Towards a Breakthrough for Deadlocked Climate Change Negotiations

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Introduction: Status of international negotiations

Post-Kyoto Protocol negotiations have run into rough waters. The preparatory meeting for COP16 held in Tianjin, China in October 2010, failed to resolve the controversy between developed and developing nations but rather deepened the chasm. An outline of the conflict is provided below.

China led many developing countries in insisting on the following demands:

1) Developed countries, with the exception of the United States, should be committed to more ambitious targets for the second phase of the Kyoto Protocol compared with those pledged in the Appendix to the Copenhagen Accord, and the United States should pledge a comparable target.

2) The establishment of the second commitment period of the Kyoto Protocol is a precondition for further discussion in the AWG-LCA (Ad-hoc Working Group for Long Term Co-operative Action).

3) Mitigation actions (greenhouse gas limitation and reduction) on the part of developing countries are voluntary; and thus measurement, reporting and

verification (MRV) will be conducted only for actions that have been supported by developed countries.

4) Developed countries should provide large amounts of financial or technological assistance to developing countries.

In response, developed countries, the United States in particular, uncompromisingly stated that financial and technological support for developing countries should be balanced with their mitigation actions (greenhouse gas reductions) and MRV, and was divided with China and other developing countries. Consequently, negotiations on LCA made no progress at all. The EU, Australia and New Zealand showed a margin of flexibility towards setting a second commitment period provided that a binding legal framework with the participation of all major economies is established. However, with developing countries unchanged in their intransigent attitude, the circumstances did not call for a compromise proposal as of yet. Therefore, talks in the AWG-KP (the ad-hoc working group discussing the extension of the Kyoto Protocol and the establishment of a second commitment period) were also stymied.

The Tianjin meeting cast dark clouds over the coming COP16 meeting to be held in Cancun, Mexico. If the gaps between developed and developing countries remain unclosed, it is doubtful that the Cancun meeting will see any progress. These circumstances have pressured Mexico, host of the COP16 meeting, to approach different countries with various proposals regarding the extension of the Kyoto Protocol. At a meeting of the EU Council of Environment Ministers held on October 14, the EU decided on a “willingness to consider” setting a second commitment period of the Kyoto Protocol on condition that a framework with the participation of all major economies is established in the future. There are also reports that EC President Barasso wrote to EU President van Ronpuy

that the target of the Cancun meeting should be agreement on continuing with the second phase of the Kyoto Protocol.

Turned off by developing countries beginning to beginning to drawing back from the Copenhagen Accord and steering towards extending the Kyoto Protocol, the US persistently refused to provide any assistance to developing countries unless they commit themselves to accepting MRV. The US has also taken an irrelevant and indifferent stance on negotiations returning to the Kyoto Protocol. With the cap-and-trade bill stalled and President Obama's support ratings declining, the domestic political climate in the US is not in a state for it to be able to take leadership in international negotiations under the current domestic political climate. Consequently, the US cannot be expected to lead negotiations as it did in the COP15 top-level talks at the coming COP16 meeting.

"Balance" was a catchphrase at the Tianjin meeting. The definition of the word, of course, is varied among nations, but "balance" between extending the Kyoto Protocol and negotiating a new framework, "unbalance" between the Kyoto Protocol, which is hard law, with legally-binding some parties, and COP decisions, which are soft law, or political commitments and "balance" between developing country support and MRV may be the key issues at the COP16 meeting. COP16 will see nations trying strike a balance between developed country-developing country disparities and among the controversial positions assumed by developed countries, as well.

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Summary

1. The prerequisites for resolving climate change issues

(1) The three preconditions required in order to solve climate change issues are as follows:

1) Given future forecasts of greenhouse gas (GHG) emissions induced by human activity, **emission mitigation on the part of developing countries is indispensable.**

2) **The Kyoto Protocol** which only imposes legally binding reduction targets upon developed countries (and from which the US has withdrawn) **cannot solve climate change** and an international agreement that promotes emission mitigation on the part of both developed and developing countries is required.

3) **Under present circumstances, at least, developing countries must be provided the resources that they are lacking in for the implementation of mitigation measures**, on the premises that agreement on a new international framework that does not take the Kyoto approach will be sought.

(2) With regard to developing a new international framework, the Japanese government should acknowledge the graveness of easily giving in to the extension of the Kyoto Protocol and abandoning the resolution of climate change issues, and therefore insist that **it may be a "Kyoto Killer" but will not be a "Climate Killer."** As a new international framework to replace the Kyoto Protocol, this report proposes the adoption of a **"Commit and Act"–based framework, which takes a bottom-up approach embracing commitments to implement mitigation policies and actions**. Under this approach, Major Emitters, defined to be the countries, by order of emissions, that collectively account for 80 percent of total global emissions make binding commitments to

implement mitigation actions, whereas other developing countries make non-binding commitments to implement mitigation actions.

(3) Negotiations on a new framework are projected to require time. Until agreement can be reached, the development of **a scheme to promote mitigation through bilateral or regional cooperation** is required for continued mitigation action and the facilitation of negotiations from the sidelines. In order to ensure the proper valuation of such mitigation actions, they should be linked with the UN process through a COP decision, for example.

2. The potential of a bilateral offset crediting mechanism

(1) Bilateral and regional schemes such as bilateral offset crediting mechanisms can overcome the shortcomings revealed in the CDM and embrace more prompt procedures. Therefore, they will substantively advance climate change measures and developing country assistance.

(2) Bilateral offset crediting mechanisms can be either project-based or sector-based and the issues regarding the concurrent operation of both mechanisms are provided below:

1) In order to be accepted in the post-Kyoto framework, credit values must be measured based on common criteria (developing **common MRV rules, addressing the uncertainties of credit volume,** etc)

2) There are possibilities of **competition among countries with different purposes** for promoting the adoption of a mechanism.

Japan: contributing to substantive emission mitigation by implementing mitigation projects employing high-level low-carbon technologies

EU: expansion of the carbon market and the future establishment of an economy-wide emissions cap on developing countries

3. Proposing a comprehensive developed country – developing country cooperation model

(1) Discussions on mitigation based on international cooperation and developing country assistance are currently focused on bilateral offset crediting mechanisms. However, in the case of policy measures for which reductions are difficult to measure, **direct support can sometimes be more appropriate than crediting schemes; therefore, it would be effective to apply various support measures in the entire sector, which contains the policies and measures that developing country will commit to implement**. As a developed country –developing country cooperation scheme, this report proposes to **package as NAMA, a broad range of mitigation actions, including capacity-building, such as developing human resources and establishing legal systems**, which are required for the implementation of policies, by developed countries, employing offset crediting mechanisms direct support within the framework of the package.

(2) Japan's technology can be effective in a broad range of fields. Therefore, **assistance for NAMA packages can lead to the furtherance of emission mitigation through Japanese contribution.** In order to create incentive to promote the involvement of Japanese companies possessing technologies, the Japanese government should purchase credits or give assistance for NAMA.

(3) In the context of developing country assistance, approaches should gradually shift from "direct support-oriented" assistance to "offset crediting mechanism-oriented" assistance and finally to assistance "limited to soft support, not accompanied by financial aid" according to the level of development. The scheme should be **carefully designed so that** the categorization of developed and developing countries is not fixed and **developing countries are not entitled to permanent assistance**.

Chapter 1 The prerequisites for resolving climate change issues

Let us come away for a while from diplomatic tactics to discuss the preconditions truly required in order to solve climate change issues.

Three points of the world must commonly acknowledge are provided below:

1) Given future forecasts of greenhouse gas (GHG) emissions induced by human activity, emission mitigation on the part of developing countries are indispensable.

