Joint Japan-U.S.A. Study Group on Mutual Supportiveness
Of the Environmental Protection and the Economic Growth

On the Institutional Aspects of the Flexibility Mechanisms

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As a means of achieving the newly established emission reduction quota for Annex B countries set by the Kyoto protocol, flexibility mechanisms in the When, What and Where of emissions reductions was introduced. Below, this paper will focus on the "Where" aspect.[1]

1. Emission Trading

1. Draft Article 6.

In the very last stages of the Kyoto meetings, the emission trading part of the proposal, made up of 6 paragraphs, was located in Article 6. However, in the final version it was removed and replaced with a simple expression making up the contents of Article 17. This means that several important principles of the treaty were carried over for future COPs. (for comparison of draft article 6 and article 17 of the final version, please refer to Attachment 1). Specifically, the items below were removed:

1. The participation of legal entities in trading, present in the original proposal.
2. The Article relating to countries not complying with emission quotas (i.e. they can purchase but cannot transfer).
3. When doubts occur regarding the obligations relating to Articles 2, 3,5, and 8, in the protocol, buying and selling of the emission rights would be permissible, but in order to protect the treaty obligations, the emission rights so bought/traded could not be used until the doubts were resolved.

Owing to the diversity of opinions on the above points, they were deleted from the protocol without agreement being reached, and the items were entrusted to future COP(s). Accordingly, they will be major issues at a later date.

2. Main Points.

Having confirmed the GHGs emission trading quota for the Annex B countries, there is no argument that Emission Trading (ET) would be the most efficient method to ensure that the obligations are respected. Naturally, the countries with the highest marginal emission abatement costs will gain the most. As an example, please refer to the results of the attached SG Model. (Attachment 2).

The problem is whether ET will really be effective in preserving the environment, or even whether it really works as the theory predicts. Issues regarding this are: Hot Air, interpretation of "supplementarity", the buyer/seller liability relating to the seller failing to meet its obligations, market distortions, transparency relating to transactions themselves and related information, monitoring, and the future participation of developing countries. Of these issues, the differences on Hot Air and Supplementarity existing between the EU and the Umbrella group were clarified at June's Supplementary Committee meetings (SBSTA, SBI).

3. Emission trading and environmental preservation (Hot Air Issue)

[1] Needless to say, the Sink is also a subject. However, only reduction of emission will be focused in this paper.

The aim of ET is to enable the Annex B countries to meet their reduction obligations as efficiently as possible. One of the most hotly debated topics regarding this aim is that of Hot Air. Looking at Russia, which is recognized as being the biggest emission trading rights seller in the phase one budget period; the GHGs emissions of 1994 compared tothe base year (1990) showed a 30% reduction.(According to Russia's 2nd report to the Protocol Secretariat). In other words, due to the depressed economy, without any special efforts, GHG reductions were achieved. If we suppose that the situation in Russia continues thus, and that no emission trading for the portion accrued from the Hot Air will be allowed, each country will have to comply utilizing every possible domestic measure, and for Russia, whose commitment is just to maintain same level of GHGs emissions as in 1990, the emissions equal to the "Hot Air" portion would be reduced. In this case "Hot Air" portion would be reduced in addition to reductions made by Annex B countries. On the other hand, if an ET mechanism is introduced, countries will probably purchase Russia's Hot Air portion to observe their own obligations, and Russia's emissions will be reduced just equal to the sold hot air portion. This will result in the fact that the total reduction amount of the Annex B Parties will be smaller by the sold Hot Air portion in comparison to the case where the Hot Air Emission Trading is not allowed.. From this standpoint, EU's assertion is not to approve sales of Hot Air, but only to approve Emission Trading for the portion reduced by each countries own effort.

The first refutation to the above is the problem that the measurement of the Hot Air portion is practically impossible from the technical point of view. The assertion is that to separate the amount reduced by one's own efforts and the amount naturally reduced by the stagnation of the economy is not possible now. In addition, it was agreed at the Kyoto Protocol that by observance of the reduction obligation in comparison with 1990 (duty to control the increase of emissions within obligation limits for each country), at least a 5% reduction on average throughout Annex B Parties can be promoted. At this point, the Hot Air problem should be considered as settled. (Even when Russia sells the Hot Air portion, the Annex B Parties as a whole will achieve a 5% reduction).

In relation to the points above, there is discussion as to whether Hot Air exists or not. According to the papers published by the Russian Government at the Subsidiary Bodies Meetings in June of 1998, unless special countermeasures are taken, the emission amount in the first budget period from the year 2008, will exceed the year 1990 level[2]. Although there is the problem that one cannot trust these figures, uncertainties caused by the above Russian papers on the Hot Air problem could make the "Hot Air" issue meaningless.

