Should the Senate Debate the Kyoto Protocol?

Summer was just beginning, and already Washington, DC, was sweltering hot. For Izzy, Jay, Kendall, and Lee, this was the first day of an internship with the Senate Committee on Foreign Relations. The committee staffer who had been charged with briefing them had all of the sympathy of an army drill sergeant. “You may have thought you’d spend the summer photocopying documents during the day and partying in Georgetown at night, but we’ve got a bigger problem for you,” she said. “As you probably know, the U.S. has so far refused to sign the Kyoto Protocol—that’s the United Nations treaty on global warming. In fact, the president has not even asked the Senate to consider the treaty. This has posed some problems for us internationally. The committee chair wants to reconsider. We need the four of you to research the pros and cons of the treaty and make a recommendation. You have all of the resources of the internet, government document libraries, and the Library of Congress at your disposal. Figure it out. Should the Senate take the time to debate the Kyoto Protocol?”

And with that she ran off to another meeting, leaving the four interns arguing about how to begin.

Izzy: Global warming must be the biggest crisis this planet will face in the next two or three decades. Already we see tremendous evidence for global warming. Carbon dioxide levels in the atmosphere have increased from about 280 ppm in the early 1800s up to 360 ppm today. And global climate really does seem to be changing in response to this increase in greenhouse gases. We’ve all heard that the 1990s were the warmest decade of the millenium. Every year there are news reports of ice bergs breaking off of Antarctica, and the ice over the North Pole seems to be decreasing faster than anybody ever expected. The Kyoto Protocol is the United Nation’s only current strategy for addressing global warming, and the U.S. really needs to get on board and sign this treaty. I’m ready to dig out the evidence to persuade the Senate to endorse, whether the president cares or not.

Jay: Wait! Not so fast. I agree with you that global warming really does seem to be taking place. And I can come up with a half dozen other examples that terrify me. Global sea level has risen 20 cm (8 inches) in the past century and forecasts suggest that it will rise another 35 cm (14 inches) in the next 50 years. Although I’ve always wanted to escape the modern world to live on a tropical island, that prospect seems much less appealing when so many low-lying tropical islands are at risk of disappearing completely.

But nonetheless, the Kyoto Protocol is a weak document at best. It simply doesn’t address the real problems. It doesn’t stop greenhouse gas emissions, but merely asks industrialized countries to reduce their emissions to 93% or 94% of 1990 levels. Everyone will still be spewing CO\textsubscript{2} into the atmosphere. As Jerry Mahlman, the director of the Geophysical Fluid Dynamics Lab (a government research facility in New Jersey) said, “The best Kyoto can do is to produce a small decrease in the rate of increase.”

There’s simply no point in signing the Kyoto Protocol. We need to start working on all new power systems—wind, solar, maybe nuclear—that don’t produce greenhouse gases. Everything else is merely offering lip service to a monumental problem.

Kendall: I’m not so sure that I agree with you guys. There are a lot of uncertainties about
the real impact of greenhouse gases. Climate change is normal, and it’s difficult to distinguish the changes of the past hundred years from climate fluctuations at any other point in the Earth’s history. And the computer models used to predict climate really aren’t very accurate. An organization called the Petition Project has collected more than 17,000 signatures from scientists supporting a statement that “There is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gasses is causing or will, in the foreseeable future, cause catastrophic heating of the Earth’s atmosphere and disruption of the Earth’s climate.”

*Izzy:* Come on. That’s bunk.

*Kendall:* Let me finish. Even if global warming does occur, there’s no guarantee that will really destroy life as we know it. Sure a few tropical islands may disappear, and some expensive beach front real estate may be washed away, but overall global warming may not be so bad. It may make cold climates more agriculturally productive. Already there’s evidence that ice is melting earlier in the spring and the growing season in Canada and Alaska is several days longer than it used to be. Increased CO$_2$ can help fertilize plants and make them grow more quickly. Maybe in the future we’ll have a whole new class of fast growing plants to feed the world. Certainly we shouldn’t disrupt our entire lifestyles and change our economy to address a problem that we don’t understand.

*Lee:* Kendall, I don’t think that scientific uncertainty has much to do with the U.S. refusal to consider the Kyoto Protocol. Most scientists, and even a lot of politicians, would agree with Izzy and Jay that global warming is a big problem. The U.S. refusal to consider the Kyoto Protocol is about politics. The Kyoto Protocol is a compromise document that considers the needs of more than a hundred different countries.

For example, to make it appealing to the former Soviet Union and other Eastern Bloc countries, the Kyoto Protocol says that emissions have to be reduced to a fixed percentage of 1990 emissions. How did the treaty negotiators choose 1990? That was because the Soviet Union collapsed in 1991, and power consumption in that region has decreased substantially since 1990. Russia now stands to make a big profit by selling emissions credits that they are no longer using to countries that emit a lot of CO$_2$, such as the U.S.

But the big stumbling block for the U.S. is that developing countries are not required to participate in the Kyoto Protocol, because emissions limits might hinder their growing economies. That would be fine, except that China’s and India’s economies are growing so rapidly that they may soon become the world’s largest emitters of greenhouse gases. The U.S. Senate was so concerned about this that in 1997 they passed the Byrd-Hagel Resolution with a 95-0 vote. That resolution states that the U.S. will not enter into an agreement to reduce greenhouse gas emissions that does not require “meaningful involvement” of developing nations or that is in any way detrimental to the U.S. economy. In essence, the Senate wants to keep the playing field level, and they’re concerned that other countries will experience substantial financial gains at the expense of the U.S. as a result of the Kyoto Protocol.

*Izzy:* But we have to start somewhere if we’re going to address global warming. Even if there are costs, the U.S. should sign the Kyoto Protocol.
Questions:

1. What is meant by the term “global warming” and why may it be a problem?

2. What is the Kyoto Protocol? What are the provisions of the agreement?

3. What scientific criteria might be used to decide whether to regulate greenhouse gas emissions?

4. What policy considerations need to be considered?

5. What possible responses to the Kyoto Protocol are represented by Izzy, Jay, Kendall, and Lee? In your groups, each of you should choose one of these views to research more closely and defend in group debate.

This text raises a number of scientific related to the Kyoto Protocol that you may wish to explore. Among these are:
- Reliability of climate models for predicting future climate.
- CO2 fertilization of trees.
- Temperature change over the last 100 years relative to natural climate variability
- Sea level rise over the last 100 years relative to sea level rise since the last ice age.
- Ice thickness over the Arctic Ocean and Antarctic Continent.
- Increasing CO2 in the atmosphere.

In addition, the Kyoto Protocol poses a number of additional issues:
- What countries should be responsible for controlling emissions?
- Should per capita energy use influence how the Kyoto Protocol is considered?
- Should it be OK to trade energy emissions credits?

Be prepared to consider the following questions. What evidence is there for and against the existence of global warming? What countries would be influenced by climate change and by treaty provisions? Who should be responsible for controlling greenhouse gas emissions? How do the provisions in the Kyoto Protocol respond to global warming?

In class each group will present the results of their research and offer your own recommendations on whether the U.S. Senate should ratify the Kyoto Protocol.

References: available from class web site (http://www-mae.ucsd.edu/~sgille/esys10)