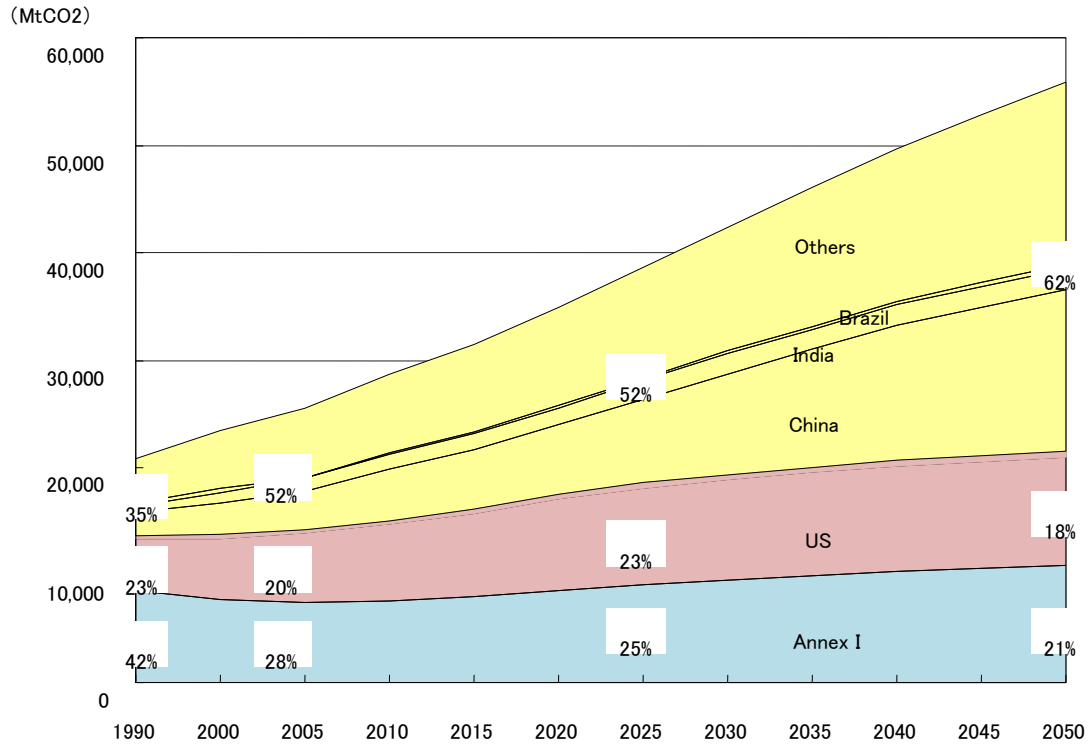
2) In order to ensure mitigation in developing countries, the Kyoto Protocol which only imposes legally binding reduction targets upon developed countries (and from which the US has withdrawn) is insufficient and an international agreement that promotes emission mitigation on the part of both developed and developing countries is required.

3) However, under present circumstances, at least, in order to achieve effective emission mitigation in developing countries, they must be provided the resources that they are lacking in for the implementation of mitigation measures.

1.1 First prerequisite: Cooperation for mitigation in developing countries

The reader is requested to refer to Figure 1 regarding the first prerequisite. In 1990, the baseline year for the reduction commitments of developed countries under the Kyoto Protocol, developed countries represented 65 percent of the CO2 of energy-origin, whereas developing countries accounted for 35 percent, which provides reasonable grounds for prioritizing reduction

commitments by developed countries. However, later in around 2005, emissions from developing countries collectively exceeded those from developed countries, and this trend is predicted to continue into 2050, when the developing countries are prospected to account for 60 percent plus, and developed countries, for slightly less than 40 percent. In respect of the idea to halve global emissions from current levels by 2050 which has been long debated[1], if such a long-term target were to be really adopted, developing countries forecasted to increase emissions would obviously (from the figure below) have to maintain emissions at current levels, even if developed countries reduced their emission to zero.



Source: Research Institute of Innovative Technology for the Earth (RITE)

Figure 1: World Energy-derived CO2 Emissions Forecast

[1] Because developing countries were strongly opposed to setting a long-term target in the negotiation process of the Copenhagen Accord, it could not be adopted as a globally accepted target.

The IPCC Fourth Assessment Report: Working Group III Report also discusses a similar point (see Chart 1). The frequently-referred scenario to stabilize GHG concentration at 450 ppm (CO2 equivalent) requires "substantial deviation from baseline" emissions in a majority of developing countries. Therefore, reduction efforts by developed countries alone are not enough to direct the world towards resolving climate issues, and mitigation efforts in developing countries are essential.

Developing countries are not willing to accept the necessity on their part to engage in limitation and reduction efforts, on the grounds that developed countries bear historical responsibility for emissions and that developing countries have rights to economic growth. The "common but differentiated responsibilities" principle stipulated in the UNFCCC and the Kyoto Protocol may have been rational against the circumstances in 1990, but now that some developing countries have already demonstrated rapid economic growth and are forecasted to dramatically increase their GHG emissions, these countries should refrain from taking actions that would appear to be procrastination of their limitation and reduction efforts, and should instead work to gain respect in the world by showing a more proactive attitude towards addressing an issue faced by all mankind. The aforementioned principle of "common but differentiated responsibilities" should precisely read, "common but differentiated responsibilities and respective capabilities," which means that emerging economies, in particular, with improved economic and human capacities to cope with climate change, are expected to take appropriate actions in line with the principle. It was only last year, at the COP15 meeting, that less developed countries and small island countries demanded emerging economies, belonging to the same larger group of developed countries, to take responsible action.

Chart 1: The range of the difference between emissions in 1990 and emission allowances in 2020/2050 for various GHG concentration levels for Annex I and non-Annex I countries as a group

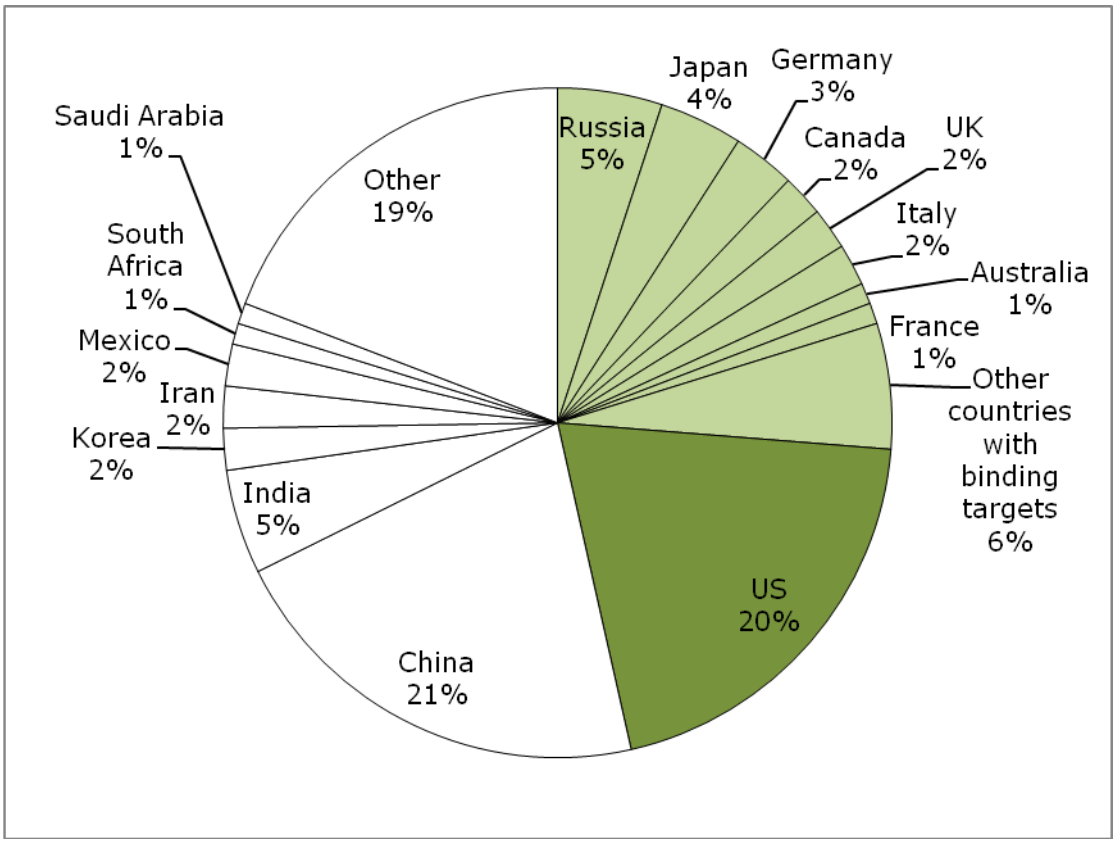
Scenario Category	Region	2020	2050
A-450ppm CO_2-eq	Annex I	–25% to –40%	–80% to –95%
	Non-Annex I	Non-Annex I Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia	Substantial deviation from baseline in all regions
B-550 ppm CO_2-eq	Annex I	-10% to -30%	-40% to -90%
	Non-Annex I	Deviation from baseline in Latin America and Middle East, East Asia	Deviation from baseline in most regions, especially in Latin America and Middle East
C-650 ppm CO_2-eq	Annex I	0% to -25%	30% to -80%
	Non-Annex I	Baseline	Deviation from baseline in Latin America, Middle East and East Asia