With regards to the effect it has on environmental preservation, there is an argument over the liabilities of the seller/buyer when the seller of emission rights do not observe its

[2] "Draft proposal to national strategy, Study on Russian National Strategy of GHG Emission Reduction", a paper presented by the Russian Government in Bonn in June, 1998 during Subsidiary Bodies Meetings.

obligations, but this point will be addressed later in the paper.

4. Supplementarity

There was a conflict of views on this subject at the Subsidiary Bodies Meetings in June this year. In Article 17 of the Protocol, it is stated that the Emission Trading "shall be supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments—", however "Supplementarity" is not defined. At the Subsidiary Bodies Meeting described earlier, EU asserted that there should be a cap for ET to be utilized to fulfill Annex B countries' commitment for GHGs reduction, but was opposed by other Parties including Japan and the USA. In the background, there is the assertion made by NGOs that the reduction by their own countries should be a priority, however as a result, the following assertion made by developing nations were taken into consideration. The developing nations were against Emission Trading in the first place on the grounds of "common but differentiated responsibilities". According to this, a large portion of the responsibility of global warming belongs to the developed nations; thus, they must bleed themselves to put a brake to it. To be exempted from the obligation on the Protocol by money (buying of emission rights) is impermissible; anyhow, it is a moral issue.

The assertion made by the developing nations can be understood, and does not conflict with the point that developed nations should initially put its effort in reducing emissions in their own country. However, Emission Trading was introduced to make the target easier to achieve, or to set a superior reduction target. To set a cap on Emission Trading will not only increase the cost of emission reduction on a worldwide scale. It will also make it difficult for the Annex B Parties to observe their reduction obligations, and endanger the reliability of the Protocol.

Moreover, once the EU's efforts to have the EU Bubble adopted is approved, it will have already enjoyed the same effects as though Emission Trading had been put into effect (without compensation) at the initial stage of the First Budget Period. Therefore, we cannot take the EU's argument for a cap as it is.

From the above points, the Annex B Parties should initially assume that efforts to reduce GHGs within their respective countries, along with their best effort for complying with their reduction obligations domestically, should be the highest priority. The setting of a cap on Emission Trading is, however, not favorable from the standpoint discussed above.

Incidentally, in the case of Japan, the GHGs emission amount on a BAU (Business As Usual) basis in the first budget period is anticipated to increase by 25% compared to the year 1990. The purchases of emission rights anticipated by the Japanese Government at this moment is less than 2%. Thus, as far as Japan is concerned, the cap issue does not have a realistic meaning. I presume that this point will basically be the same with other countries.

5. Seller/Buyer Liability

The problem with the value of the traded emission right will be when the selling country of the emission right cannot observe its obligation which will possibly be a source of confrontation on a large scale in the future. To put it in a more concrete way, the possibility that either the value of the emission right purchased by the buyer would remain unchanged or become valueless is the problem in this case. In the prior case, since it is the sellers responsibility to observe its obligations, the emission right owned by the buyer should not be effected in anyway. This is generally called the Seller Liability. In contradiction, the value of the purchased emission right should be worthless (or devalued in accordance with the degree of the obligation not met), since it is the buyer's fault to purchase from an untrustworthy seller. This generally called the Buyer Liability. In this case the price of the emission right will be devalued according the degree of the seller's credibility (the value of the same 1 ton of emission rights can be different depending on which country it came from).

The biggest advantage obtained from the Seller Liability theory is that from the buyer's point of view, they can purchase the emission right with confidence, thus making the transaction smooth. In contradiction, the biggest disadvantage would be the existence of the risk of the total amount of emission of the buyer and seller exceeding the assigned amount. This result would be to undermine the Kyoto Protocol.

On the other hand, the biggest advantage of the Buyer Liability Theory is that the seller will put its utmost effort to observe its obligations to enhance the value of its own emission right. This, therefore, will reduce the risk of exceeding the amount of emission as a whole. However, the disadvantage would be that there is a possibility of the emission right becoming worthless, thus decreasing Emission Trading.

From the above, it seems that the Buyer Liability would be a superior choice for Environmental Preservation. However, it is essential to note that the Kyoto Protocol was agreed upon the assumption that the Emission Trading would fully take place. Supposing that the Buyer Liability theory is adopted, there is a strong possibility of the emission rights being inactive. This will result in an increase of countries not being able to observe their reduction obligations, and furthermore, the amount of emissions could possibly be higher than if the Seller Liability theory is adopted. In any case, in order to avoid this, all aspects of the transactions must be opened to the public periodically during the first budget period. This must be followed by the frequent monitoring of the emission status of the selling country, and the cost of this must be taken into consideration. There are several compromise plans to this. If it is made a Buyer Liability, not all of the value of the emission right will be devalued (i.e. to invalidate from the newer transactions). If it is made a Seller Liability, up until a certain point, and when doubt becomes apparent on the Seller's obligations regarding reduction of emissions, the responsibility will be that of the Buyer, and so forth.

