

The Meaning of 50%

What should be the ultimate objective of the fight against global warming? **Yamaguchi Mitsutsune** comments.

The Heiligendamm Summit in early June and the Major Economies Meeting (MEM) led by the United States at the end of September were highly significant in that the United States returned to climate change negotiations. At these two meetings, leaders of the major economies engaged in serious debate about measures to combat climate change around the world with one of the focal points being a long-term global goal for reducing greenhouse gas emissions. The European Union advocated a reduction of 50% from 1990 levels by the year 2050 while Japan insisted on a decrease of 50% from current levels. In the end, no agreement on specific values was reached amid a shared perception that any agreement would not be legally binding due to a lack of technical backing.

The problem was a lack of international agreement on what cutting emissions by half is for. The United Nations Framework Convention on Climate Change (UNFCCC), which is the basis for the Kyoto Protocol, stipulates in Article 2 that "The ultimate objective of this Convention [...] is to achieve [...] stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." But what would be the concentrations that would constitute "dangerous anthropogenic interference"? The Intergovernmental Panel on Climate Change (IPCC) is gradually clarifying the correlation between greenhouse gas concentration, atmospheric temperature and expected damages but in the final count, the issue of what level of concentration is dangerous is a political judgment as it involves value judgments. This is a valid point. For example, if there is an increase in poverty, disease or starvation due to global warming, making a scientific judgment on how many people must be exposed before the situation constitutes a "danger" is impossible. The concentrations that would constitute "dangerous anthropogenic interference" vary significantly, depending on whether discontinuous events such as coral bleaching and extinction are considered a danger, or a cooling of northern Europe by maximum 10°C brought on by the collapse of thermohaline circulation is classified as a danger.



Mountain glaciers are retreating rapidly in many parts of the world, such as here—the Perito Moreno glacier in southern Argentina.

There is also a proviso in Article 2 of the UNFCCC which states that such levels "should be achieved within a time-frame sufficient [...] to enable economic development to proceed in a sustainable manner." This proviso indicates the importance of coexistence between the environment and the economy, and that the objectives of the Convention will not have been met if the economy loses momentum and unemployment surges because of emissions reduction that is overly radical. Considered in this light, it becomes clear that a cost perspective, as well as the issue of what events constitute "danger," must be brought into the discussion. It is the role of world leaders to comprehensively evaluate the situation and to agree on the final greenhouse gas concentration levels that the world as a whole must aim for. Since the 1996 Council of Ministers, the goal of the European Union has been that global average temperatures should not exceed 2° C above pre-industrial levels. Expressed in levels of concentration, this is the equivalent of 350–400 ppm CO₂ according to the 4th Assessment Report of the IPCC. In view of current levels of technology, climate sensitivity studies which measure temperature increases expected from the doubling of CO₂ in the atmosphere, and the fact that concentrations for 2005 have already reached 379 ppm, the proposal is neither feasible nor have cost benefit analyses been applied.

RITE Values

In Japan, the Research Institute of Innovative Technology for the Earth

(RITE) is developing quantitative measures (or qualitative measures if it is difficult to evaluate by quantitative measures) for damage caused by global warming by the year 2100 including rising sea levels, impact on shorelines, agriculture, health, terrestrial ecosystems and the collapse of the thermohaline circulation. The Institute has calculated the costs of stabilizing atmospheric concentration at several different levels to mitigate such adverse effects and has provided this information to expert groups. Based on their weighted judgment, the Institute has converted preventable damage into financial value (benefits of combating global warming). The Institute again presented these results and the costs of stabilizing concentrations at each level to expert groups, and factored in their respective recommended stabilization levels. The Institute concluded that at present the aim should be concentrations of 550 ppm CO₂. (This CO₂ conversion value does not include other greenhouse gases.)

This is the extent of the discrepancy between research in the European Union and Japan. Unless agreement can be reached on this point in the climate change negotiations, there will be no conclusive decision about halving levels by 2050. In the interest of combating global climate change, it is up to world leaders to reach international agreement on the ultimate objective of the fight against global warming. ■

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