Ratification of the Kyoto Protocol and Japan's Response Measures Reducing People's Burdens by Virtue of the Kyoto Mechanism

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(Abstract)

Progress is being made, based on an agreement among the world's principal countries, now in the tenth year following the global summit held in 1992, toward ratification of the Kyoto Protocol within 2002.Japan ratified the Kyoto Protocol in June in 2002. Discussed and proposed here are options for minimizing the costs of protecting the environment that must be borne by either the citizens of Japan or the country's industries using Kyoto Mechanisms through which Japan will be able to achieve the targeted reduction set forth in the Kyoto Protocol by the year 2010.

1. From COP3 to COP7, and to Ratify the Kyoto Protocol

After four years have passed since the Third Conference of Parties (COP3) to the Framework Convention on Climate Change held December 1997 in Kyoto, where the Kyoto Protocol adopted, COP7 was organized in Malakesh, Morocco, from late October through early November 2001. Between COP3 and COP7 specific rules of how to operate the Kyoto Protocol have been discussed. The Kyoto Protocol, which is an international treaty, deals with an issue hard to be solved above all among global environmental problems due to conflicts of interests among countries/areas and because of its time-consuming nature with a millennium as a basic unit. It provides which direction commitments should head for to tackling such an intricate environmental problem. Since the second half of the 1980s a challenge of how to deal with global warming, a formidable threat to human beings, has come on the international stage. Entering the 1990s, the Intergovernmental Panel on Climate Change (IPCC) of the United Nations clarified scientific grounds for warming. Yet, unlike the popular perception that FCC is responsible for destruction of the ozone layer, the notion that carbon dioxide (CO_2) resulting from huge fossil fuel consumption since the Industrial Revolution is the principal cause of warming is not necessarily shared as an agreed clear-cut recognition in the international community. While the U.S. send many scientists to the IPCC and raised warming in serious argument first in the world, it is their doubts about scientific justification of warming that made Americans express a breakaway from the Kyoto Protocol in March 2001. In addition, the U.S. faces a reality that, due to formidable economic burdens, industry is not necessary convinced of

any efforts (production curtailments, energy conservation, fuel switching, etc.) to reduce emissions of GHGs (greenhouse gases), typically CO_2. By the way, about 80% of GHG emissions from industrialized countries consist of CO_2, of which some 90% results from energy consumption.

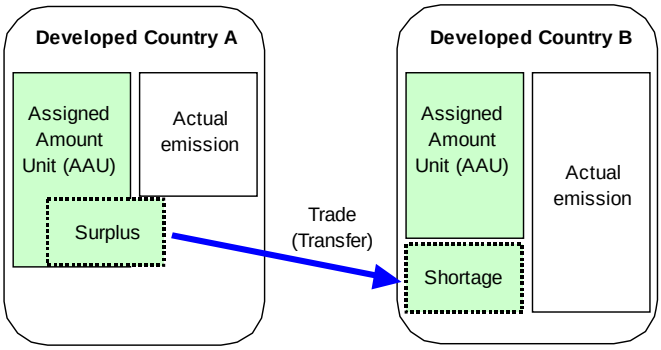
Under an accord among principal countries, progress is being made toward getting the Kyoto Protocol ratified before the first Earth Summit in the 21st century slated for September 2002, a decade after the 1992 Earth Summit. Namely, following the EU, Japan finally ratified it in June 2002. What's about ratification by Russia, among others, and when will the Kyoto Protocol take effect after all? Though these are very important questions, this paper does not discuss them. Rather, a serious problem is that the Diet ratified the Kyoto Protocol without getting the general public fully aware of weight of its ratification and the magnitude of resultant economic burdens. Mass media do not take up either how difficult the Kyoto target attainment is. Particularly problematic is Japan's policy to achieve the Kyoto target virtually with domestic actions alone.

2. Kyoto Mechanism to Be in Use

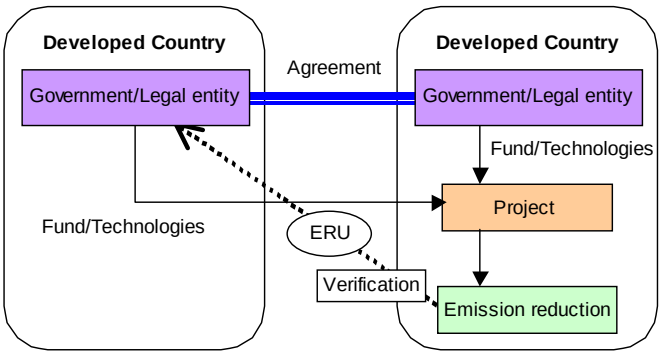
This paper examines how the Kyoto Mechanism can help Japan minimize the environmental costs that the general public and/or industry have to bear in attaining the Kyoto target by 2010, then proposes options (see References 1 & 2 for the Kyoto Mechanism and the significance of COP7).

