

## **Climate Change and the Social Sciences and Humanities**

I started off with something I felt was very important: the link or relationship between the scientific and social aspects of climate change. I wanted to stress that climate change is not just a physical and life sciences issue: it is a political, economic, and social issue. It is also a classic example of the clash between a concept grounded in science, and the context in which policy decisions are made and implemented. My bottom line in the introduction was that to understand climate change as a phenomenon, one must not only understand the physical and life sciences aspects of the issue, but the social sciences and humanities aspects as well.

I began by outlining the general fuzzy boundary between the physical and life sciences aspects of climate change and the impacts on ecosystems and human societies. Basically, an increase in Green House Gas (GHG) emissions will lead to temperature increases, sea level rise, and precipitation pattern changes. These changes will in turn affect human health, agriculture, forest, water resources, coastal areas, and species and natural habitat.

## **Climate Change and Human Society**

We know from Dave that the science of climate change is complex. The social aspects of climate change are at least as complex, if not more so. The “levels of analysis” tool really helps us grasp this: climate change is a classic example of the importance of being aware of how individuals, groups and states, and the international system all play a role in how we understand the origins of anthropogenic climate change and how we might respond to it. The fact is, mitigation and adaptation efforts will engage a large number of variables and so we need to understand them as best we can. These variables are the subjects of the social sciences and humanities.

## **Climate Change and Global Governance**

Everyone agrees that climate change mitigation requires action at the international level, primarily in the form of cuts in greenhouse gas emissions. This in turn requires some kind of international consensus or agreement between states. So why has attaining such an agreement proved so difficult, and why has the record of implementation been so spotty? Economists, political scientists, and specialists in international relations are fond of explaining how several obstacles obstruct progress in global governance.

First, governments exist in a competitive international environment, and as a result governments are concerned with relative gains in power and economic advantage. The competition between states for economic and strategic advantage makes them reluctant to sign agreements that threaten their economic competitiveness or their diplomatic or security interests.

Second, it is difficult to secure an agreement among many states that possess many divergent interests. As a result, any negotiated agreement or treaty between states is the product of the lowest common denominator among the participants. Of course, when everyone has to agree on a course of action, that course of action may wind up looking inadequate with respect to the problem, because it was a product of whatever consensus could be achieved. The alternative is to reach no agreement at all (which does happen!)

Third, there is the eternal problem of compliance and enforcement. Governments may sign agreements but then fail to live up to their commitments. Who punishes them? In a world with no overall government, no police force, no judiciary (apologies to the very limited World Court) and no prison, enforcement mechanisms are weak or nonexistent. The only enforcement mechanisms that exist are ones negotiated into an agreement or treaty - which are usually

rather insipid - or international and domestic condemnation, which can be formidable but also can be resisted by committed governments.

Fourth, domestic politics drive government negotiation positions and the priorities of government at home (such as economic growth and employment). The vulnerability of governments to electoral politics and the scheming of coalition partners can often be important factors driving the positions governments take in international negotiations.

International climate mitigation efforts are a good example of the Collective Action Problem, a noted phenomenon in the social sciences and humanities. One way to illustrate this is by using Prisoner's Dilemma, a popular "game theory" tool.

#### Activity: Classic Prisoner's Dilemma

Two bank robbers are arrested and imprisoned. Each prisoner is in a jail cell with no means of speaking or exchanging messages with the other. The police do not have enough evidence to convict the pair on the principal charge of bank robbery. They plan to sentence both to a year in prison on a lesser charge of weapons possession. But the police offer each prisoner a choice. Each prisoner is given the opportunity either to betray the other, by testifying that the other committed the robbery, or to cooperate with the other by remaining silent. So the payoffs look like this:

- If A and B both betray the other, each of them serves 2 years in prison
- If A betrays B but B remains silent, A will be set free and B will serve 3 years in prison for bank robbery
- If B betrays A but A remains silent, B will be set free and A will serve 3 years in prison for bank robbery
- If A and B both remain silent, both of them will only serve 1 year in prison (on the lesser charge of weapons possession)

In international climate change mitigation efforts the problem takes the form of governments defecting (or failing to cooperate) and not signing (or failing to implement) GHG emissions agreements and as a result all being worse off because of ongoing global warming.

Then it was time to talk about what has actually been done on the international level on the issue of climate change.

## **International Climate Change Responses**

The First World Climate Conference was held in 1979 (Geneva). In 1988 the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) formed the IPCC. The mandate of the IPCC was to “assess the state of existing knowledge about the climate system and climate change; the environmental, economic, and social impacts of climate change; and the possible response strategies.” It is worth noting that the IPCC itself does not conduct research; it synthesizes and summarizes research done across the world by hundreds of scientists.