Source: *IPCC Fourth Annual Report: Working Group III Report*, Chapter 13

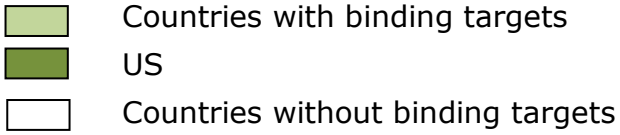
1.2 Second prerequisite: A framework covering all countries (extension of Kyoto Protocol is no resolution)

Figure 2 supports the second prerequisite (that the extension of the Kyoto Protocol is insufficient).

With the United States' withdrawal from the Kyoto Protocol under the Bush Administration, the Kyoto Protocol covers only slightly over half of GHG emissions from developed countries, or one-fourth of global emissions. Furthermore, Russia has adhered to its stance to bank its abundant hot air (surplus emission allowances representing not reduction efforts but other factors) for use in the next commitment period. Also, the EU bubble embraces East European countries which will be able to count emission reductions resulting from the economic downfall after 1990[2]. Therefore, additional reduction targets for developed countries under an extended Kyoto Protocol could well be met superficially, but it is highly questionable whether these figures will effectively represent "substantive" reductions.



[2] The Kyoto Protocol provides for reductions by 8 percent collectively in the original 15 nations, but 10 nations, including Czech and Hungary, joined the EU in 2004, followed by Bulgaria and Romania in 2007, therefore adding up to a total of 27 countries, including East European countries, in the EU Bubble.



Source: IEA

Figure 2: CO2 Emissions of Energy Origin in the World: Share by Country (2007)

An even more serious and fundamental problem with the Kyoto Protocol is that it does not impose any binding reduction targets upon developing countries. It is obvious from the reasons elaborated above that this undermines the Protocol's effectiveness as a framework to resolve climate issues.

In the final scene of negotiating a diplomatic deal, developing countries may approach developed countries with a compromise to advance discussions in the AWG-LCA or to participate in the negotiations to formulate a legal framework based on the Copenhagen Accord, on condition that developed countries agree to extend the Kyoto Protocol and establish a second commitment period. However, developed countries should not accept such a compromise because such an easy concession would hinder the fundamental resolution of climate change. If developed countries agree to extend the Kyoto Protocol at COP16, they will lose the political momentum to make developing countries aware that they, too, need to make limitation and reduction efforts; and hence, little hope of serious mitigation actions on the part of developing counties for the meanwhile. This would mean further procrastination of climate change issues and accepting the aggravation of its adverse impacts

On the other hand, developing countries may continue to demand that developed countries take the initiative in pursuing ambitious targets and in addressing their historical responsibility for emissions. Japan has announced an outstandingly rigid mid-term target compared to other nations and thus should, when it is strategically necessary and appropriate in negotiation, aggressively request other developed countries to pursue more ambitious

targets. As for developing countries, in terms of historically accumulated emissions, China, representing 7 percent, has already exceeded Japan, which accounts for 4 percent. Japan should tenaciously persuade emerging economies, at least, which have been given a 15-year moratorium since the adoption of the Kyoto Protocol until the end of the first commitment period, to initiate autonomous efforts to reduce emissions.

At the preparatory meeting, the Japanese government presented that the Kyoto Protocol will not serve to solve any issues.[3] Japan should consistently maintain this position to the very end, and try to convince the EU and other

[3]Presentation made at the preparatory meeting held in Bonn in August 2010. An outline is provided below: A global reduction target allocated among countries is politically unrealistic for the following reasons:
1) What is known scientifically is that accumulated global emissions collectively increase atmospheric concentrations; it cannot be scientifically identified what effects reductions in a particular country or group of countries in a particular year can have.
2) There are numerous long-term paths to approach the 2 degrees Celsius target; and therefore, it is not rational to overestimate certain reduction targets for developed countries in 2020.
3)The year 2020 is politically important but scientifically arbitrary
4) The scenario to reduce emissions by 25 to 40 percent from 1990 levels represents neither the conclusion nor a recommendation of the IPCC, and has not taken account of political viability or economic impact.
5) Reducing emissions by 25 to 40 percent from 1990 levels in 2020 is not the only scenario available. (For example, IEA World Energy Outlook 2009)
6) There is no consensus on the indices to employ in allocating reduction targets.
Japan concluded that global climate change issues could not be solved by discussing the reduction targets of the Kyoto Protocol's Annex I countries (developed countries) alone, because the high-end targets of the wide range of targets pledged by Annex I countries are hinged upon the establishment of an effective international framework in which major non-Annex I economies (developing countries) participate. Non-Annex I countries must also clarify their pledges under the Copenhagen Accord. Such discussions should be held not in AWG-KP but in AWG-LCA.

developed countries, as well as small island countries and less developed countries. Delegates of developing countries have criticized nations which are against extending the Kyoto Protocol to be "Kyoto Killers" and have repeatedly tried to restrain the influence of these countries. However, acknowledging that it would be a much more irresponsible move on Japan's part to easily give in to a framework like the Kyoto Protocol with many flaws and abandoning the resolution of climate change issues in effect, Japan should insist that **it may be a "Kyoto Killer" will not be a "Climate Killer" that surrenders any hopes of fundamentally solving climate change.**

To date, the 21st Century Public Policy Institute has made several proposals for a post-Kyoto framework. In November 2007, we advocated a bottom-up approach in place of the Kyoto Protocol, which took a top-down approach in determining targets. Our proposal was based on the concept that the Kyoto targets had been decided not by objective or scientific methodology but through political negotiation, and was thus lacking in fairness, transparency and sustainability. Therefore, it would be more effective for each nation to pledge concrete policies to prevent climate change instead of establishing quantitative targets.

Our proposal has been followed by debate in the AWG-LCA on a post-Kyoto framework, the sectoral approach proposed by the Japanese government[4] and the Copenhagen Accord, which have all been based on a bottom-up approach and in line with our original proposal. The subsequent chapters will reintroduce our idea of an optimal post-Kyoto framework to serve as a basis for considering developed country-developing country cooperation.

[4] http://unfccc.int/resource/docs/2008/awglca4/eng/misc05a02p02.pdf

Given the circumstances of current international negotiations, only a diverse and flexible framework that accommodates the various demands of different nations is politically viable as a post-Kyoto framework embracing all economies. From this perspective, the 21st Century Public Policy Institute proposed a "Commit and Act"-based framework, which "includes internationally legally-binding commitments made to policies and actions that governments can definitely implement," instead of the Kyoto-based idea of focusing on imposing legally-binding quantitative reduction targets in the absence of a world government with legal force. The vision of international agreements based on the Commit and Act principle is outlined below (some revisions have been made to match the current international context).