Reference 1 Tree Tools for the Kyoto Mechanism

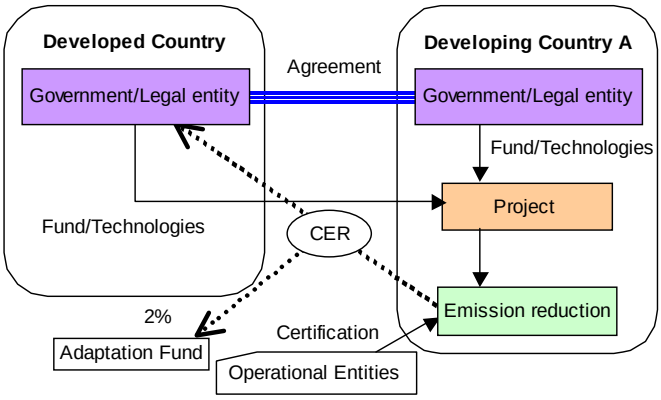
1. Emissions Trading



2. Joint Implementation (JI)



3. Clean Development Mechanism (CDM)



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Reference 2 The Agreements in Marrakech, the Rules for Managing the Kyoto Mechanism and Japan's Response

The Marrakech Accords
(COP7, November 2001)

Adoption of documents legalizing the basic agreement, the Bonn Agreement, relevant to the central components of the Kyoto Protocol = Finalization of Application Rules in relation to the implementation of the Kyoto Protocol

Accelerated parties' ratification likely
(Aiming to make it effective by the WSSD meeting, August 2002.)

Relevant to the Kyoto Mechanisms

Kyoto Mechanism is supplementary to domestic measures, but without quantitative limitation
Through registration with government, legal entities can participate in trading
Emission credits are interchangeable, and can be traded freely between advanced countries
JI and CDM are valid for projects undertaken in, and after, 2000
Established rules prioritizing introduction of small-scale CDM
Supplemental funding virtually unquestioned

Global Warming Prevention Headquarters' Decision
(November 12, 2001)

"Following the finalization of a document stipulating the details of the implementation of the Kyoto Protocol at the recent meeting of the Seventh Session of the Conference of the Parties to the Framework Convention on Climate Change (COP7)..."

1. Japan will begin full-scale preparations for ratification of the Kyoto Protocol in 2002, by promoting the following measures:
   i. Reviewing the current Outline for Global Warming Prevention to attain the Kyoto Protocol objectives.
   ii. Implementing full-scale preparations for the next ordinary session of the Diet toward approval of ratification of the Kyoto Protocol and the adjustment or establishment of domestic structures, so that ratification can be achieved.

2. In order that the objectives of the Kyoto Protocol are attained, it is vital that every person in Japan changes his or her lifestyle to prevent global warming. These socio-economic reforms should progress through technological innovations. The concerted efforts of both the government and the people of Japan will be necessary and the understanding and action of each person is required.
   In promoting measures for preventing global warming, we will aim to adjust or establish such domestic structures that contribute to both the environment and the economy, leading also to the economic vitalization of Japan, utilizing ideas and creativity from the economic sector.
3. In order to ensure the effectiveness of measures for preventing global warming, it is vital that all countries endeavor to reduce their greenhouse gas emissions. Japan will continue its maximum efforts in seeking a constructive response from the United States, and in formulating international rules with the participation of developing countries.

