energy tax systems, and deliberately moving to higher energy costs?

KG: Yes. At least those kinds of policy changes can only be justified when you are averting something that is more expensive than what you are going to invest, that you are going to get a benefit for the cost. If you don't have these disaster scenarios you can't justify the Draconian kinds of measures with forced fuel economy standards, forced movement away from coal, cap and trade, carbon taxes, you can't justify virtually any of those on a positive cost-benefit basis. They all harm human welfare more than they help in terms of doing any environmental good.

FC: What's the alternative if we were to say that we did want to control so-called greenhouse gases? Is there a smarter way?

KG: There will be. There's isn't right now. There's not really much technology available to do that in the short term. Certainly we should always be more focused on adaptation because one of the real nuggets of information from all this climate science that has been done in the last 30 years is that the climate is somewhat chaotic and it can't be predicted. We've been building as if there really is something like a 300-year flood-plain that acts predictably, or a really predictable cycle of droughts and storms, but there aren't. So we should strengthen our infrastructure, make it more resilient. Make our energy systems and transport systems more resilient. Check on our coastal areas and see if people are living in particularly fragile areas and find ways and incentives to either strengthen their resilience to their systems or to move them, give them incentives to move to less fragile areas. Those things all make sense economically as well as environmentally. There are alternatives even further downstream you can capture the carbon back out of the air eventually or you can use geo-engineering to cool the planet off.

FC: You say that, generally speaking, our environment is getting cleaner. Is this true in every area, or are there some areas in which Canada still needs to improve?

KG: There are some areas in which *parts* of Canada still need to improve. There are two particularly stubborn pollutants and they are stubborn because we've reached the levels of our technological ability to capture them. They are ozone and particulate matter, very fine particulates. The ozone problem is a matter of trying to control the chemistry of the chemical precursors that lead to ozone development and that's hard to do because it's unique to every place you are trying to control it. With different levels of forestry natural sources of VOC's, (volatile organic carbon) vary and

there are also different atmospheric conditions from the amounts of sunlight either direct or indirect. So ozone's a challenge. There are cities in Canada that still violate the Canada-wide standards on ozone a couple times a year. And particulate matter as well is difficult to control. It's the soot that comes from both power production but also from roadway dust, construction dust, sea salt blowing in from the oceans, there are a lot of sources of very fine particulates. Some of it even comes over from Asia. So it's difficult to control those sources of particulates.

FC: In some parts of Canada there are government power companies that are selling electricity at far-below market rates. From a public policy perspective what is your view of that?

KG: Any time you distort markets you get negative economic outcomes and you get perverse consequences. In an undistorted market you would produce the amount of power people want at the price people are willing to pay. If you are artificially subsidizing one form of energy then you are artificially penalizing other forms of energy. So basically if you are selling your hydro below cost then your other renewables can't compete with hydro, nor can coal, nuclear or natural gas because you're artificially subsidizing your water power, you're not selling it at market rates. The right thing to do is to sell your water at market rates, get more water metering so people know how much they are using and that they are paying based on quantity. That would not only lead to a better distribution of electrical supply but also leave you with more fresh water. In this case, if you use less hydro because it's less competitive then you have more fresh water so it's a trade off between fresh water and hydro.

FC: You'd also have more renewable power to export to the United States.

KG: Right. You could definitely export your surplus to the US, without overdrawing freshwater consumption in Canada. For one thing, Canadians could use conservation measures such as time-of-day pricing to make themselves more water-efficient, creating a surplus to sell down south. If you wanted to optimize for export you could certainly sell into the Northern US states that are going to have to comply with greenhouse gas controls soon.

FC: Are there any particular areas to point out where Canada's doing exceptionally well?

KG: Canada does exceptionally well in terms of its use of fresh water resources. It is quite low compared to everybody else. So compared to how much fresh water there is Canada could use a lot more of it but their use is quite low and therefore there is very little to no impact on fresh water supplies. Canada also leads in water quality. They are second only to Italy in water quality which is a more important measure in many ways than quantity. Quality is what you drink and what the animals drink and what fish live in so Canada leads in that area as well.

FC: Are you suggesting that for example, and again this is a controversial topic, that Canada has some room to export some of its ample fresh water supplies to the United States? Environmentalists generally seem to be critical of that idea.

KG: The answer is yes. If you have a vast amount of water that you are not using... there are countries in the world that use up to half of their renewable fresh water who might want to import rather than over-consume local resources. We're talking about renewable fresh water here: water that comes down every year in terms of snow, melts, runs off into your rivers and oceans. We're not talking about a depletable body water such as a slow-to-recharge underground aquifer. Canada's freshwater consumption is 1.6% of what's available, and Canada could certainly take a bunch more out safely and sell it down to the States. The great thing about this from a Canadian standpoint - and it's hard to understand what the objection is other than philosophical or quasi-religious - is that the water will come back to you. It's going to come back to you in terms of the winds and the precipitation patterns are going to move the water when the Americans are done with it and it runs out to the ocean you're still going to get your water back. So you can sell them the same water over and over again. You don't have water because the water was born here when the earth was made, you have water because you have really cold winters and the water precipitates out as snow and ice and then it melts so it's the ultimate in sort of renewable sales kind of thing. You get to sell the same hamburger a hundred times.

FC: What sorts of sources did you use in the compilation of the data for this report?

KG: We stuck with pretty much exclusively government data, either Canadian or international government agencies that are considered to have highly reputable sources of data. We did not go for grey literature data or data compiled by individual universities or professors here and there who might cherry pick their data. We went with what are

genuinely considered to be authoritative reports on the status of one or another indicator either locally or globally.

FC: You talk in your report about the "environmental transition curve: can you tell us a little bit more about this concept?

KG: Environmentalists have tried to pitch the idea that economic development is inherently destructive of environmental quality. That the more you grow, the more destruction happens. The richer you become, the more you lay waste to the environment. But if you actually look at what countries experience when they develop that's not what happens. Countries reach a certain level of prosperity when they have their basic needs met, their housing's met, their healthcare's met, their education's met, they have opportunities for career, personal, family development and they say "You know, I also want a pretty and healthy environment." I want to go hiking. I want to go kayaking. I don't want to worry about if I dip my hand in the water, is it going to make me sick? And they're willing to divert some of their resources to clean these things up. That's called an environmental transition. First there's a degradation of the environment while a country makes its wealth then there's a repair of the environment once the country has reached a level where it feels like it can afford to, and then the level of degradation falls back to the point where you're at a sustainable use of the environment. That's where you should basically stay, at the point where you're using as much of the sustainable resources you can get out of the environment and the environment's ability to purify wastes. That way you're not wasting economic resources you could be using to further improve your standard of living or improve the standard of living around the world.

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