Changing the subject from Emission Trading, the Annex B Parties have full responsibility to observe its obligations. If in any case the obligations are not complied with, the procedures and mechanisms of the non-compliance are to be determined eventually (Article 18). Supposing that the seller cannot comply with its obligations because of the

sales of the emission rights, this rule applies. In this case, if the penalty of non-compliance is severe enough, there is no need to introduce a new penalty for non-compliance with the obligations.
By judging from the overall point of view, it should be the Seller Liability.

6. The Establishment of an Efficient Market (Coping with market power)

1) Market Players

In order for the market to function effectively, it is better to have as many players as possible in the market. Furthermore, since the price of tradable permits of GHGs are decided by the marginal abatement cost, the participation of private enterprises which knows the cost the best is essential in making the price of the emission right appropriate (NGOs should also be allowed to participate). However, since the emission right is assigned to a country, it is required that the information of the transaction be registered to its government each time.

In regards to this point, the provisions in Article 6, Paragraph 2 in the original draft of the Protocol should be brought to attention. As mentioned in the beginning, it is evident that the participation of private enterprises was accepted. Furthermore, the provision of Joint Implementation among the Annex B Parties recognizes the participation of enterprises (legal entities) at the decision and the responsibility of each country. Although, this is only natural since credit will be accrued based on approved projects to reduce GHGs emission (Article 6, Paragraph 3). There is no reason why the same transaction cannot be made through non-project-based Emission Trading.

There are other reasons to allow the direct participation of enterprises. Even without referring to the example of USA's SO2 tradable permit scheme under the Title **IV** of the Clean Air Act Amendment, it is obvious that the market of GHGs Emission Trading will eventually mature, and one can predict that a variety of Futures, Swap, and Options Products will be available. The enterprises will make the most suitable decision based on the assumption of the merchandising of these products, but we cannot expect such actions if the player is limited only to countries. From this standpoint, the participation of enterprises should be allowed. (Details on this subject will be addressed later in the report.)

There are several points to be watched with regards to recognizing the participation of enterprises or NGOs. First is the case when the transaction is done by a multinational enterprise (or a multinational NGO). In the case where they make transactions for various purposes including speculation purposes, it can be practiced as the enterprise's (NGO's) global strategy, and often may not be a domestic strategy. In this case, a rule must be set in advance to describe the possession of the emission rights they have transacted (i.e. summing up at the location of the Head Office, to entrust distribution to them, etc.)

Second, in countries where domestic allocation to enterprises does not take place, there would be a problem relating to these enterprises' international transactions. It may

sound that this discussion is far ahead at this time, since neither the ratification nor the effectuation of the Kyoto Protocol has been put into any shape. However, if it is ratified, from the experience of the SO_2 tradable permit case in the USA, it is predicted that the "cap and trade" method will be adopted. The Japanese response to this is undecided at this moment, however, the (Japanese) industrial world, under the leadership of the Japan Federation of Economic Organizations (Keidanren), is implementing a voluntary action plan for GHGs emission reduction. It is highly possible that the decision on whether or not the distribution will be made will depend on the results from the plan. Putting aside whether Japan will take action or not, there will be countries which will not distribute domestically. For the enterprises (NGOs) in these countries, the upper limit of transferable emission rights should be decided by the amount purchased from abroad plus the amount obtained from Joint Implementation and CDM. If domestic distribution take place, there is a need to strictly monitor that the observance of the obligations is not undermined as a result of the enterprises' excess sales. Moreover, in reality, to distribute a country's total emissions to domestic parties is difficult (Unless it is distributed among the upper streams, or distributed to all of the parties concerned, including the household and the transportation sector, this is not realistic, however). Even if the distribution of emission rights to the enterprises is approved, the remaining portion of the emission right must be reduced by other means (taxation, command and control, etc.). In this case, the transfer of emission rights by the enterprises must be done by keeping an eye on the situation of the other parties involved.

2) Coping with International Market Powers

In relation with Asia's currency and economic crisis since July of last year, the thriving discussion on pressure by international market powers is still fresh in our minds. It might be too early to worry about it at this stage, when GHGs' emission trade has not begun, however, taking USA's SO_2 emission trade into account, we must think of some kind of a brake at this time.