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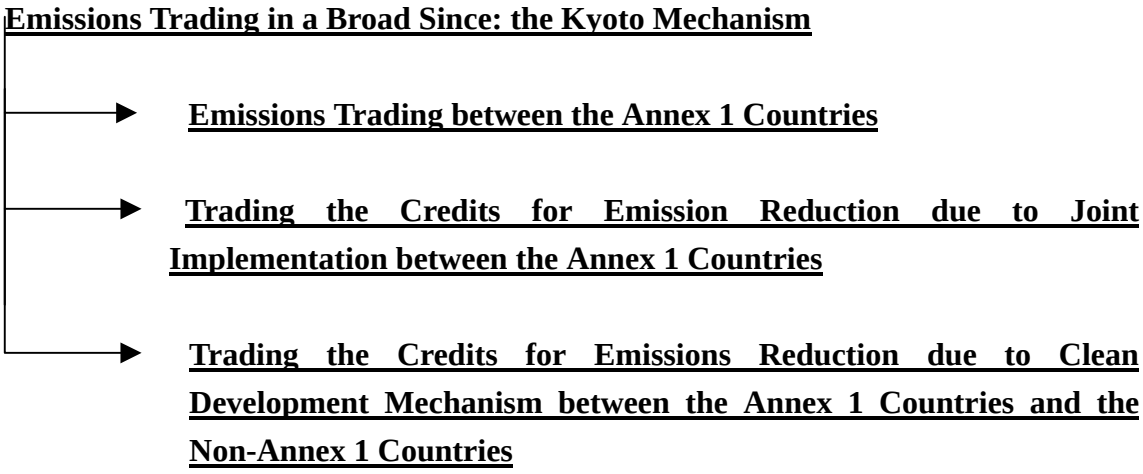
3. Latest Long-term Energy Supply and Demand Outlook and Cost of the Kyoto Protocol

In June 2001, the Advisory Committee for Resources and Energy, an advisory body to the Minister of Economy, Industry and Trade, produced a report entitled "On New Energy Policy," which was approved at a Cabinet meeting in July. The core of the report consists of the latest "long-term energy supply and demand outlook," which unveils a scenario that the Kyoto target shall be attained fully in energy areas with domestic actions alone. The outlook, which mirrors the General Rules on Global Warming Abatement, is a model answer made by a top student. It describes a plan to curb energy-stemming CO_2 emissions in 2010 flat at 1990 levels. To that end, the outlook assumes that energy conservation, new energy introduction and fuel switching all would favorably be under way to an unrealistic extent. According to the author's estimate, this plan involves such a staggering cost as reaching ¥700 billion a year, that is, a total of ¥3,500 billion in five years, a unit of the commitment period (2008 – 2012). It represents about ¥30,000 per capita. A four-member family is urged to bear ¥120,000. Some may argue that conservation of global environment is so important that cost burdens of that size can be justified. Wait a minute. There is an option that enables Japan to achieve the Kyoto target without involving that much cost burdens. It is the Kyoto Mechanism. The Kyoto Mechanism is a sort of cross-border measure akin to importing cheap overseas coals instead of using expensive domestic coals. Whichever domestic or overseas coals are in use, utility of coals remains virtually unchanged. Likewise, from global perspectives, where CO_2 and other GHGs are trimmed makes no differences in resultant GHG-reducing effects on warming abatement. The Kyoto Mechanism allows a country to reduce GHGs in low-reduction-cost areas, import resultant emissions reduction credits or permits, and use so-imported credits in meeting part of its Kyoto target. In short, the Kyoto Mechanism can be taken as emissions trading in a broad sense (see Reference 3).