In 1990 the IPCC released its First Assessment Report, which warned of the threat of global warming and the need to act. The Second World Climate Conference held in 1990 called for an international treaty on climate change. And if you are going to have a summit to negotiate a climate change treaty, why not have some beach access while you’re at it? And so, off to...

## **Rio!**

So here we are at the United Nations Conference on the Environment and Development (otherwise known as the Earth Summit) in Rio De Janeiro in 1992. It was at this conference that the UN Framework Convention on Climate Change (UNFCCC)

was signed and later came into force in 1994. It was the first effort to establish international commitments to reduce GHG emissions to levels consistent with climatic stability and economic development. The signatory Annex I countries (the developed world, basically) committed themselves to reducing anthropogenic greenhouse gasses and enhancing greenhouse gas sinks and reservoirs. Specifically, Annex I countries were to reduce their GHG emissions to 1990 levels by the year 2000.

Then the obstacles kicked in. Very few if any states were on target to meet their Rio commitments by the mid-1990's. Emissions from non-Economies In Transition (read: Economies Going Into the Tank because of the collapse of the Soviet Union) countries were going up, not down. And new IPCC science was showing that global warming was getting worse. So more meetings, called "Conferences of the Parties" or "COPs" were held. COP 1 (in Berlin in 1995) agreed that only the developed countries (Annex 1 states) would commit to actual numerical targets for GHG emission reductions: this has had an enduring impact on climate change treaties ever since. COP 2 (in Geneva in 1996) both called for enhanced cuts to GHG emissions in the face of new IPCC evidence of global warming. So Rio was essentially a failure.

But if at first you don't succeed, then try again...at:

## **Kyoto!**

So here we are at COP 3 in Kyoto in 1997. The aim was to achieve deeper emission reduction targets than those agreed to at Rio. The negotiations were pretty intense, going on for 25 hours straight at one point.

There was particular tension between EU countries, which wanted deeper emissions cuts targets, and a group called JUSCANZ (Japan, US, Canada, Australia, and New Zealand) which wanted

lower emissions targets and wanted to include developing countries in the Kyoto protocol.

At the end of the day, the Kyoto Protocol calls on the 28 industrial countries to reduce emissions to varying country-specific percentages below 1990 levels by 2008-2012. So for example, the US committed to cut its emissions to 7% below 1990 levels, Canada to 6% below, the EU to 8% below, and Japan to 6% below.

And then the US Senate did something very interesting. On July 25, 1997, before the Kyoto Protocol was finalized (although it had been fully negotiated, and a penultimate draft was finished), the U.S. Senate unanimously passed by a 95–0 vote the Byrd-Hagel Resolution (S. Res. 98) which stated:

*“Whereas the exemption for Developing Country Parties is inconsistent with the need for global action on climate change and is environmentally flawed; and Whereas the Senate strongly believes that the proposals under negotiation...could result in serious harm to the United States economy, including significant job loss, trade disadvantages, increased energy and consumer costs, or any combination thereof...the United States should not be a signatory to any protocol...at negotiations in December 1997, or thereafter.”*

Ouch! On November 12, 1998, Vice President Al Gore symbolically signed the protocol. Both Gore and Senator Joseph Lieberman indicated that the protocol would not be acted upon in the Senate until there was participation by the developing nations. The Clinton Administration never submitted the protocol to the Senate for ratification.

Nevertheless, the Kyoto Protocol came into force on February 16, 2005 following ratification by Russia on November 18, 2004.

Unfortunately, compliance was no better under the Kyoto Protocol than it was under the UNFCCC.

By 2008, carbon dioxide emissions were 30% higher per year than they were in 1992 when the UNFCCC was signed. Emissions were 20% higher than they were in 1997, when Kyoto was signed.

Atmospheric concentrations of CO<sub>2</sub> equivalent GHG reached 385 parts per million in 2008, compared with 280 parts per million before the industrial revolution. The sense of urgency has grown: a now widely accepted definition of dangerous climate change is a 2 degree C rise. The IPCC recommends that to have a good chance of avoiding dangerous climate change (a 2 degree increase) developed countries must cut their GHG emissions by at least 25 percent from 1990 levels by 2020, and that global emissions must begin to decline by 2020 at the latest.

So if at first you do not succeed, try, try again. At the COP 13 in Bali in 2007, the Annex 1 states agreed to meet to create a new, globally binding treaty to replace the Kyoto protocol to the UNFCCC, which was due to expire in 2012.

It was at this point that we stopped, because this sets up the simulation of the Copenhagen Climate change conference that we are doing the following week.