Looking back at the emission trading of SO_2 in the USA, private trading was as little as 100,000 tons/200,000 tons in 1993/1994 respectively. The amount increased in the 3rd year to 1.5 million tons, then to 4.9 million tons and 5.1 million tons in the next two years. From its extremely high prices initially, the price has now settled at a little over 100 dollars per ton ("Emission Trading under the U.S. Acid Rain Program", MIT Center for Energy and Environmental Policy Research, Oct. 1997). When we visited the United States as a research group of the Ministry of International Trade and Industry in March of this year, research on the SO_2 emission trading market was done. It seemed to us that the market has quite matured. Most products with the exception of Futures are lined up (in detail, Spot, Repo, Swap, Spread, and Option). Since Futures have already been approved by the authorities, it should be listed in the market as soon as the level of trading becomes appropriate. Brokers are active now in the trading, and speculations are being done as well. To simply describe this, it is now as much a financial product as stocks, bonds, and the currency exchange market. It is thought that the international trading of GHGs emission rights will mature eventually in the market. The price of emission rights of carbon per ton can only be guessed at this time. However, according

to the SGM model cited at the report by the U.S. Government in June of last year, the price is calculated at $23 if the former Soviet Union sells Hot Air, if not the price is calculated at $56.3 This price is simulated under perfect competition, in reality, it is thought the price will be higher than this . If we presume the price to be $100, the market should worth at about 15 billion dollars, a different scale by far compared to the 500 million-dollar market of SO_2. The scale of the market has also been simulated by OECD, the result of which was distributed at the conference of specialists of Annex I Parties in March of this year. According to the OECD, the emission trading amount between Annex B Parties in the year 2010 would be 410 million tons, and in terms of a monetary value, a little over 20 billion dollars (at $50 per ton). Putting the credibility of the calculations aside, we can predict from the above, that the market for the trading of GHGs would be large enough to be traded as equally as other financial products. As a result, various derivatives products like Futures and Options should eventually be available to the market.

The products above have been predicted based on the scale of the market, however from the enterprises decision-making standpoint, it is also necessary to have a variety of products lined up. The countermeasure of global warming on a global scale in the initial budget period is only the first stage. No one thinks that this alone can put a brake on global warming. It is predicted that the reduction rate in the second budget period should become more severe than the first budget period. In this situation, enterprises are pressed at all times to make decisions on whether or not to invest huge amounts to improve in energy efficiency, when to effect energy conversion, and the timing to do so. Moreover, these decisions must be made under uncertain circumstances. The term "uncertain circumstances" at this time means the speed of the global warming and the speed of technological innovation. If we suppose that technological knowledge advances faster, and the speed of global warming is slower than predicted (as actually happened between IPCC's first report and its second one), the price of the emission right should fall (and vice versa). Similarly, the timing of when the investment for global warming countermeasures should be taken depends on the degree and the speed of technological innovation. Under these uncertain circumstances, from the risk hedging standpoint, it is presumed better to have as many products like Futures and Options available as possible, naturally assuming that the market is functioning efficiently.

In order for the market to function efficiently, it is necessary to find methods to eliminate anti-competitive practice that damages the efficiency and causes distortion of the market. A typical model for artificial interference against the market would be activities by investors viewing the emission rights as a purely speculative financial product and contesting it on a large scale. Depending on the activities by speculators with abundant funds targeting the other country's government, the soundness of the emission trade market can be damaged. Several countermeasures can be taken. A country can regulate the market against foreign funds like that of some developing nations, however over

[3] "Economic Effects of Global Climate Change Policies, Results of the Interagency Analytical Team". U.S. Government, June, 1997.

regulating can result in damaging the efficiency of the market. Briefly, countermeasures like limiting the width of price movement within a day as in the stock market, and the global coordinated intervention by governments are the only ones that can be thought of at this moment. It is necessary to have the countermeasures discussed further with financial specialists included in the discussions.

The other element that distorts the market is the transactions that takes place between two countries on an unfair high (low) price by factors other than pricing. From the original purpose of the emission trading, this is misinterpreting the means for the end (*putting the cart before the horse*). Nevertheless, obliging the enterprise to release its price to the public is going too far (In the case of SO2 in the U.S., a suggested price is published based on the independent information of the Broker). The methods possible are probably to oblige the opening of the price to the public when the trading is done outside of the market by two(or more) governments. Or, when the seller is a country, to adopt an auction method. This should be an effective method if a player with a strong trading power in the market exists. It is necessary to discuss this further in detail.

7. The Issue of Late Participation by Developing Nations

Putting the emotional aspects aside, the participation of developing nations to the GHGs increase rate control (not reduction) scheme is inevitable. Through strong opposition mainly from China and India, the voluntary participation plan (to the scheme) by the developing nations at COP 3 did not become an actualization. The problem of the participation of developing nations should continue to be the biggest problem at the COP(s). The reasons are that the ratification by the U.S. heavily depends on whether or not the developing nations will make a commitment. And, that the developing nations cannot persist on putting the responsibility on developed nations, as, in the long run, the developing nations will be the one to be harmed the most by global warming. In the case where developing nations participate in the future, owing to the “common but different responsibility” principle, it will not be possible to leave the emission quantity quotas as they are at present; as we can imagine that development in the future will be taken into consideration when assigning emission targets. In detail, the reduction width will probably be decided by BAU as a standard. Looking calmly back at the present situation, the developing nations are only emphasizing the situation but are not profiting from it. The funds from the advanced nations are not being transferred as expected, moreover, no emission rights that are to be sold are being assigned. If they agree on an emission right assignation with room for future growth in mind, the sales of the right will create a new source of income for them. From this standpoint, it is most likely that at some point in time, developing nations will accept the assignation voluntarily and also possible that they will participate in trading. In this case, the global supply of emission rights will increase, and the price would fall. Therefore, the amount of reduction within Annex B Parties will fall, however, the global GHGs emissions including that of the developing nations will fall also.

