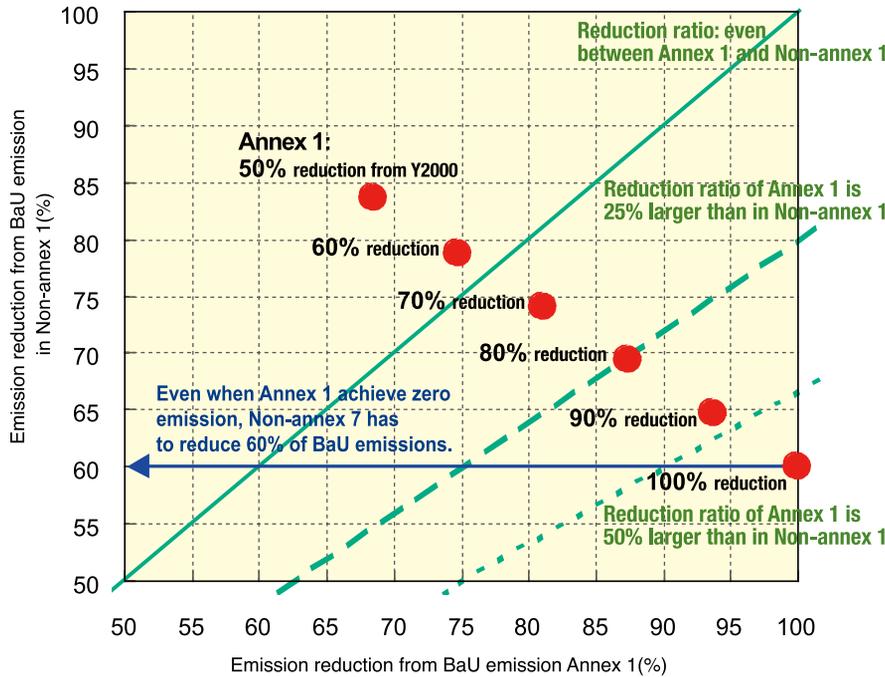


Fifty-Fifty Vision

What are the implications of “halving” global greenhouse gas emissions by 2050? **Yamaguchi Mitsutsune** appraises the plans.



Source: Dr. K. Akimoto, Research Institute of Innovative Technology for the Earth (RITE)

In the fight against global warming, the European Union (EU) has set a target of limiting the temperature increase of the earth to no more than two degrees Celsius over what it was at the time of the industrial revolution. The EU takes a position that this target requires cutting global greenhouse gas (GHG) emissions to a maximum of 50% of the 1990 level by 2050.

In May 2007, the then Japanese Prime Minister Abe Shinzo announced the Cool Earth 50 initiative to set a similar goal of halving GHG emissions from the current level, not the 1990 level, by 2050. The G8 Summit held the month later concluded with world leaders declaring their intention to seriously consider this target. The long-term target was also the subject of discussion in the Major Economies Meeting in September. However, there is no clear understanding of what exactly constitutes the halving of global emissions or how we can pave the way for it. This article attempts to elucidate these points in an effort to assess the feasibility

of the (long-term) target.

First, please look at the figure. The horizontal axis in the figure represents the emission reduction percentage of developed countries, or to be precise Annex I countries, compared with their projected emissions in 2050 if no additional measures are taken; that is, the business-as-usual (BaU) scenario. The vertical axis represents the reduction percentage of developing countries, or non-Annex I countries. The green diagonal line shows the case, in which the BaU reduction rate of developed countries coincides with that of developing countries. The bold broken line below the solid line refers to the case in which developed countries make a reduction 1.25 times higher than developing countries and the thin dotted line below that reflects the case where developed countries reduce emissions at the rate 1.5 times higher than that of developing countries. Each bold red dot represents a certain combination of reductions to be made by Annex I countries and non-Annex I countries, in order to halve global emissions by

2050. The percentage number shown next to each red point indicates the rate of reduction required from Annex I countries. (Here the reduction rate is compared to the 2000 level, rather than BaU emissions.)

Any combination of reduction rates on the left of the bold broken line will not be acceptable, as it defies the principle of common but differentiated responsibility. The third red point from the right is situated on the bold broken line. This means that, when Annex I countries make an 80% cut from the level of 2000, or a reduction of 87% or so from BaU emissions, and developing countries slash around 70% from the BaU level, it is possible to attain the target of halving global emissions. The red dot at the far right means that, even if developed countries achieve zero emissions in 2050, non-Annex I countries must cut their emissions by as much as 60% from the BaU level in order to achieve the global target. Now, are these kinds of drastic reductions by developed countries, such as an 80% or 100% cut by mid-century, feasible and realistic? Even if we assume that developed countries can do that, will it be possible for developing countries to cut their emissions in the range of 60% to 70% from the BaU level, or 93% to 122% of the 2000 level? The fact that China, the world's largest GHG emitting nation next to the United States, has already seen a 58% increase in their carbon dioxide emissions during the period of 2000–2004 alone clinches the matter. It is practically impossible for developing countries to achieve this kind of massive and drastic reduction.

This is what halving global GHG emissions by 2050 means. Before asking developing countries to make drastic reductions, we must ask ourselves whether Japan, the United States, the EU and other developed countries are ready to take up the challenge of cutting emissions by 80% or more, and whether we have sufficient economic and technological foundations to achieve such a reduction. The halving of GHG emissions is not a binding target, but it will be extremely difficult to attain unless we introduce highly innovative technologies. It will be even more difficult for major developing countries. This is what we need to keep in mind in the deliberation and negotiation of a long-term target. We need to focus on technological development and diffusion, and we need to adopt a down-to-earth approach in our fight against climate change. ■

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