Reference 3 Global Trading of Emission Permits



3. Cross-border Response to Be Taken to Alleviate People's Cost Burdens

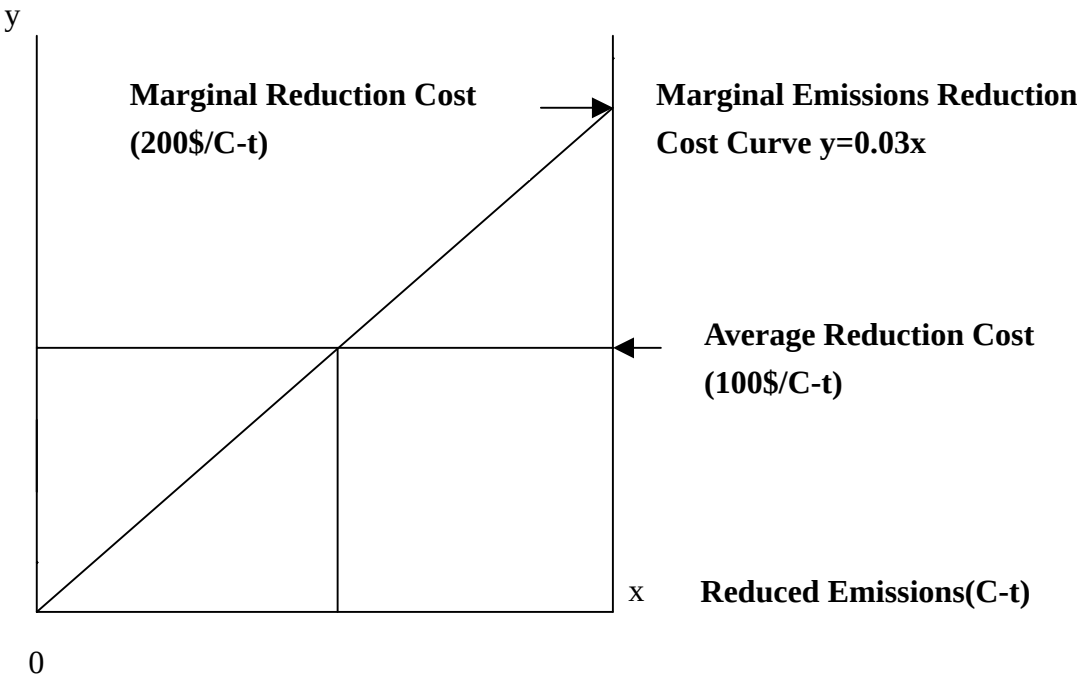
The question is to what extent the use of the Kyoto Mechanism should be allowed in achieving a Kyoto target. The agreed rules of the Kyoto Mechanism management before COP7 removed quantitative limits, but qualitative restriction by the term of "supplementarity" embedded in the Kyoto Protocol does not disappear yet. To begin with, there is a question, or what does it mean to achieve a target. The ultimate target is to make a gap nil between a BUA (business-as-usual) case and a given target as of 2010. But, a gap to be made nil from a given target depends on how a BUA case is set. If CO_2 emissions would increase 1%/year over 1990 levels in 2000-2010 (as actually did in 1990-2000) in the BUA case, CO_2 emissions in 2010 should be 20% larger than in 1990. Then, to achieve a target means to make the 20% larger CO_2 emissions (57.40 million tons carbon equivalent) than in 1990 flat at 1990 levels, or to cut CO_2 emissions by 57.40 MT-C in specific terms. Assuming that her marginal reduction cost is $200/T-C and that her marginal reduction cost curve is linear, Japan's reduction cost should average $100/T-C. Accordingly, Japan's total reduction cost can be expressed as $100 X 57.40 MT-C = $5,704 million, or approx. ¥700 billion if $1 = ¥120. This is the magnitude of the annual cost that the Kyoto Protocol imposes on Japan's energy areas in achieving the target.

The price for emissions permits is hardly predictable. But, if the U.S. won't back to the Kyoto Protocol, the emissions trading market would lack otherwise the largest buyer of emissions permits, thus undermining Russians' expectations for making emissions trading a seller's market. Without the U.S., a strong likelihood is that Japan would be the largest importer of emissions permits. Accordingly, in order to prevent

Russia from becoming a monopolistic supplier, Japan needs to diversify supply sources of reduction credits accrued from CDM-based technology transfer and investments in such developing countries as China and India. Albeit their official calls for restricting emissions trading, the EU members too can be allured at heart by the idea of achieving their targets by buying cheap emissions permits. Including the U.K., a series of European governments have dared to introduce domestic emissions trading system, thus going much ahead of Japan.

Despite qualitative restriction by "supplementarity" in the Kyoto Protocol, the Dutch government hammered out a policy to achieve 50% of its Kyoto target by virtue of the Kyoto Mechanism (emissions trading in a broad sense), which can be a noteworthy yardstick. Certainly within 50% can be counted as supplemental. Japan sticks to domestic actions to achieve nearly 100% of the target, with only 1.8% to be attained through the Kyoto Mechanism, which sounds absurd. It will be wiser for Japan to take an idea of achieving around 50% of the target by importing emissions permits. Of course, effect of imports varies depending on the market price for emissions permits. Assuming the import price for emissions permits at $25/T-C, and if Japan intended to achieve 100% of the target by importing emissions permits, the cost would be ¥175 billion, one fourths of ¥700 billion incurring in domestic actions that cost around $100/T-C on average. That is, Japan could save as much as ¥525 billion a year. Even in the Dutch style of 50%, the cost would be ¥350 billion + ¥87.5 billion = ¥437.5 billion, with ¥262.5 billion saved. If the emissions permits are priced double at $50/T-C, savings by importing emissions permits should be halved from the $25 case. If priced quadruple at $100/T-C, savings should shrink to one fourths. Even assumed high at $100/T-C, if achieving 50% of the target by importing emissions permits, the cost would be $100 X 28.70 MT-C X 50%, which allows savings of ¥175 billion (see Reference 4).