1.2.1 A vision of international agreement based on the commit-and-act principle

A framework must be designed to meet the following six criteria:

A **Environmental effectiveness:** It must be truly environmentally effective

B **Science-based analysis:** Reduction potential and cost-related data shall be based on scientific analysis.

C **Equity:** It should be based on the principle of "common but differentiated responsibilities and respective capabilities, and their social and economic conditions" (Preamble of UNFCCC)

D **Inclusiveness:** It should adopt an approach to include non-governmental entities and derive higher awareness and proactive participation of emitters.

E **Political feasibility**: It must be a politically viable framework for the participation of all nations

F **Sustainable, long-term perspective:** A reasonable amount of lead time should be provided for innovative technology development and diffusion

A detailed description of the structure of the proposed protocol is provided below. All parties of the agreement, including non-governmental entities, belong to one of the following categories. In the context of ongoing discussions in the AWG-LCA, the vision undermentioned would constitute the agreement on mitigation.

Furthermore, with consideration of lead time for technological innovation, the commitment period should be of 50-years duration beginning in 2013, with negotiations held every five years to review Category I commitments and to update Category II and III, based on the most recent scientific, technical, economic and social information.

Category I

Legally binding commitments to actions by major emitter governments

1) Major Emitters are the countries, by order of emissions, that collectively account for 80 percent of the total emissions of the six greenhouse gases. (All Annex I countries are included.)

2) The countries included in 1) should make an international pledge to implement policies and measures to prevent climate change ensured by domestic legal or quasi-legal mandate or by budget appropriation.

3) Policies and measures should be limited to those for which reductions from BAU can be calculated. Therefore, greenhouse gas reductions based on these agreed policies and measures can be aggregated to present a sum representing

all major emitters. This, however, does not mean to exclude policies (such as those for capacity-building) required as a basis for such policy measures.

4) Commitments may be negotiated between parties using the "request and offer" approach[5].

5) Regarding MRV, an Expert Group to be established under the new Protocol will verify the implementation status of pledged policies and measures and the effectiveness (reductions) of the policies introduced according to the commitments described in 3), every five years. Governments which have signigficantly failed to implement measures are "named and shamed" by COP. Furthermore, in order to ensure compliance and to enhance measures against incompliance, a panel can be established under the UNFCCC (United Nations Framework Convention on Climate Change) Secretariat to enable legal action on governments that have not implemented the agreed measures; otherwise, the dispute settlement scheme stipulated in Article 14 of the UNFCCC could be incorporated into the new Protocol.

Category II

Individual non-binding commitments to actions by all governments

1) This category should cover all parties to the UNFCCC (including major emitting economies identified under Category I).

2) The policies and measures to be pledged[6] would not need to be legal or quasi-legal domestic measures, or supported by government budget. However,

[5] A method of negotiation in which a country makes a request regarding actions to be taken by another country, and the counterpart, in response, identifies which actions it can pledge, and vice versa. The method entails risks of producing a blank period in the international framework when negotiations on commitments become deadlocked, in which case bilateral efforts described in Chapter 2 and beyond can serve to continue reduction efforts.

the greenhouse gas reductions expected as a result of implementing the measures should be provided as reference values.

3) The implementation of policies and measures would not be internationally legally-binding commitments and are no more than political pledges. However, if the policies and measures are covered in the NAMA-package then MRV bilaterally determined should be applied.

4) Policies and measures supported by international assistance would be subject to international MRV, but the implementation status of other policies and measures can be verified based on domestic MRV. However, this does not exclude possibilities of the Expert Group abovementioned making recommendations to encourage compliance.

5) This Category is not premised on mutual negotiations on policies and measures and should be based on voluntary pledges.

Category III

Participatory commitments to individual actions by private sector entities

1) Given that all humans are the source of greenhouse gas emissions, governments should not solely bear the duty to engage in mitigation efforts. Rather, we must recognize that all actors should take part in actions to prevent climate change. International treaties premised on the nation-state system to date have been unsuccessful in solving climate change issues. Instead, international agreements should be made open to NGOs/NPOs, international

[6] Policies and measures may address a wider range of policy fields, including transportation policy, urban development policy and electrical power development planning, and broadly including capacity-building, in terms of developing the human resources required for policy implementation and establishing legal systems and enforcement structures, and fostering the MRV skills and know-how needed in verifying emissions.

and domestic trade unions, individual domestic companies, and multinational companies.

2) Private sector-led climate change prevention activities should be formally included in the new Protocol for their promotion and increased incentive. Therefore, entities which wish to pledge climate change prevention and implement climate change countermeasures mutually and complementarily with the government may register their climate change prevention activities in the Annex to the new Protocol. Any private entities establishing greenhouse gas mitigation targets (excluding individuals) are eligible to participate and a list of registered activities and their details will be compiled in a database and be made available on the website of the UNFCCC.

3) The implementation status of registered activities can be directly updated and made available for public access from the website by entering reduction records based on self-evaluation. In the event a third party, including the aforementioned expert group, has verified the information, it can be noted as such.

4) Entities exhibiting outstanding excellence in target-setting and performance should be awarded at COP meetings, after verification by the Expert Group. Alleged false reports should undergo investigation by institutions commissioned by the Expert Group; and the results should be made public.

The abovementioned proposal is based on a bottom-up approach that takes into consideration the diversity of country-specific domestic circumstances, histories and political systems, and is marked by high affinity with the structure of the Copenhagen Accord. A bottom-up approach towards commitments can mitigate controversy between parties and therefore increases the chances of engaging developing countries and the United States in real mitigation actions. Furthermore, because commitments may characteristically

include not only quantitative targets but also mitigation policies, best practices and other valuable knowledge for the prevention of climate change can be more easily shared among parties, thus facilitating cooperation in technological development.

In order to involve the US, the new framework must be based on the Copenhagen Accord, and not the Kyoto Protocol. However, for developed countries to refocus their interests on the Copenhagen Accord, instead of on extending the Kyoto Protocol, we must further discussions on the contents and methods of financial and technological assistance for developing countries which have been stalled since the Copenhagen Accord.

1.3 Third prerequisite: Assistance for developing countries

If continuation of the Kyoto Protocol framework will not provide an answer to climate change issues, a new framework must be devised in its place. However, against the backdrop of current negotiations, a post-Kyoto framework would need to incorporate an appropriate scheme to provide developing countries the resources that they would be short of in mitigating emissions. This section will outline the background of this issue before it is considered in detail in the consecutive chapters.

1) The United Nations Framework Convention on Climate Change (UNFCCC) is a UN-based international framework for cooperation, the decision-making procedures of which are based on consensus, or the one country, one vote system. The Copenhagen Accord could not be formally adopted by the COP because of the persistent opposition of a few countries, and as a result could only be "noted." Under the United Nations' decision-making system, it is

extremely difficult to conclude, with the promptness required, international agreements in fields such as climate change which encompass complex conflicts of interests.

2) Recent negotiations under the UNFCCC resemble those in the WTO. Also encompassing a large number of member states, the WTO negotiation process has become complex and negotiations have collapsed many times as a result of conflicting interests. In order to overcome such difficulties, most countries now conclude bilateral free trade agreements or economic partnership agreements with important trade counterparts.

3) All countries respect the legitimacy of the UN process in climate change negotiations and have endeavored towards a final agreement; nevertheless, negotiations in the UN are in stalemate. However, unlike economic negotiations, climate change issues, when neglected, may incur serious crisis upon human society. Therefore, even as international negotiations continue with no sight of an end, climate change measures must be promoted.

4) Under these circumstances, climate change measures that are being implemented or are to be promoted under international cooperation outside of the UN framework, should be properly recognized according to their extent of contribution. Pilot projects and programs implemented among developed and developing countries to deal with climate change have recently been on the increase worldwide.

