December 2013

Whither Climate Change?

For *Century Weekly*

Richard N. Cooper

The world community has two parallel processes going on the global issue of climate change. The first, started in 1989, is the Intergovernmental Panel on Climate Change (IPCC), which brings together specialists from around the world to assess the facts and future likely evolution of climate change. The second, called the Conference of Parties (COP) of the Framework Convention on Climate Change, negotiated in 1992, attempts to agree on commitments and cooperative actions for mitigating climate change and, increasingly, for adapting to the climate change that will likely take place.

The IPCC is in the process of producing its Fifth Assessment Report (AR5). AR4 was produced in 2007, six years ago. Working Group I, on the scientific aspects of climate change, released its report last fall; working groups II and III, on impacts and on mitigation, will report during 2014, and the IPCC will then produce its latest Synthesis Report.

Working Group I engages hundreds of scientists around the world, working on all aspects of climate change. They have reviewed the new scientific information that has become available during the past decade, and formed judgments about its reliability and its implications for future developments. These have been condensed into a "Summary for Policymakers." The Summary expresses the unambiguous judgment that human activity, in particular the release of greenhouse gases such as carbon dioxide from fossil fuels and methane from agricultural activity, is influencing the global climate. This will be reflected in rising average temperature of the earth's surface, increased average precipitation, rising sea levels, melting glaciers and sea ice, and increased acidity of the oceans. But the Summary also notes the continuing uncertainty about the magnitude, timing, and geographical location of these effects. The uncertainties derive partly from the complexity of the earth's climate itself, with many positive and negative feedbacks to any given injection of greenhouse gases (such as the nature of cloud formation). Thus it remains the case after much additional research that the climate sensitivity to a doubling of carbon dioxide concentration in the atmosphere since 1800 (taken as roughly the beginning of the industrial revolution) is in the range 1.5 to 4.5 degrees C, the same as it was 25 years ago. The uncertainties also derive from the fact that future emissions of greenhouse gases, the main forcers of climate change, remain unknown, depending as they will on both the magnitude and the character of future economic growth in the world, and in particular on its dependence on fossil fuels. Various possible scenarios are assumed, which with the uncertainties regarding climate sensitivity, produce a range of possible outcomes. For instance, the mean increase in global average temperature over the century 1990-2090 ranges from 1.0 to 3.7 degrees C, while the mean increase in sea level ranges from 0.4 to 0.63 meters over the same period of time. Maximum temperatures are expected to rise, meaning more heat waves, while minimum temperatures will also rise, suggesting fewer cold spells.

The second global process met in Warsaw in late November as COP-19. It had the objective of laying the groundwork for an agreement to be reached in 2015 (at COP-21, to be held in Paris) that will carry legal force and come into effect by 2020. The most that can be said about the Warsaw meeting is that it did not fail, although a walk-out by some developing countries took place during the meeting. Further discussions will occur next year in Lima, but much ground needs to be covered before a full agreement covering all 193 participating countries can be reached. A key obstacle is the phrase "common but differentiated responsibilities" embodied in the Framework Convention and interpreted by COP-1 in 1995 to mean that only Annex I countries (basically, the rich plus former communist European countries) had to make commitments to control greenhouse gas emissions and all others had none. This interpretation was bizarre almost from the start, since within a few years dozens of developing countries had a higher per capita income than the poorest Annex I countries. And over time, as developing countries posted high rates of growth (especially big ones like China, India, Indonesia, and Brazil), it was tantamount to saying there could be no effective global agreement. Emissions by the Annex I countries could notionally be cut to zero (that will not in fact happen) and the remaining countries by 2020 would be emitting more greenhouse gases than the entire world did in 1990, and on a steeper trajectory. Already China's emissions much exceed those of the United States, and India's exceed those of Japan. That reality gradually sank in and COP-17 in 2011 moved to the principle that all countries should participate (in reality, only the largest 20-30 countries need to participate initially). But the promise of "differentiated treatment" stills plagues the negotiations in various ways.

My view is that the current process will never on its own produce an effective agreement – i.e. one that really slows climate change. The interests of all the participating countries are too diverse and the negotiations continue to be too plagued by contradictions for the process – agreement by "consensus,"— ever to reach effective agreement. If we are to deal effectively with climate change, a parallel, more efficient negotiating forum must be found. It must above all include China, the world's largest emitting country and one of those resisting formal commitments in the COP process, and the United States, whose government accepts the principle of formal commitments but lacks the public support required to implement them. China cannot simultaneously claim the status of a world power and then claim poverty to avoid taking on global responsibilities. China's 12th Five Year Plan contains ambitious targets for reducing the carbon intensity of China's production, by 17 percent of the 2010 level by 2015, and it announced an even more ambitious target for 2020. These targets are motivated by a desire to reduce pollution as well as climate change. But China needs to persuade the world that it will take effective steps to achieve these targets.