

# Past and Future International Responses to Climate Change Problem

Akihiro Kuroki\*

## 1. Growing Interest in Climate Change Problem

Far in the past, some meteorologists had already been concerned that carbon dioxide emitted by humans would cause global warming. However, ordinary journalism in the world only began to cover the problem when Dr. James Hansen, then head of the Goddard Institute for Space Studies at the National Aeronautics and Space Administration, told the U.S. Senate Subcommittee on Science, Technology and Space in June 1988 that an increase in carbon dioxide in the atmosphere had already caused global warming. He decisively attributed a temperature rise to the increase in carbon dioxide for the first time in history, attracting much attention. In the same year, the International Conference on the Changing Atmosphere took place in Canada's Toronto, noting that it would be desirable to reduce carbon dioxide emissions by 20% from the 1988 level by 2005. This was the first time in history that such a numerical target had been given. Yoichi Kaya, then professor at the University of Tokyo, was the only Japanese participant in the Toronto conference.

In 1989, the Intergovernmental Panel on Climate Change was established to collect scientific knowledge on warming, beginning to accumulate scientific knowledge as the premise for addressing climate change. It must be noted that the IPCC has never been requested to make any recommendation. The IPCC has never recommended that global temperature rise be limited to 2°C, that the global atmospheric greenhouse gas concentrations be reduced to 450 ppm or less to limit the temperature rise to 2°C, or that developed countries implement an 80% emission cut by 2050 to limit the temperature rise to 2°C. It is mysterious that these numerical targets have been understood by ordinary citizens and politicians including national leaders as recommendations by the IPCC as a group of scientists. This may be mainly because the IPCC chair in a press conference made remarks deviating far from the IPCC reports.

## 2. Adoption of UNFCCC

In 1992, or four years after the IPCC's first report in 1998, the United Nations Framework Convention on Climate Change was adopted. The UNFCCC, though adopted more than 20 years ago, was an epoch-making agreement, as outlined below:

- (1) Objective: The ultimate objective of the UNFCCC was to stabilize CO<sub>2</sub>, methane and other greenhouse gas concentrations. Though clarifying no level at which the

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\* Managing Director, Charge of Global Environment & Sustainable Development Unit, The Institute of Energy Economics, Japan

concentrations should be stabilized, the UNFCCC set the very concrete target of preventing GHG concentrations from rising further.

- (2) Requirements for developed and developing countries: Parties to the UNFCCC were required to report GHG emissions and emission reduction plans. The principle of “common but differentiated responsibilities” for global warming was confirmed.
- (3) Requirements for developed countries: The UNFCCC set the nonbinding target for developed countries to reduce GHG emissions to the levels in 1990 as early as possible. The target, though not being binding or constituting an international promise, was transparent in that the target of preventing any rise in CO<sub>2</sub> and other GHG concentrations was realistic and available for immediate verification.

### **3. Adoption of Kyoto Protocol**

Five years after the UNFCCC was adopted, an international agreement on global warming measures came in Kyoto. The Kyoto Protocol was an epoch-making agreement because developed countries that were then responsible for most GHG emissions set their GHG emission reduction targets. It required developed countries to reduce GHG emissions to the levels in 1990 in five years between 2008 and 2012. The requirement was unfair, favoring the European Union, Russia and Eastern Europe that had already reduced GHG emissions substantially from the year. Nevertheless, the establishment of the emission reduction target was appreciable. However, the United States, then the largest GHG emitter, later declared that it would not participate in the protocol, indicating the protocol as frayed. Canada and New Zealand followed suit, limiting the reductions by developed countries.

### **4. Copenhagen Agreement**

A very large number of national leaders participated in the Copenhagen conference in a bid to produce a GHG emission reduction plan between 2013 and 2020 following the Kyoto Protocol. Under an easy strategy to achieve some decisions through the participation of national leaders, however, the conference failed to accomplish any effective agreement. The conference was plagued with various problems. For example, the then environment minister of Denmark hosting the conference resigned from the chairmanship during the conference. Given the failure to form any consensus at the meeting, UNFCCC parties focused their discussions on the bottom-up approach of accumulating their GHG emission reduction targets, instead of the top-down approach for the Kyoto Protocol.

### **5. Paris Agreement**

In consideration of the great failure in Copenhagen, the French government proposed the bottom-up approach where UNFCCC parties would make GHG emission reduction plans on their

own. The Paris Agreement has been appreciated as an epoch-making pact requiring all UNFCCC parties to reduce GHG emissions. However, GHG emission reduction plans submitted by many UNFCCC parties have been criticized as representing nothing more than BAU (business as usual). The problem is how the review coming every five years would be effective for reducing GHG emissions. My opinion is the Paris Agreement has very little progress compared with UNFCCC convention itself since both rely on each emission reduction plan of each member countries own thought.