5) **If the simplistic compromise of extending the Kyoto Protocol is abandoned and agreement can be reached on the more difficult option of "negotiating a new framework in which all economies participate", the agreement should serve as a precondition for the consideration of a new scheme to support developing countries based on bilateral cooperation or regional cooperation, in order to facilitate negotiations from the sidelines until the complicated mainstream negotiations are concluded. At present, bilateral schemes - mainly bilateral offset crediting**

mechanisms - are being considered, preferably with a wider coverage of assistance from developed countries available in more various forms for developing countries' commitments to climate change prevention policies and measures.

6) **However, if it remains uncertain how such activities will be evaluated in the future, private entities in developed countries, which provide the resources, will have to bear a large risk. In order to mitigate such risks and give the relevant actions legitimacy, it is important that the overall bilateral or regional cooperation for mitigation be linked with the UN process through a COP decision, for example, that such activities contribute to achieving the ultimate goal of the UNFCCC.** The Preamble of the Copenhagen Accord, which was noted at the COP15 meeting, stipulated that the Accord be operational immediately. In the context of implementing the Copenhagen Accord, such bilateral undertakings are important and should be properly valued.

Chapter 2 The potential of bilateral offset crediting mechanisms

2.1 The structure of bilateral offset crediting mechanisms

A bilateral offset crediting mechanism is an example of a bilateral or regional scheme for cooperation. A report published by the 21st Century Public Policy Institute in November last year[7] also proposed the introduction of such a scheme, the establishment of which the Japanese government has subsequently been working towards. Both the US and EU are considering the introduction of bilateral offset crediting – a similar scheme was incorporated into a US bill (pending) and the introduction of a sectoral crediting mechanism (described below) into the operations of the EU-ETS is being called for in the EU[8].

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[7] "New Policy Agenda of Japan on Climate Change Issues — Verifying the 25% Reduction Initiative and a New Proposal for Substantive Reductions" available at www.21ppi.org/english/pdf/091211.pdf (last accessed on Nov. 12, 2010)

[8] Some related cases include the following:
-The UK and India have launched bilateral cooperation. With the cooperation of the UK, India is directed towards establishing an energy use-rights trading scheme.
-The UK and China have entered into talks regarding sectoral efforts. China has implied the introduction of a cap and trade emissions trading scheme.
-In the REDD field, Norway and Indonesia have concluded a memorandum and have agreed on a development path for phased efforts. Norway and the Democratic Republic of the Congo are also fostering stronger relations; DR Congo has agreed to give Norway access to credits generated from REDD plus projects for one dollar per ton of CO2.
-The World Bank declared the launching of a project to address new market mechanisms. EC has publicly suggested the provision of 5 million Euros in support.

These bilateral offset crediting mechanisms aim to achieve substantive greenhouse gas mitigation by providing developing countries willing to address climate change issues, the environmental technology or facilities embodying such technologies which are possessed by developed countries, along with the necessary financing. The CDM, stipulated in the current Kyoto Protocol, is a similar mechanism, however embracing the following flaws:

1) A long validation process is required before credits are issued.

2) The additionality criteria complicates the approval of energy-conservation projects

3) Nuclear power generation and carbon capture and sequestration (CCS), both of which can contribute greatly to global climate change measures are not covered.

4) Projects are inclined towards gases other than carbon dioxide that have larger greenhouse effects and towards specific countries, such as China.

Bilateral offset crediting mechanisms can overcome the shortcomings of CDM. With more prompt procedures, they promise to more substantively advance climate change measures. Bilateral crediting schemes can be largely categorized into two types, namely, project-based and sector-based mechanisms.

2.1.1 The project-based crediting mechanism (PBCM)

The PBCM is the mechanism advocated by the Japanese government. Reductions achieved in greenhouse gas mitigation projects which have been bilaterally agreed upon serve as the basis for credits. By deploying technologies

internationally acknowledged to be of top-level efficiency, including those of Japan and other developed countries, the mechanism promises to substantively reduce greenhouse gas emissions. The PBCM overcomes the abovementioned problems of CDM by being more flexibly designed so that credits are issued based on project approval standards and MRV rules bilaterally agreed upon.

Baselines can be determined based on emissions forecasted for the business-as-usual (BAU) case, just as in the CDM, which is similarly a project-based mechanism. Estimations can also be conducted in line with CDM. As discussed in the ongoing CDM innovation debate, simplified and efficient approaches, such as determining a standardized baseline or bundling several projects together into one large program, can be designed for the purpose of reducing the burden incurred upon the project implementer and the time required for project validation. The uncertainty of baseline emissions is relatively small because the details of the project implemented are identified.

Credits are initially acquired by project implementers. When developed and developing countries are joint implementers of a project, the distribution of the credits are determined among the parties concerned according to the degree of contribution. Because project implementers are entitled to the credits, private firms have a strong incentive to implement projects. The fundamental incentive for purchasing credits would be hinged on what the international post-Kyoto framework will look like and what domestic measures will be adopted in developed countries. For example, in Japan, credits could be used in complying with Keidanren or trade union-based voluntary action plans or be bought by the government in order to form political grounds for the 25 percent reduction target[9]. Whether or not credits can be traded in the market should also be determined in the context of other related measures.

[9] Credits could also constitute requirements for grant climate change-related grants or the application for special taxation measures.

Furthermore, the PBCM facilitates projections of the amount of credits to be generated and provides relatively secure credit income for project implementers. Therefore, projects employing costly and state-of-the-art high technology can be more easily implemented, thus encouraging technology transfer. However, being project-based, the PBCM embraces the disadvantages of not directly leading to policies and measures that can promote collective reductions and of indirect efforts and costs being relatively aggrandized.

2.1.2 The sectoral crediting mechanism (SCM)

The sectoral crediting mechanism is proposed mainly by the EU. Given the strong opposition from developing countries resisting national mitigation targets, this mechanism seeks to establish baselines for specific sectors, beginning with those that can reach agreement. Reductions in excess of the target generate credits and even in the event that reductions are short of the target, it is a no-lose scheme for developing countries. The EU's aim is presumably to enlarge the carbon market and to move a step forward in establishing an economy-wide target for developing countries in the future. However, developing countries, precautious of the latter aim have maintained a measured attitude towards the introduction of the SCM, despite its no-lose target limited to specific sectors.

The mainstream idea is that baselines should be established basically upon benchmarks, but that their level should be more stringent than BAU, in order not to affect the international competitiveness of covered sectors and to eliminate the uncertainties and arbitrariness of baseline emissions. Because entire sectors are covered, the required data collection is often difficult and with various elements impacting emissions, the uncertainties of predicted baseline emissions are large.

The coverage ratio should be improved in the sectors addressed in the scheme and all emitting sources in the sector should essentially be included in order to prevent leakage within the sector. However, in reality, only limited data collection is possible in sectors with many small emitters; and therefore, the more realistic option would be to cover only emitting sources (companies) that are larger than a particular defined size or to begin with a sector with a limited number of emitting sources. Furthermore, in sectors with diversified products and production methods, it would be difficult to decide on a single benchmark; and therefore, limited sectors, such as the aluminum and cement sectors, are generally viewed as the only sectors that will actually be able to adopt the SCM. Building on the experiences and knowledge compiled in sectors that have successfully introduced the SCM and gradually expanding the scheme to other sectors should also be considered.

The credits generated are acquired by the governments (or trade unions) of developing countries. Therefore, governments will be motivated to reduce emissions by implementing policies in relevant sectors and can achieve collective reductions, therefore lowering indirect costs compared to separately managing a number of individual projects, if information can be successfully collected. However, since individual companies of relevant sectors will not directly benefit from their mitigation efforts, it will be difficult to motivate individual firms to reduce emissions unless developing country governments either impose regulatory control upon relevant sectors or introduce a scheme in which domestic companies would be ensured rewards in return of mitigation efforts. With credits in the possession of to developing countries, there is little incentive for developed country companies to become involved in projects; and thus, designing the mechanism to create advantages for private entities remains a challenge.