The issue is on the method by which to come to an agreement on the level of BAU. It is possible that assertions made by the developing nations can confront directly the assertions made by the other nations. Moreover, it is quite difficult to offer an objective

calculation, taking the current economic situation in view. However, it is a priority to have the developing nations stand on the same ground. Based on the presumption made by objective organizations like UNCTAD (United Nations Conference on Trade and Development), the amount of emissions by BAU can be agreed upon on the assumption that the figures can be revised after a certain specified period. On top of that, the appropriate assignation of the emission reduction (from BAU) framework must be decided. Urgent research must be done on this, with standpoints from environmental preservation, fairness, and efficiency. This problem involves a lot of politics, and because of that, contribution from the academic society is strongly called for.

8. Relationship with World Trade Organization (WTO)

The WTO (World Trade Organization) deals with trade of products and services. Though it depends on the legal nature of emission rights, but if, as a result of non-compliance of transferring nations under the Kyoto Protocol, it leads to limiting the right of those countries' trade of emission rights (i.e. imposing a regulation on the next budget period), it will be necessary to solve the uniformity problem with provisions of WTO at an early stage. This is exactly the problem of MEA and trade measures, which the WTO's CTE (Committee on Trade and Environment) have been debating over but not finalized yet.

We have studied the emission rights trading system above. Other than that, themes like measures taken on violated obligations, and subjects relating to monitoring, remains. However, these will be discussed on a different occasion. Moreover, it is necessary to discuss domestic policies relating to international trading of emission rights. However, even though the importance of this is acknowledged, from the standpoint that it is a domestic problem, this subject has been omitted from this paper.

II. Clean Development Mechanism (CDM)

CDM (mainly Annex B Parties and other nations) and Joint Implementation (between Annex B Parties) are the other flexibility measures relating to "where". However, putting CDM into force is far more difficult than Joint Implementation. From this standpoint, we will study the CDM first. For the Annex B Parties, CDM is to assist them "in achieving compliance with their quantified emission limitation and reduction commitments". Furthermore, it aims to control the cost at the lowest level possible as in Emission Trading. For other nations, it is directed towards the construction of a base to transfer technology to their own country and to thereby control emissions . Even with these advantages to achieve the purposes, the contents of CDM described in the Protocol are by far too complicated and many portions were left undecided. It is not predictable how much of this will be utilized (workability). The swelling of the transaction costs (time element included) being the main reason for the uncertainty. From this standpoint, emphasis on controlling the transaction cost at low levels is the most important in designing the CDM mechanism.

1. Contents and Characteristics of CDM

The purpose of CDM is to assist Parties not included in Annex B (hereinafter, developing nations, or host countries) to put into force the emission reduction project with the cooperation from Annex B Parties[4]. It allows Annex B Parties to obtain credit, a portion of which should be agreed upon with host countries, by calculating the difference of GHGs between "baseline" emissions (i.e. BAU emissions) and "actual" emissions after the projects are enforced (Protocol Article 12). From the views of Annex B Parties, this can gain the same effect as purchasing the same amount of emission rights, however, there are various differences. They are: (Differences from Joint Implementation are included also)

- Reductions in emissions must be addition to any reduction that would occur in the absence of the certified project activity.
- Credit distributed to the Annex B Party will be added to the total amount of emission assignation of the Annex B Parties. (In case of joint implementation, since it is between parties in Annex B, the total amount emission remains unchanged.)
- It is accompanied by a technological transfer to a developing nation.
- Unlike Emission Trading of which allowances are distributed at the beginning of the period, a credit which an Annex B Party can obtain is based on the actual reduced emission after completion of project(s).
- The establishment of operational entities is needed to certify the above-stated credit. In addition, an executive board of an overall supervisory body is needed. (No regulation similar to this in joint implementation.)
- A share of the proceeds from certified project activities is used for administrative expense as well as to assist nations easily affected by the change in climate to meet their cost of adoption. (No obligation of this sort in joint implementation.)
- Under the Protocol, the certified reduced amount (portion obtained by Annex B Parties) between the year 2000 and 2007 (prior years to the start of the first budget period) may be counted as the reduction of the first budget period. (no such wordings for joint implementation)

CDM increases the total emissions of Annex B parties as stated above, which makes its procedures extremely complicated. In addition to this, the negotiation on how to split the certified reduced emission between the Annex B Parties and the developing nations remain. On the other hand, advantages in this system like direct investment and technology transfers to developing nations, and the growth of GHGs emission reduction by the developing nations through the diffusion of the involved technology, is not visible in other systems. To make CDM practical will depend on how much transaction costs can be controlled[5].