## **6. Comparing UNFCCC with Paris Agreement**

### **(1) Objective**

The UNFCCC aimed to stabilize GHG emissions while failing to specify any level at which they should be stabilized. In contrast, the Paris Agreement calls for “holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.” While the 1.5°C target is one of the Paris Agreement’s features, its implications must be verified further. Given that the fifth or latest IPCC report failed to consider the feasibility of the 1.5°C target, we must note that the Paris Agreement target fails to reflect the IPCC report.

### **(2) Requirements for countries**

The UNFCCC required all parties including developing countries to submit GHG emission reduction plans. The Paris Agreement requires all parties including major GHG emitters (representing China and India) to submit GHG emission reduction targets. This point is the reason the Paris Agreement is appreciated as an epoch-making one. However, GHG emission reduction targets are not binding, indicating no essential change or progress from the UNFCCC agreement, as noted by some people. As noted above, the Paris Agreement requires UNFCCC parties to review intended nationally determined contributions, or INDCs, every five years. By the next review set for 2020, they will have to find how to make their GHG emission reduction plans consistent with the 2°C or 1.5°C target.

## **7. Basic Scientific Matters Remain Unexplained**

### **(1) How are GHG concentrations at present?**

While we frequently hear that GHG concentrations should be limited to 450 ppm or 350 ppm, we have few opportunities to hear what the present GHG concentrations are like. Strangely, the IPCC report has fallen short of specifying overall GHG concentrations. The websites of the World Meteorological Organization and the Japan Meteorological Agency specify the CO<sub>2</sub> concentration while providing no data about the overall GHG concentrations. As no unified view exists about the present GHG concentrations, it is difficult to consider GHG emission reduction measures.

## **(2) What was the pre-industrial temperature like?**

The third IPCC report carried a graph indicating that the temperature remained constant before industrialization and suddenly began to rise at the start of industrialization. The temperature curve in the graph was similar to a hockey stick and called the hockey stick curve. However, the curve came under fire from meteorologists throughout the world. They criticized the curve for ignoring temperature changes in the Little Ice Age and the Medieval Warm Period before industrialization. The hockey stick curve disappeared in later IPCC reports. Which period does the pre-industrial age mean? In the Java Period far before industrialization, the temperature was reportedly 10°C higher than at present.

## **(3) No progress in knowledge about climatic sensitivity**

Climatic sensitivity indicates how far the temperature would rise when GHG concentrations double. It is used for predicting a future temperature rise. The accuracy of climatic sensitivity has improved little since the first IPCC report. Specifically, the first (1990) and fifth (2014) reports gave the climatic sensitivity as “1.5-4.5°C” with a probability of 90%. The range indicates a three-fold gap. Not a small number of meteorologists have asserted lower or higher temperature rises than the range, indicating that there is no consensus on climatic sensitivity.

## **8. Proposals on Future Process**

### **(1) Thorough IPCC reform**

Mass media and the public conceive of the IPCC as an organization of scientists that provide proposals on the global warming problem independently from governments. Regrettably, the conception represents a misunderstanding. As indicated by its name, the Intergovernmental Panel on Climate Change, it is a panel among governments. The editors of IPCC reports form consensus among a large number of scientists (recommended by governments) and negotiate with governments. While the IPCC spend massive funds to cover transportation and accommodation of the large number of scientists, they receive no compensation in principle. Their efforts are not rewarded.

The IPCC should be reformed into an organization of scientists that submits basic proposals on the global warming problem independently from governments. It should be renamed as the “advisory group of scientists on climate change” and managed by the Conference of the World’s Scientific Academies with some funds provided by governments.

### **(2) Limit of COP negotiations and need for supplementary measures**

When I asked an American working for the IPCC establishment long ago why the IPCC would have to be created despite the presence of the World Meteorological Organization and the United Nations Environment Program, the answer was that no United Nations agency could form consensus on the problem. Eventually, however, the UNFCCC was established with negotiations brought to the United Nations. The present situation represents America’s prediction. Meaningful

negotiations have become difficult at the conference of parties to the UNFCCC where only one country's opposition can block any agreement. There is an opinion that the time might have come to consider some supplementary measures such as negotiations in a limited group of countries having similar intentions, like the Trans-Pacific Partnership free trade negotiations devised due to little progress in trade liberalization negotiations at the World Trade Organization. The APEC (Asia Pacific Economic Cooperation) approach where a peer review encourages member countries to make improvements without any binding targets as is the case with the Paris Agreement approach would also be realistic.

#### Writer's Profile

Akihiro Kuroki

Joined Ministry of International Trade and Industry (MITI; presently METI) in 1979. He has worked for MITI in various areas including energy and environment. He also worked for the IAEA from 1994 to 1997 as Senior Officer for Special Project, Public Division. From 2001 to 2006, he had served as Director for Nuclear Safety and Quality Assurance Division of KEDO.