In the context of technological transfer, existing technologies with relatively low cost barriers in terms of development and operational costs have a chance of being disseminated more widely under the SCM than in project-based

introduction. However, without any guarantees regarding for what policies developing country governments will appropriate the funds gained through the credits, there is a high degree of uncertainty for private entities which possess the relevant developed country technologies. There is also little hope of transferring state-of-the-art technology, which often requires high operational costs.

Chart 2: Comparison of offset credit mechanisms

	PBCM	SCM
Actor	Project implementer	Entire sector or emitting sources of a certain scale in covered sector
Baseline setting method	BAU. Methodology based on existing CDM.	Benchmarking. Higher standards than BAU.
Uncertainty of credits issued	Low	High
Acquisition of credits (actor with mitigation incentive)	Project implementer	Developing country government or trade union of covered sector
Accelerated mitigation activities	High chance of implementation of mitigation actions with high cost barriers	Widespread mitigation actions through policy.
Technological transfer	Transfer of technologies with high barriers, including cost	Dissemination of existing technology

The characteristics of both mechanisms are compiled in Chart 2. Appendix A should be referred to for more detailed studies of crediting mechanisms, including studies from other perspectives.

2.2 Issues regarding the concurrent operation of different offset crediting mechanisms

The availability of various types of offset crediting mechanisms could increase options for developing countries, but in reality, various problems arise when several schemes operate at the same time.

2.2.1 Standardizing credit values derived from divergent mechanisms

The aim of promoting a new bilateral offset crediting mechanism is to efficiently reduce emissions at a global level by employing a new economic mechanism apart from the existing CDM, which has proved to entail some problems. Being "immediately operational," the new system would be in line with the Copenhagen Accord and involving developing countries and the US, a non-party to the Kyoto Protocol. Creating a new trend towards a new framework beyond Kyoto is another important goal.

In the context of cost-effectively reducing emissions, two countries agreeing on an offset credit mechanism and using credits bilaterally would not pose any problems. For example, as provided in the US bill, a country with a domestic emissions trading scheme can use the credits generated in a bilateral mechanism in its domestic scheme.

Furthermore, for countries, like Japan, which have pledged ambitious mitigation targets that are difficult to achieve solely by domestic measures, if it could be made clear that bilateral mechanisms contribute to substantive global greenhouse gas mitigation, they would have significant political implication in appealing national efforts to the world. Also, as aforementioned, substantively

reducing greenhouse gas emissions through bilateral mechanisms while multilateral negotiations for a post-Kyoto framework at the global level remain deadlocked is an effective measure to deal with climate change which also corresponds with the purpose of the Copenhagen Accord. Therefore, negotiations for a post-Kyoto framework could be accelerated as a result of these bilateral efforts.

However, in order to recognize a variety of mechanisms under one post-Kyoto framework, credits generated in different offset crediting mechanisms must be valued with common criteria; otherwise, credits generated in a bilateral mechanism would represent different values and be the equivalent of community currency. National emissions reductions would be difficult to estimate based on a mixture of different "community currencies," but if credits could be measured using common criteria, then they would have higher liquidity and increased economic efficiency, therefore attracting those countries in pursuit of a carbon market.

The key to introducing common criteria is to establish international MRV rules that will be applied to all mechanisms and to address the divergent baseline uncertainties of different mechanisms by discounting the value of credits. Appendix B should be referred to for details.

2.2.2 Problems arising from a mixture of offset credit mechanisms in a single sector

The previous subsection discussed the possibilities of different mechanisms working in the post-Kyoto framework by finding ways to employ common criteria to measure credit values. However, it is unrealistic to have different mechanisms concurrently operating in a single sector, considering the difficulties to be faced in preventing or solving issues concerning the

double-counting of credits. (Details on the problems regarding the concurrent employment of different offset crediting mechanisms in a single sector are elaborated in Appendix C.)

As abovementioned, the purposes of promoting the introduction of offset crediting mechanisms differ between Japan and the EU. (Japan seeks to contribute to substantive emission reduction by implementing mitigation projects employing high-level low-carbon technologies, whereas the EU aims for the expansion of the carbon market and the future establishment of an economy-wide emissions cap on developing countries through setting sectoral targets in developing countries.) Therefore, in the case that different mechanisms cannot coexist in a one sector, Japan and the EU could wind up in competition over promising sectors of developing counties. Finding a point of compromise to resolve or avoid such issues will provide a breakthrough for Japan, the EU and other major economies to reach political agreement and pave the way for a new offset crediting mechanism to be accommodated in the post-Kyoto framework.

Chapter 3 Proposing a comprehensive developed country – developing country cooperation model: a focus on Nationally Appropriate Mitigation Actions (NAMA)

3.1 From bilateral offset crediting mechanisms to NAMA

The bilateral offset crediting mechanisms described above are attractive mechanisms for developing countries but can only be project-based. (Even under a sectoral crediting mechanism, as proposed by the EU, mitigation coverage will be limited to those in particular sectors.) For example, for developing countries planning to promote low-carbon development in a wide range of policy fields, including transport policy and urban development policy and electric power development plans, a scheme that only covers an individual project or limited industrial sectors, is insufficient for capacity-building, including developing human resources, establishing legal systems and securing law enforcement, required for policy implementation, and for fostering the MRV skills and know-how required for the verification of mitigation projects. A structure enabling developing countries to gain cooperation from developed countries in implementing mitigation projects or in other dimensions essential for economic development may motivate developing countries to be more engaged in climate change measures.

Furthermore, the previous chapter revealed that a mixture of different offset crediting mechanisms could be problematic. Given these circumstances, a scheme for a comprehensive model for developed country – developing country cooperation is considered below. This scheme will abandon the Kyoto Protocol and successfully derive the mitigation actions of developing countries agreed upon in the drafting process of the Copenhagen Accord as well as crystallize the

(short- and long-term) financial support mentioned in the Accord but the coverage of which has yet to be formally agreed upon. If this scheme proves successful, it can present a model for bilateral or regional cooperation, and be input into the post-Kyoto framework negotiations in the UN to be incorporated as an important potential policy component.

The scheme will be founded upon collective assistance for Nationally Appropriate Mitigation Action (NAMA) as a whole. NAMA include, mitigation actions registered by developing countries, such as those listed in the appendix of the Copenhagen Accord, and actions that will serve to achieve the targets registered. Emission mitigation actions based on policies and measures in the household, office and transport sectors, for example, can be covered. Although a sense of obligation towards the domestic implementation of NAMA prevails among some Asian and South American nations with proactive attitudes towards coping with climate change issues, these nations often face a shortage of the funds required. Some developing country parties have a strong interest in creating NAMA-based credits or to implement NAMA with the profits earned from selling credits generated in bilateral offset crediting mechanisms. However, given the diversity of mitigation actions considered to be NAMA, the potential for awarding credits for NAMA requires further discussion. Also, the baseline setting methodology, the uncertainty of the amount of credits generated, the incentive created for relevant parties and the likelihood of technological transfer differ according to the mitigation action

3.2 The approach for NAMA support

This section will propose the packaging of a broad range of mitigation actions by developed countries as NAMA, selecting offset crediting mechanisms, namely SCM or PBCM, as support measures for parts of the package for which crediting would be institutionally appropriate, and employing “direct support” (government aid or financing from public financial institutions) instead of

crediting for other mitigation actions. This idea is founded on the flexibility and diversity of NAMA, which can cover all mitigation actions in developing countries.

Bilateral direct support and offset crediting mechanisms, which are more flexible and responsive, should appear to be more attractive than direct support from the rigid multilateral Climate Change Fund or problematic CDM from the perspective of developing countries as well. Therefore, assistance in the form of NAMA packages should be well-accepted.

This scheme is studied in detail using the example of a mitigation action in the transport sector of a developing country to establish a low carbon-oriented transportation system:

1) First, mitigation measures such as transferring know-how for collecting and processing the data required for policy proposal, capacity-building in terms of fostering human resources for policy planning, providing know-how for implementing automobile fuel regulation policies, building a subway system, maintaining and improving highways, and introducing a traffic control system, as well as establishing the inventory required for international MRV and the MRV system itself are all included in a single package.

