Sustainable Commitment to Act

By Kazumasa Kusaka

The annual sustainable development ministerial meeting COP19 this year in Poland ended by keeping issues in play for the Peru meeting in 2014, on the way hopefully to producing a new agreement in France in 2015, with some frustration and cool observations on the outcome reflecting current realities.

In Warsaw, Japanese Environment Minister Nobuteru Ishihara reported that Japan itself had easily achieved its Kyoto Protocol first-period target of minus 6% by achieving minus 8.3%, regardless of unintended fossil-fuel burning at power plants due to the Fukushima crisis. This reminded me of the Marrakesh COP7 agreement on finalizing how to implement the Kyoto Protocol which I negotiated through COP6, COP6-bis and COP7. Then the target had been perceived as Herculean, as actual emissions had increased by 10% since the 1990 base year, meaning a net 16% reduction for Japan.

So what had happened since then? Increased energy efficiency alone did not deliver this result. The dominant factor was unfortunately the long-term slowdown of the Japanese economy, followed by the global financial crises.

Generally speaking, economic expansion, energy consumption and CO_2 emissions are linearly correlated. The influencing factors are, first, the energy intensity of the economy, which industrial structural composition or efficiency improvements can change, and second, the CO_2-intensity of energy. In the beginning, the headache had been with anticipated economic growth and how we could decouple CO_2 emission growth, but what we saw was higher CO_2-intensity of energy and the private sector's achievement of top-level energy efficiency.

However, the Japanese track record of emissions is not a decrease but a slight increase. We deduct absorption by forest sinks to calculate net emissions. More importantly in the context of global warming, through the so-called "Kyoto Mechanisms" which encourage emission reductions in developing countries and the trading of surplus emission rights Japan met its target, including through its efforts in other countries.

In this last point is the essence of global warming.

In order to achieve a Copenhagen accord for 2020, the marginal reduction cost of CO_2 per CO_2-ton is estimated at around $100 in the United States or the European Union, and less than $10 in China. Should Japan try to meet its previous target before Fukushima, the cost would be over $400. Under the Kyoto Protocol, the contribution each country makes is not only in domestic emission reductions, which is of course morally correct, but also in global reductions based on the economics of where they can reduce most cost effectively. Naturally Japan, with its leading energy efficiency and only a 4% global share of emissions, could better contribute by sharing its state-of-the-art technology in areas such as steel and cement, or by supplying green consumer electric appliances and automobiles.

The philosophy of the Clean Development Mechanism, defined in the Kyoto Protocol, is to help developing countries' capacity to tackle the environment through technology, finance and human resources. Here exists the interface between the environment and economic growth. "Sustainable development" has different meanings. For mature developed economies, it spells *sustainable* development, with the focus on the environment; for developing economies, it means sustainable *development*, with the emphasis on economic growth.

The challenge of meeting economic growth and other policy objectives, especially environmental ones, simultaneously has been shared among the energy policy community since the late 1990s – known as the "3Es": energy security, economic growth and environment. The key to solving this trade-off lies in technological innovation. Like the switch from coal to gas in the 1990s in Europe, the shale revolution in North America can lower the cost of CO_2 reductions and politically bring the US back to a leadership role in this effort. And this development will give us breathing space for new technologies such as renewables, batteries, hydrogen, and fuel-cell-triple-combined cycle power plants to become commercial.

However, ways must be found of utilizing technological innovation during this time. I can say that lead time is needed for R&D success, based on my own experience of organizing a solar and other renewable R&D national project called the "Sunshine Project" in the 1970s. It took 35 years for renewables to become a part of energy supply. Technological success is only a halfway house: the products embodying these breakthrough green technologies have to be chosen in the market. Otherwise no CO_2 reductions will be observed. Then dissemination takes time because of stock turnover, in the case of automobiles 10 years and much longer for buildings. Locating large power plants and replacing old ones also takes time.

What does this mean? In the world of energy or the environment, 10 years can safely be called a "short period". By contrast, international agreements on CO_2 reductions tend to have a target year 10 years ahead. As discussed, we can only partially influence emissions over 10 years, and promising but difficult R&D could be removed from national plans because that technology might not meet the deadline.

International frameworks and national programs are required to encourage technological innovation and its dissemination. Because both markets and politics can be impatient and short-sighted, it is important to reduce uncertainty with long-term plans in order to mobilize resources from the private sector, as well as from governments. A long-term plan with interim reviews can accommodate real innovation in technology as well as in social systems. Efforts to cope with global warming need to be long and sustainable. Using the metaphor of a marathon for these efforts, we are still running around the 5-kilometer point with an uphill stretch awaiting. We have to condition ourselves to run by considering our strength and resources in order to reach the "runner's high" feeling that will lead us to enjoy seeking out a higher and sustainable performance. The biggest risk is that our efforts, if not well designed, may not be supported sustainably from economic, social and political perspectives.

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