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[4] There is an opinion that CDM between two developing nations or by one developing nation alone is possible, but since it is not in essence, it will not be looked at in detail.

[5] The high costs of AIJ (Activities Implemented Jointly), which is the forerunner of CDM, can be found in the

2. Contents and Control Measures of Transaction Costs

The contents and characteristics of CDM (the difference against Emission Trading and Joint Implementation) is stated as above. However, one can tell from glancing through the Protocol, that details will yet have to be decided at the Conference of the Parties after the Protocol goes into effect6, and until then, how expensive transaction costs will be is not clear. To start with, we will summarize the contents of the transaction costs.

First is the operating expense of the operational entities and the contributions to the countries most effected by global warming. Second, the project's additional amount of emission reduction must be certified by operational entities. In order to be certified, there must be an agreement on the baseline on each project by the nations concerned. In addition, a monitoring expense for the measurement of the reduced amount is needed. Among a few AIJ projects (Activities Implemented Jointly, a frontrunner to the CDM, which does not include the transfer of credit) between China and Japan, an agreement on the baseline was not made even after six months7 with regards to the CDQ (Coke Dry Quenching) project. The project is aimed at collecting waste heat at steel refineries. Next, the provisions of the Protocol states that developing nations "will benefit from project activities", however this content is not clear. In some cases, there is a possibility that this would be an element to increase the transaction costs. Other than the articles in the Protocol, there are costs related to the search for projects, and the cost accompanying the allocation of credit between Annex B Parties and the developing nations. The former is the cost to match supply and demand of target projects. And in the latter case, distribution portion, in reality, would be negotiated case by case between the nations concerned. The time and expense needed for this is by no means small .

Now we will discuss the measures to be taken to curb transaction costs. In order to reduce cost, the contents not decided on at the Protocol must be finalized on the basis that CDM be constructed as simply as possible. On top of that, the foremost method to control costs at operational entities is to consign the business to a number of operational entities and let them compete with one another. To unite the differences between the operational entities is the job of the Executive Board. For the certification of the environmental management system of the ISO (14001), each country provides one accreditation body, and under its supervision, a number of certification bodies carries out

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report by the World Bank. According to research results by the Nordic Council, the trading expense of a project between two countries occupies 7-30% of the total cost (for reference, approximately 8% in case of the GEF Project). (The Carbon Offset Investment Business and the Potential Role of the World Bank Group, June, 1997).

[6] Mr. Jonathan Pershing of the U.S. State Department has indicated numerous points where CDM should be clarified; at the "International Workshop on Environment-friendly Technology Transfer for Mitigating Climate Change", held in Tokyo on February 23-24, 1998.

[7] One of the disputed points is whether or not to consider technological progress (the inevitability of dynamic evaluation), and if it was to be considered, how.

the certification process according to ISO standards. With regards to CDM, even if a number of operational entities are provided, the number would be limited. By imposing an obligation to release the inspection results and its methodology to the public, transparency can be maintained, and supervision by the Executive Board will become possible.

There is also the problem that setting of the Baseline is not easy from a practical sense of view. In practice, there will be negotiations between the two parties concerned. Although the energy efficiency improvement projects for existing facilities may not be so difficult, the calculation of the Baseline for new projects (i.e. the construction of a natural gas power plant) is truly difficult. To what we should compare in order to calculate baseline? Moreover, even for energy efficiency improvement projects in existing facilities, we know from our past experience that the negotiations to decide to what extent these should be included (for example, whether to include direct effects only or to add indirect effects) will be extremely time-consuming8. Furthermore, the reduction amount must be certified by the operational entities at the termination of the project (or while in progress). In order to save time and cost, it is useful to draw up pre-set standard baselines and additional GHGs reduction amounts for each category of project. If the countries concerned accepts them, they can utilize these standards. If they cannot, they can negotiate case by case. However, of course, the possibility of generating these standards is a point that is under continual debate. In relating to this point, it will be worthwhile if the Secretariat of Framework Convention on Climate Change (FCCC) or OECD analyzes the results of an actual AIJ project. Seventy-eight projects were officially submitted to the Secretariat of FCCC as of June, 1998. There were a variety of projects submitted. For example, Energy Efficiency Improvement, Renewable Energy, Fuel Switching, Forestation, and Reforestation, and, by carefully studying these, it should be possible to create an index of some sort for standard baseline calculation (refer to Attachment 3 for the list of worldwide AIJ Projects). Even if this is difficult, it should at least be a useful reference to perform a comparison of each individual case on the method of calculating the baseline, and the method of calculating the amount of emission reduction.