Reference 4　Expenses to Reduce CO2 in Japan (Author's estimates)



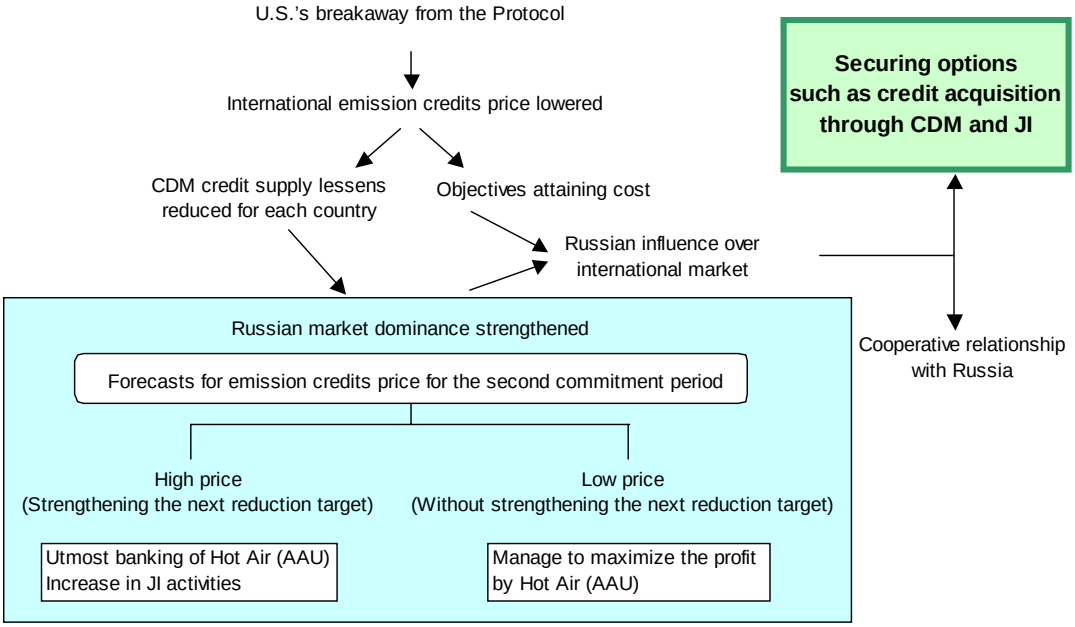
Originally emissions trading should be free from any restriction. If there was the only one company of energy industry in the world, the company should have never tried reductions in a high-cost area, like Japan, but started such efforts in low-cost areas first. The Kyoto Protocol is a product of political compromise. The emissions trading system, designed for economically rational attainment of the politically agreed Kyoto targets by applying market principles on a global scale, should never be restricted. Wherever reduced, GHG reducing-effect (utility) remains the same from global perspectives, which explains why the emissions trading system can be a viable mechanism.

What's essential is that private firms should be the economic units of emissions trading. Trading by national governments, even if tried, can lack economic rationality. To let private firms act as the economic units requires incentives that benefit would-be participants in emissions trading. Yet, what's required is not profits-making simply from trading or transactions but a mechanism driven by invisible hands to facilitate reductions at a minimum cost, that is, a market mechanism-based system that can minimize the cost of environmental measures and yet afford an achievement. There is a scheme to establish Japan's domestic emissions trading market by allocating emissions permits among firms by setting some standards, but such a plan can deprive firms of their vitality. Among others, some advocate the government to buy emissions

permits obtained abroad by private firms in an effort to achieve Japan's target. The problem is how to raise necessary funds. Namely, this idea can easily lead to fund raising by such instruments as environmental taxation. In regard to allocation of emissions permits among firms, a possible mechanism is to leave it to discretion of a private organization so that brisk inter-company trading can be stimulated.

The U.S. breakaway from the Kyoto Protocol leaves Japan in a very difficult situation as illustrated in Reference 5. The author hopes readers to consider how Japan should respond to the present situation while referring to Reference 5.

Reference 5 Scenarios of the Markets for the Emissions Trading without the USA



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