

How Can We Halve Global CO₂ Emissions?

By *Noboru HATAKEYAMA*

Global warming has become one of the most important issues to tackle. The Kyoto Protocol has entered the final stage since the beginning of this year. Therefore, we have to discuss fundamental issues of a post-Kyoto Protocol approach. There are at least six issues to discuss as follows.

- [1] Should we determine a long-term global quantified goal to reduce CO₂ emissions such as a goal for 2050? If so, at which level should we set the goal? How about a midterm global goal?
- [2] How should we accomplish the goal?
- [3] Should every country, including developing countries, try to accomplish a quantified global goal?
- [4] How should the overall quantified global target for CO₂ emission reduction incorporated in the midterm goal be distributed to the government of each country as its own quantified target?
- [5] How should the individual quantified targets be distributed as CO₂ emission allowances to each energy user in each country? If it is done through bidding, how can we prevent speculative money coming in?
- [6] If there is a country that does not accept the concept of a quantified target, what countermeasures are available?

Opinions included in the following are my personal views that have nothing to do with those of the Japanese government or my organization, the Japan Economic Foundation.

1. Global Quantified Goal

At the Heiligendamm Summit last June, the G-8 leaders agreed to consider seriously the decisions made by the EU, Canada and Japan that included at least

a halving of global emissions by 2050. What does this mean actually?

To make our discussions simple, let's focus on CO₂, rather than greenhouse gases as a whole.

In 2005, the entire world emitted around 27.1 billion tons of CO₂. Therefore "halving" means that the CO₂ emissions of the world altogether must be less than 13.55 billion tons by 2050, although the Heiligendamm Summit did not specify the base year.

Let's assume that a cut to 13.55 billion tons by 2050 is our long-term global goal. Then we have to decide a midterm global goal which will have an immediate influence on our lives. This midterm goal is the very goal to be realized globally.

Of course such a global goal in 2025, for example, should be consistent with the goal of 2050. If we draw a straight line between 27.1 billion tons in 2005 and 13.55 billion tons in 2050, we can get the target amount of 21.1 billion tons in 2025. This is a 22% cut from the 2005 level. Drawing a straight line does not necessarily mean that the quantity of CO₂ emissions each year until 2025 should be exactly on the line.

2. How Should We Accomplish the Goal?

In the first place, let's examine what will happen if we don't take any actions to reduce CO₂ emissions.

If we assume that OECD countries' real GDP will grow by 2% annually and that of non-OECD countries by 5% until 2050, the former will become 2.4 times the real GDP of 2005 and the latter 9 times. If there are no changes of relative relations between real GDP and CO₂ emissions for the next 40-plus years, CO₂ emissions will also increase at the same rate as real GDP, thereby making global CO₂ emissions 5.9 times larger than those of 2005 in 2050. Accord-

ing to the global goal in 2050, this ratio should be 0.5 instead of 5.9. Can we reduce this ratio to 0.5?

One way to try to do so is for the world to reduce CO₂ emissions per GDP. For example, Japan's CO₂ emission per GDP was 1/2.1 of other OECD countries' average and 1/6.9 of non-OECD countries' average. Therefore, if OECD countries other than Japan and non-OECD countries can introduce Japan's patterns of energy-saving technologies, industrial structures and lifestyles, CO₂ emissions in the world in 2050 will be 1.25 times those in 2005 as compared to 5.9 times mentioned above. However, this is still larger than the 0.5 times in the goal.

Economic growth rates mentioned above are the lowest ones we can live with. We cannot afford to lower the growth rate to approach the goal. If we succeed in developing really revolutionary technologies to reduce CO₂ emissions, the goal can be attained. This is most desirable. However, this cannot be guaranteed. That is why we should establish a global goal and individual quantified targets for CO₂ reductions to ensure the achievement of the goal.

3. Quantified Target for Every Country

The amount of 21.1 billion tons in 2025 incorporated in the midterm global goal should be registered with the UN, which will distribute this amount to each country by dividing it as a quantified target for CO₂ emission allowance.

What is important is that every country accepts the quantified target as the upper limit on each country's CO₂ emission regardless of a country being developed or developing. **JS**

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