2) Bilateral (or multilateral) consultation is conducted with a developed country and when agreement is reached, the NAMA package for transport policy including the essences described in 1), is documented and publicly announced, followed by the conclusion of a bilateral pledge. The legal document may be compiled according to the legal systems of the parties concerned, but the jurisdiction of dispute settlement should preferably be determined.

Furthermore, if this cooperation model can be formally incorporated in the post-Kyoto framework to be agreed upon, developing countries can register their mitigation actions in their national inventories and pledge to implement them, whereas developed countries can include the registered mitigation actions

of developing countries which they have agreed to support in their own mitigation commitment. By registering all bilateral and regional cooperation, global estimates can be made possible.

According to the idea described in Chapter 1 to categorize countries by level of commitment and legal effects, NAMA packages would be classified under Category II.

3) In the process of developing NAMA, if a project is found to be suitable for funding by a crediting scheme, the developing country should select whether to adopt a SCM or a PBCM, based on a comparison of the advantages and disadvantages of the SCM and the PBCM, and in accordance with national circumstances and policy. For example, a subway construction project would be limited to certain cities and therefore different mechanisms can be chosen by region – crediting can be based on SCM in some regions and be project-based in others. Time and energy should not be wasted upon trying to decide on either a SCM or a PBCM as the ruling bilateral offset credit mechanism or searching for a compromise; it would be a more promising solution to leave the decision open for the developing country to make.

4) Once developing countries have chosen a scheme, they must pledge not to redundantly use the credits generated or emissions certified in other schemes. This pledge could be included in the bilateral agreement described in 2), but considering the character of the issue, it would preferably be internationally declared by the developing country.

3.3 The significance of NAMA packages for Japan

Assistance for NAMA packages can lead to the furtherance of emission mitigation utilizing Japanese technology. Fields in which Japan can contribute

to increased reductions by employing high technology or know-how include not only project-based fields, such as constructing high-efficiency power plants, but also broader fields, such as diffusing energy-efficient products, providing policies and know-how on the development and operation of infrastructure, developing human resources, collecting and managing data, MRV, and providing know-how for standardization.

The involvement of Japanese companies with advanced low-carbon technologies being indispensable in implementing mitigation actions, a scheme providing incentive for Japanese firms to participate would have to be developed. Some approaches for this could include having the Japanese government purchase credits generated from PBCMs and incorporating assistance for NAMA packages in the Keidanren Voluntary Action Plan or the Action Plan for Achieving a Low-Carbon Society, thereby giving such support measures due legal recognition as industrial mitigation efforts, according to the level of contribution. Also, when a PBCM is insufficient for generating credits from a policies or measure implemented in developing countries, combining various forms of support, as described below, will open channels of developing country support not only to companies with the particular technologies that fit in with crediting schemes but also to other entities. Japan will then be able to exhibit to the world a variety of measures to contribute internationally to climate change prevention.

Experts who are in the frontline of extending support for developing countries, have the strong opinion that in order to put developing countries on the path to low carbon-oriented growth, the accumulation of projects are not enough but that technological cooperation in the form of continued on-site technical guidance and education is essential. In that case, a stable career path would have to be ensured for corporate experts sent from developed countries to be continually assigned to a support program over a long period. This would not be possible through the efforts of a single firm, but would require public-private cooperation in securing and requesting human resources.

3.4 Diverse forms of assistance

Support for developing countries can be provided in two forms, namely, offset crediting mechanisms and direct support based on public funds. Offset crediting mechanisms are schemes directly linked to greenhouse gas mitigation and effectively work as incentives for private entities. The downside of this mechanism is that credits are generated only after the mitigation actions, for which funds must be initially procured, and that the scheme is incompetent in dealing with the various bottlenecks (MRV systems and developing human resources) in the process of developing a project.

In contrast to offset crediting mechanisms, direct support allows funds to be allocated not only for mitigation but also for adaptation, technology development that do not lead to emission reductions in the short-term, capacity-building, including human resources development, feasibility studies (FS) and policy consulting.

Based on these features, direct support is beneficial in three dimensions: Firstly, it can allocate funds to climate change measures which require a long-term perspective, such as technology development and capacity-building, instead of being caught up in immediate reductions. Secondly, it can avoid the negative effects associated with support for quantifiable emission reductions, which tends to be extended to emerging countries with high emission levels and delayed for developing countries undergoing economic development at a slower pace. Thirdly, by combining direct support with an offset crediting mechanism, plans that could not be formulated into projects due to various factors can also be materialized.

Considering these advantages, even under harsh financial circumstances, bilateral support measures for NAMA packages should be developed

immediately with enthusiastic Asian developing countries by employing different financial institutions, each contributing in their respectively appropriate fields: conventional ODA (financial and technological aid) for project implementation and establishing MRV systems, JICA and NEDO projects for providing human resources and cooperation in technology development and verification, and policy finance institutions (Japan Bank for International Cooperation (JBIC) and the Development Bank of Japan (DBJ)) for procuring the funds required for initial investments in bilateral offset crediting mechanisms. For example, prospective fields for NAMA in Indonesia have been analyzed in detail in a report published by the Asia Pacific Institute Promotion Council[10]. For effective results, support measures should be launched beginning with joint studies on national circumstances.

Unlike mechanisms such as offset crediting mechanisms in which emission reductions are sold in the market, direct support measures do not require MRV of reductions, but call for governance, for instance, in the form of policy review as seen in the OECD and IEA, to make sure that the funds provided were used for climate change measures, that they were used for cost-efficient mitigation measures, and that they were not used to aid inefficient production sites.

In a NAMA support program, the tools employed can be altered in accordance with the differences in the measures covered or the level of economic development, as abovementioned. It is based on the concept of applying different tools in providing support for economically emerging developing countries and least developed countries. The Copenhagen Accord also prioritized support for least developed countries, especially in adaptation support.

[10] http://apipc/org/03_%E7%AC%AC3%E7%AB%A0_100921.pdf

This report classified developing countries into three phases according to their level of development and presents proposals for each phase.

[Phase 1] Direct support-oriented

This category mainly comprises less developed countries. These countries are intrinsically not large emitters and therefore are not suitable for offset crediting mechanism-based support. The developing countries covered in this group should not be incorporated into a financial product market and should be given the direct support that will help their real development. For example, capacity building, such as transferring know-how for policy implementation, feasibility studies for mitigation actions to be implemented and adaptation support fall under this phase. Depending on the wishes of the country, offset crediting mechanism-based support can also be provided.

[Phase II] Offset crediting mechanism-oriented

Developing countries not classified under Phase I are covered in this phase. Direct support should be prioritized for Phase I countries and minimized for Phase II countries. Having fostered a certain level of capacity to implement mitigation measures, Phase II countries should mainly receive offset crediting mechanism-based support which can provide strong incentive towards mitigation efforts. However, when initial investment costs are the bottleneck for implementing mitigation actions, government financial agencies should offer low-interest loans.

[Phase III] Limited to soft support; not accompanied by financial aid

Phase II countries which have become particularly developed and which voluntarily choose to implement mitigation actions without support from developed countries are covered in Phase III. As stipulated in the Copenhagen Accord, mitigation actions that receive support are targets of international MRV. Therefore, countries preferring not to apply international MRV are likely to

select this phase, in which human capacity-building, standardization and establishing technological standards and other soft support can be provided.

The decision of which phase should be applied to each developing country can either be left to be made individually by each country, or be made according to specific criteria, such as per capita GDP. However, the latter entails risks of creating difficulties in agreeing on common criteria; and therefore, the realistic method would be to have developing countries choose independently. The three phases do not intend to clearly divide developing countries into three groups but to conceptually show the correlation between the level of development and approach towards assistance. The important point is that approaches towards support shift gradually from “direct support-oriented” assistance to “offset crediting mechanism-oriented” assistance and finally to assistance “limited to soft support, not accompanied by financial aid” according to the level of development. The categorization between developed and developing countries should not be fixed, disregarding the development level of developing countries, and the scheme should be carefully designed so that developing countries are not entitled to permanent assistance.

