

## Carbon Sequestration Dinner Discussion on April 7, 2006

(Part of the forum “Carbon Sequestration: Is It Feasible?”  
sponsored by The Yale Institute for Biospheric Studies and the  
Center for the Study of Global Change)

On the first evening of the Carbon Sequestration Forum, most participants went to dinner at the New Haven Lawn Club. There, Dr. Eric Sundquist of the USGS addressed the group (*Is Carbon Sequestration Feasible at the Scale of the Global Carbon Cycle?*) in order to prompt discussion on the technical and economic feasibility of carbon sequestration in managing climate change, what must be done to promote popular support and political will, and how to implement the system.

Dr. Sundquist left the audience with three main questions to start the debate:

1. Can carbon sequestration be implemented at rates sufficient to significantly reduce the projected CO<sub>2</sub> peak in the coming decades to centuries?
2. Can carbon sequestration be implemented in cumulative quantities sufficient to significantly reduce the projected CO<sub>2</sub> stabilization asymptote in the coming centuries to millennia?
3. How can we better engage the public in consideration of the feasibility of carbon sequestration and reduction of CO<sub>2</sub> emissions by energy conservation and use non-fossil energy sources?

Those participating in the discussion generally agreed that carbon sequestration is a feasible option to drastically reduce the increase of carbon dioxide concentration in the atmosphere, but were not entirely sure that atmospheric CO<sub>2</sub> could be reduced in time to avoid the concentration stabilizing above 550 ppm, the often quoted desired level. Within this uncertainty some participants mentioned doubt as to how well the scientific community understands the very nature of the carbon cycle. The carbon cycle itself will be affected by global warming and it is important to work on understanding the positive and negative feedbacks that may occur with higher levels of CO<sub>2</sub> in the atmosphere. Given our current knowledge one can estimate the level of CO<sub>2</sub> emissions that will allow stabilization of CO<sub>2</sub> at 550 ppm, but the carbon cycle may act differently at these high levels leading to a higher stabilization level.

Though there was a consensus that carbon sequestration is a real option to decrease the burden of carbon dioxide in the atmosphere, many noted that it is only one in a portfolio of solutions including nuclear, renewable technology (solar, wind, biofuels, hydro), and increased energy efficiency, to combat climate change. Our long-term energy requirements will most likely depend on nuclear, solar, or fossil fuels, but in the current and foreseeable U.S. economy, coal is the cheapest and most viable energy source. Thus, carbon capture and storage (CCS) was seen as necessary to offset the effects of fossil fuel emissions.

The discussion then moved to questions of political and public will. Many noted that while the public has become more concerned about global warming, it remains largely

unaware of CCS options. In thinking about how to change this, the forum participants brought up some interesting ideas. First, some noted that elsewhere in the world and especially in Europe, there is much more of a cultural imperative toward diminishing the causes of climate change, and high emission taxes have compelled energy companies to employ sequestration measures in some but not all cases. Their populations also are more willing accommodate higher energy prices. One participant suggested, in the same sense that there was a push against littering in schools a few decades ago, there needs to be a widespread effort to have people understand the detrimental aspects of global climate change. A nearly opposite approach put forth would be to allow people to completely disregard energy conservation, to “let them keep their Hummers,” and instead focus on implementing carbon sequestration technology that will effectively reduce atmospheric CO<sub>2</sub> as much as or more than conservation. One participant proposed that the government could attack the problem in a “pre-emptive strike” similar to how it publicized and assumingly prepared for bird flu, while another advised using current events such as Hurricane Katrina to demonstrate that this type of event would occur with more frequency if climate change were left unabated. Another participant, using his “the carrot and the stick” analogy, implied that energy companies and other CO<sub>2</sub> emitters will respond according to profit incentives or government disincentives. Many in the audience stressed the importance of gaining the ear of our representatives in government.

Because the economic impetus for carbon sequestration may depend on government-defined CO<sub>2</sub> allowances, international partitioning of these allowances, and the criteria for making such judgments is important. While fast-developing countries such as China and India have ever-burgeoning populations and increasing energy demands to implement their ambitions for industrialization, those at the discussion debated whether the pieces of the CO<sub>2</sub> emissions “pie” should be distributed not only according to industrialization needs, but according to population growth or decline.

One speaker brought up the interesting point that the insurance industry is a good indicator of whether the importance of global climate change has reached the non-science/research community; they already have begun to deny coverage to those in areas prone to sea-level rise, flooding, and other effects of climate change. At the end of the discussion, the forum generally acknowledged that, while much headway in the technology and some in public awareness has been made, there is still a long way to go.

Rapporteurs: Madalyn Blondes and Jaclyn Brown