In order to utilize the CDM system, projects that satisfy the criteria for CDM will have to be searched out. However, the supply and demand for such projects of Annex B Parties and the developing nations are not readily matched. For example, a country that owns a specified technology of energy efficiency improvement does not necessarily have enough information on the countries that are striving to attain this technology and to which country the technology best matches. An institution that will facilitate the matching efficiently will be expected. The World Bank has presented the CIF (Carbon Investment Fund) scheme, and this is welcomed from the reduction of trading expense (reduction of the time for searching for projects) point of view, provided that the operating cost of the institution does not offset the merit.

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[8] In the AIJ Project between China and Japan mentioned earlier, out the 87,000 tons of annual reduction amount expected, 18,500 tons by indirect effects has not been acknowledged yet.

3. Practical Application of Official Financial Flow (ODA, etc.)

The relationship between official financial flow (mainly ODA) and CDM is studied below. With regards to ODA and so forth, we have to recognize first of all that the situation differs by country. For example, the U.S. Foreign Assistance Act imposes strict legal restrictions against official aid to communist countries (and as a result, China is not eligible to receive assistance). In addition, there is a notable difference in the tying status of ODA between two nations and the ratio of the grant (America and Europe has higher grant and tying ratios in comparison to those of Japan's). As shown above, many differences exist, but the basic idea of how the official assistance should be utilized for CDM. is outlined below.

There are no descriptions in the protocol with regards to the financial additionality. for CDM. Therefore, it is possible that private commercial projects as well as ODA projects will be candidates for CDM projects9. This will ultimately be an advantage to the developing nations as follows. In view of the current situation of ODA in the world, the total amount is relatively declining (as in Attachment 4), and the percentage occupying the total amount of funds is rapidly declining also. If we take a look at DONE TO HEREthe 1996 figures for Japan, the largest donor of ODA in the world, it has declined on a yen base. Moreover, on a dollar base, it has declined approximately 35% due to weakening of the Yen. Furthermore, it is expected that this downward trend will continue, albeit at a slower rate. With the current economic situation in the world in recent years, there is not much prospect of a notable increase. In this situation, in order to persuade the people of the country providing ODA that the reduction of ODA be as small as possible, the foremost method would be to make an ODA project qualified as CDM, if other conditions are met. The more frequently financial additionality is discussed, the more powerful will become people who continuously insist upon ODA reduction in donor countries, resulting in the reduction of the total amount of ODA. This is the case developing countries should avoid. Therefore, making GHGs emission reduction projects by ODA eligible for CDM will be an advantage for both the developed and the developing nations. The same can be said about export credit by export-import banks in each country.

Next, we will look at untied loans between two countries. There are two forms of ODA, grants and loans. Generally, grants are tied, and loans are divided into both tied and untied, depending on the country. In the case of a CDM project made possible by untied loans, the issue is to where the credit will belong. The country providing the loan, and the country providing (exporting) the machinery are usually not the same. Therefore, the issue here is where the right of credit belongs. The project would not have been put into operation if the loan had not been provided, therefore, it is natural to think that the credit belongs to the country which provided the loan. If this should not be the case, the incentive to provide the loan will fade, and consequently, it will lead to the reduction of the total amount of ODA. However, it is necessary to discuss this fully among parties

[9] Needless to say, as stated in Article 12 of the Protocol, the two conditions, voluntarily participation and the government approval must be met.

concerned based on the criteria of GHGs emission reduction.

4. CDM Promotion Measures

The CDM promotion measures (institutional and non-institutional) are mentioned below.

1) Common to both Annex B Parties and Developing Nations
CDM is an exclusive system where the Annex B Parties and Developing Nations can cooperate with each other in the reduction of GHGs, and therefore, must be intensely promoted. The study of the promotion scheme is set out below.

The first scheme that can be brought up is the providing of supply and demand information. Other than the World Bank mentioned earlier, although it does not target CDM only, Professor Chichilnisky of Columbia University has presented the IBES (International Bank for Environment Settlement) Plan. The IBES Plan accumulates funds from petty bonds in Advanced Nations and invests them in CDM projects. This plan should be noted as a promotion scheme for CDM in addition to the reduction of transaction costs. (However, if this involves the institution of an international organization, and the cost of the institution is high, the effect of it will be reversed.)

The second way of promoting CDM is to clarify the kind of projects that are cost effective. Such a study has commenced in Japan10, and if this study progresses on an international level, it should be beneficial in accelerating the CDM.

The third way is to establish the methods of risk hedging for CDM. One of the possible risks of CDM is that when a project is physically damaged, for example, by natural disasters or fires, the anticipated credit cannot be obtained as a result. The other risk is when the anticipated result cannot be accomplished for some reason, although the project progressed as planned, and thus, the credit cannot be obtained (or only a part of the credit can be obtained). The best facility to hedge these risks is insurance. The former can be well covered by private commercial insurance, however, the latter will require the establishment of an insuring body, with help from the private insurance experts.

