

A regional perspective on global climate change

Maine Policy Review (1993). Volume 2, Number 2

Global climate change has garnered some media attention, but has failed to gather the attention of most governmental decision makers and the public. In an effort to advance concerns about the issue, the New England Governors and Eastern Canadian Premiers sponsored a three-day symposium on climate change last May 19-21 in Portland. At the symposium, scientists and public officials from both the U.S. and Canada explored the science of climate change, the potential implications and impact of climate change on this region, and the possible policy responses. In the following analyses by James Bruce, Dean Marriott, and Mark Victor, reflecting the breadth of topics explored at the symposium, each author argues that the level of public and public policy decision makers' awareness about climate change issues must be heightened, and decision makers must begin to deal collaboratively with the many serious challenges climate change is presenting to the region.

Climate change policy: Mixing politics and uncertainty

by Dean Marriott, Commissioner, Maine Department of Environmental Protection

Global climate change is an issue that is very complex and difficult for many people (including political leaders) to "get their hands around." People understand the basic nature of the issue because of the term used to describe it. But when you get beyond that very basic level, understanding diminishes rapidly. For example, I am familiar with five scientific models that characterize and predict global climate change. Each suggests a different range of likely outcomes, which leaves policy decision makers to conclude, "If they do not know what they are talking about, we cannot be expected to take action." And many competent researchers conclude that we still are several years, and perhaps several decades, from any reliable predictions about the exact effects of climate change.

An inherent difficulty arises when trying to identify climate change within the context of normal climate fluctuations. When most people think of climate change, they look to the summer of 1988 or 1990 and say, "Oh, that must be climate change." But many scientists believe that such "extreme" summers are, in fact, well within normal historical variation. Such warm summers may be a sign of what is to come, but we cannot identify such events definitively as climate change. These crosscurrents create real political challenges. An analogous debate occurred over acid rain where policy makers concluded that the experts themselves were unsure. As a result, they took few actions. Of course, with climate change, by the time everyone is sure what is happening, it has already happened. From my experience with legislators for the past seven legislative sessions, I know personally that this is the challenge of dealing with climate change.

Motivating people to change, particularly if it requires new laws in the United States, is difficult. Legislators, who are not scientific experts, must understand in the most basic terms what is at stake and what they can do about it. The task of reaching a scientific agreement that can be communicated to legislators is the challenge that faces us.

I think it is quite clear that change in the climate is inevitable, and that it will probably occur in my lifetime. In relative terms, the change will be very rapid. There is general agreement that the build-up of greenhouse gases is driving this change. Most of these gases, although not all, are produced by human activity. Some predictions show that, by the year 2030, the level of greenhouse gases in the atmosphere will be the equivalent of having doubled the amount of carbon dioxide since the year 1860. This could cause the earth's surface temperature to rise from between one and five degrees centigrade (two to nine degrees Fahrenheit). To me, this is and should be a very frightening scenario. The possible consequences, warmer temperatures, less precipitation, more precipitation in some places, different storm patterns, and sea level rise, are well-reported. These changes are expected to happen at rates that are fifteen to forty times faster than normal rates of change, so past rates of adaptation to these sorts of changes will not be adequate.

The potential implications for Maine

We have a very natural resource based economy in Maine, so climate change will have a major impact. There will be precipitation and temperature changes. Plant and animals species dependent on Maine's particular climate would be edged out or, in fact, reduced in abundance or even eliminated. There will be impacts on water supply; there will be impacts on recreational use of our lakes and rivers. There could be further erosion of our limited supply of sand beaches. Some estimates indicate that a one foot rise in sea level could erode as much as 100 meters of beaches in Maine. There could be destruction of some of the 100,000 acres of coastal wetlands, which are extremely valuable not only to our economy but also to our environment.

Maine has a two billion dollar per year tourist industry, a \$135 million per year commercial fishing industry, a \$5 billion per year forestry industry, and a half billion dollar per year agriculture industry. All are based, to a large extent, on the current ecological configuration of the state. Environmental changes, therefore, threaten the very foundation of the state's economy. Significant changes to temperature or precipitation may be devastating to a recreational industry such as skiing. Forestry and forest products are the biggest sectors in Maine's economy. Impacts on tree growth and on the species of trees that thrive in the state may adversely affect these sectors.

We also have some practical indications of how severe weather can affect the state. We have experienced storm damage in Maine. During Hurricane Bob in 1991, wind damage in a single community cost \$500,000. The coastal storm in October 1991 cost \$2.6 million in damages just to twelve miles of Maine's southeastern coast. The ice jams on the St. John River took out a bridge that cost \$13 million. Simple rain on frozen ground can cause enormous damage. In March 1992, a rain event on frozen ground cost \$3.5 million damage to public road systems. Less precipitation and disastrous forest fires could literally ruin the state's economy. There are important questions for public policy decision makers and legislators in this state and in other states and provinces. Again, the challenge is to get legislators to understand the practical implications of failing to deal with this.

Should we emphasize efforts to prevent global climate change, or should we focus on how to prepare for it? I suggest that we need to do both. How much warming will occur and how fast it

will happen is dependent on decisions made now to slow down or to eliminate certain kinds of emissions of greenhouse gases. Maine is taking some steps on its own and some steps in cooperation with other states and provinces. Maine is eliminating chlorofluorocarbons and attempting to cut vehicle emissions. All of the northeastern states of the United States announced in April 1993 a cooperative public information program about the impact of motor vehicle use on air pollution in the northeast and on the emission of greenhouse gases. For the first time, all the states from Virginia to Maine (including the District of Columbia) have joined forces to promote the same public information campaign about motor vehicles and their impact on the environment. This may be just a first step, but educating the public to understand the real issues is a key ingredient in the process. I am optimistic about this three-year public education information program.

Energy use and energy mix will have a major impact on this issue. Maine's energy mix is about 50 percent oil fired, 14 percent wood fired, 16 percent hydro, and 16 percent nuclear. Obviously, changes in that mix impact on global climate change. In addition, I think we must continue to emphasize conservation in this effort.

In summary, Maine faces three basic questions relative to climate change: What are the specific issues that Maine policy makers need to address? Second, after identifying information gaps, how do we address them? Third, what are the appropriate regional responses? We need to identify for policy makers at the state, provincial, and federal level what they can realistically be expected to do and what the results of those actions will be.

In Maine last year, we had thirty days where the low-level ozone levels violated state standards. Maine is vacationland. We market the state as a great place to vacation. Yet for thirty days last summer, the air was unhealthy to breath. Most of that, or a good portion of it, comes from transport from outside of the state, so the Ozone Transport Commission was created in the Clean Air Act Amendments of 1990. All the states from Virginia to Maine are trying to work together on regional solutions. Maine cannot expect New York or New Jersey to solve the problem alone. We cannot continue to proceed with the historical, individual state approaches; we must all tackle this problem together. The model may apply to global climate change. No particular state, no governor, no legislature wants to be first to ask for sacrifices. There is seldom much to be gained for a politician who is first when there is considerable uncertainty and people are asked to sacrifice or to change. Our elected officials need a collaborative effort so that they can move forward on regional issues together. Climate change is a particularly difficult issue because it is not the result of some catastrophic event, but rather the result of the activities of everyday lives.

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Full cite: Marriott, Dean. 1993. ***A regional perspective on global climate change: Climate change policy: Mixing politics and uncertainty.*** Vol. 2(2): 10-13.