2) Annex B Parties

As stated before, there are no provisions regarding the “financial additionality” in the Protocol. This means that, although the project is commercially based, if it fulfills the provisions in Article 12 of the Protocol including additionality of reduction, it can well be a CDM. This point should be made clear urgently. The CDM will be promoted

[10] The result is shown, in Japanese, in the interim report of the study group sponsored by the Ministry of International Trade and Industry announced in June, 1998. In this study, the cost effectiveness of LNG Combined Power Generation, Solar Power Generation, Wind Power Generation, Improvement of Light Efficiency, and Forestation is analyzed.

intensely by this11.

To enforce research on how much the country itself can substitute the emission reduction obligation through CDM as a whole can lead to the clarification of CDM position . In other cases, researching the feasibility of CDM itself with the support of the government serves the same purpose as above. As a matter of fact, Japan has decided to support 37 feasibility study projects on CDM and Joint Implementation in the 1998 budget.

3) Developing Nations

Developing nations (with the exception of Technological Transfer), have no clear advantages in sharing the credit with the Annex B Parties. Therefore, it is important to clarify at COP 4 or its substitute entity that the credit obtained by the Developing Nations is either transferable in the emission rights market or that banking is possible

5. CDM and the Economic Situation Surrounding the Developing Nations

At this time, I would like to leave the Protocol, and talk about the relation of CDM and the recent economic situation surrounding developing countries, focusing mainly on Asian countries. The currency and the economic crisis that started with Thailand's currency crisis in July last year, spread throughout Asia rapidly, and has caused uncertainty about the global economic future. New investments in plants and equipment have stopped in countries, such as Thailand, Indonesia, and South Korea, whose currency has declined on a large scale. Due to the insecurity surrounding currency devaluation of the Chinese Yuan, the situation is the same in China. These movements are now surfacing especially in Asia, but the trend has already started to spread throughout all of the developing nations. If this happens, from the viewpoint of the developing nations, CDM will be a competent mechanism to attract investments. Moreover, from the view of the Annex B Parties, if projects are certified as CDM and a certain amount of credit can be obtained, the profit rate of the investment will rise by that portion compared to traditional investments. This means that CDM may be profitable to both the developing nations and the Annex B Parties.

III. Joint Implementation

From the standpoint that Joint Implementation permits transfer of emission allowance

[11] There is a provision of financial additionality in the AIJ provisions, but in reality, commercial based projects centered around the U.S., were admitted as the AIJ project. The provision of Decision 5/CP.1-1 states as follows: (The Conference of the Parties decides) "That the financing of activities implemented jointly shall be additional to the financial obligations of Parties included in Annex II to the Convention within the framework of the financial mechanism as well as to current official development assistance (ODA) flows."

among the Annex B Parties, the contents of its provisions are far more lenient than that of CDM. For example, there is no executive board, operational entities, nor is there a need to contribute a part of the profit to third parties. The only provision, stated in Joint Implementation and not in CDM, is the supplementary role of the emission reduction and the countermeasures that are to be taken when there is a possibility of exceeding the amount of emissions. The biggest reason for this is that the transfer of emission rights is done within the Annex B Parties and the total amount of emissions remain unchanged. Therefore, the cost of trading is relatively low, and only a few problems under the system's blueprint exists. In the event that the planning of the CDM system is delayed, there is a possibility that this would go ahead of it. (In Fact, Russia had more projects than China that Japan supported with the feasibility research.) The problem at this point will be that, contrary to CDM, Joint Implementation will only be counted after the year 2008. From the standpoint of global warming, banking the reduction before the first budget period should not be a problem at all. Modifactions are expected on this point at the next COP.

IV. Others

In relation to the above, I would like to draw attention to the "Early Reduction". Briefly, "Early Reduction" is a domestic measure being studied mainly in the U.S. in which the aim is to enhance reduction as early as possible prior to the first budget period. It's aim is to provide an advantage at the time of assignation to the enterprises who performed it. Although slightly different, introducing Early Reduction on an international and experimental level is possible. For example, within the countries that are assigned the emission cap after year 2008, an emission reduction target figure before the first budget period can be decided between countries that prefer to do so . In addition, trading emission rights based on this target figure could be done[12] (not because of a protocol, but as an agreement made between participating countries). The advantage in this is that the total amount of emissions will be reduced ahead of time, along a gain in skill in emission trading, and, if any problems arise through this, an early revision of the Protocol is possible. The issue of the participation of enterprises is one of the several points for further consideration and discussion.

[12] Richard B. Stewart, Jonathan B. Wiener, Philippe Sands, "Legal Issues Presented by a Pilot International Greenhouse Gas Trading System" United Nations, 1996. This thesis was written before the Kyoto Protocol, therefore, there is a need to substitute the term, for example, "FCCC" with "Kyoto Protocol" in reading it.