Conclusion

The proposal of this report can be summarized as follows:

1) The extension of the Kyoto Protocol cannot solve climate change issues. Negotiations should be continued to establish a framework under which all countries, including developing countries, are committed to implementing mitigation actions (taking policy measures).

2) Failure to act while negotiations go on will aggravate the impacts of climate change. Bilateral and regional efforts should be made towards the mitigation of greenhouse gases and due recognition should be given to such actions.

3) Bilateral offset crediting mechanisms are being considered as means to close the gaps between developed and developing countries. Support for more inclusive NAMA packages encompassing such crediting schemes should be discussed.

4) Not only crediting schemes but also public fund-oriented direct support should also be employed to provide assistance for NAMA. As many bilateral agreements as financially possible should be concluded and input into the UN process as important components of a future framework.

A total of 30 billion dollars were pledged collectively by developed countries for the years 2010 to 2012 in the Copenhagen Accord, with the aim of procuring 100 billion dollars annually from broad financial sources, both public and private, by 2020. Most of these funds are to be provided through the newly established Copenhagen Green Climate Fund but the rules for provision are yet to be decided.

If bilateral mitigation actions and support are launched under a predetermined budget defining the overall amount of funds available, developing countries should be motivated to receive support as soon as possible. This should serve as an incentive for early adoption of climate change measures. Hopefully, the proposals made in this report will lead to the reactivation of the Copenhagen Accord and give momentum for negotiations for a post-Kyoto framework.

Appendix A Offset crediting mechanisms

This appendix will discuss offset crediting mechanisms from dimensions not mentioned in the main text of the report.

(1) Establishing indices

Indices that can serve as targets include absolute volume (total emissions), emissions per specific unit (intensity) and the diffusion rate of specific technology. The level of difficulty in achieving targets is determined not by the type of index but by the target level.

Employing quantitative targets entails the risks of leakage to areas not covered, by transferring production sites. Furthermore, depending on the stringency of the targets set, developing countries, which are generally resistant to constraints on economic development, would prefer intensity-based targets, such as per GDP emissions.

Depending on the target, factors that are not directly related to mitigation actions can be eliminated, while at the same time, some mitigation actions cannot be reflected. For example, quantitative targets are inclusive of all emission increasing/reducing factors in the sources covered, regardless of mitigation efforts, whereas employing emissions per unit of production as an index will enable the elimination of fluctuations in emission due to changes in demand that are beyond the control of the emission sources covered, but fails to include the emission mitigation achieved through measures to control demand.

In the case of a PBCM, mitigation measures are specified and therefore the indices employed to estimate reductions are, to some extent, limited. For

example, a fuel-conversion project in a particular plant would usually employ emissions per unit of energy as the index and calculate baseline emissions by multiplying the energy intensity (emissions per unit of energy consumption) before fuel-conversion by the monitored amount of energy consumption. Then, credits would be generated based on the difference between the baseline and the actual emissions measured in the implementation of the project. On the other hand, because mitigation methods are not determined under a SCM, target indices can be spontaneously selected. However, targets should be determined from the viewpoint that they can be readily accepted by developing countries; and therefore, realistic targets include those based on absolute quantity or emission intensity per unit production.

(2) Baselines

The amount of credits generated in an offset crediting mechanism is largely affected by the methodology used in determining the baseline. Therefore, it is necessary to aggregate reliable data and employ a well-founded method of calculation and to establish a clear rule for determining the data source and calculation method, in order to eliminate arbitrary calculations.

Some factors that determine baseline emissions include those with high uncertainty which are extremely difficult to forecast. If these unpredictable factors have a large impact on emissions, irrelevant to mitigation efforts, the baseline may be reconsidered during or after the monitoring period. In such cases, the conditions, such as a certain level of discrepancy between the forecasted value and actual measurement, for changing the baseline would have to be determined. Also, careful consideration should be given so that accumulated emission reductions will not be lost in the process of changing the baseline.

A CDM-related issue regarding baselines is the "perverse incentive[11]". Because CDMs often determine policy elements that are not directly related to mitigation measures based on actual monitoring after project implementation, baseline emissions can be maintained at a higher level and more credits can be generated if policies and measures related to the element are not implemented. Thus, a disincentive towards such policies and measures is created among developing countries. This disincentive basically also lies in the PBCM, in which baselines are determined using a methodology similar to that of the CDM. In order to eliminate such disincentives and to simplify baseline setting procedures, baselines could be determined based on sectoral benchmarks and prevent additional policies from affecting baseline emissions.

On the other hand, compared with the PBCM and the CDM for which mitigation measures are identified, the SCM has fewer elements determined afterwards based on monitoring and often determines baselines based on benchmarks. Therefore, many factors of emission increases and reductions in the covered sector can be reflected in the amount of credits generated, and disincentives observed in CDM do not develop in relation with sectoral policies implemented by the government.

(3) Additionality

The CDM has an extremely stringent additionality criterion which calls for strenuous efforts to demonstrate and a long time for verification and processing, from application to registration with the UN. Also, the judgment of additionality being highly difficult, some registered CDM project have been criticized to be actually lacking in additionality. However, even with these shortcomings, it is unlikely that credits for reductions in countries without mitigation targets

[11] Samaniego, J. & C. Figueres (2002) "Building on the Kyoto Protocol: options for protecting the climate"

would be internationally admitted without the demonstration of additionality. The reason for such stringent targets is that under a baseline and credit-type mechanism like the CDM, emissions corresponding to the credits generated will increase in developed countries with binding targets; and therefore, if it cannot be proven that the reductions would not have been achieved in the absence of the CDM project (or, that they were additionally achieved as a result of the CDM), then the total global emissions would increase. On the other hand, the additionality criterion for the JI projects implemented in countries with binding targets give businesses more room for choice compared to the CDM[12].

Considering the abovementioned reasons for requiring additionality, PBCMs would also need to call for a certain level of additionality, if not as stringent as that for CDMs. In SDMs, on the other hand, mitigation measures lacking in additionality, or measures that would have been implemented even in the absence of the SCM, have conceptually already been discarded in the process of baseline setting. Therefore, reductions exceeding the baseline are considered to be additional. In both the PBCM and the SCM, standardized guidelines should be formulated on additionality in order to solve the shortcomings revealed in the CDM.

An idea to resolve the problems related to additionality is to have developing countries bear volume- or GDP intensity-based mitigation targets in order to make the demonstration of additionality more flexible and simplified. It is a scheme similar to JI that imposes stricter targets for each credit generated in developing countries. This idea embraces two issues yet to be resolved:

The first problem is related to the appropriateness of the target level of developing countries. Developing countries are permitted to sell only credits that are generated based on a baseline and credit-type scheme, and thus will

[12] Reductions achieved in JI projects also generate credits (ERU), but by converting the initial allowances of the project implementing country into ERU. Therefore total emission allowances are not changed.

not lead to issues such as Russian and East European hot air under the Kyoto Protocol, but if developing countries set very low targets, it would be the equivalent of having no target at all. Therefore, assessment criteria or a verification system should be incorporated to determine the appropriateness of the target level.

The other issue is how to deal with developing countries that we unsuccessful in achieving their targets. Two methods are possible, namely, holding developing countries responsible for procuring credits to compensate for shortages, or cancelling or discounting the value of issued credits. In the latter case, credits issued by a developing country are traded as credits risking cancellation or the discounting of value, until the developing country's chances of achieving its target is discerned. Considering the difficulties in determining which credits should be cancelled, it would be more realistic to uniformly discount the value of issued credits according to the degree of incompliance.

Given the strong opposition from developing countries against being imposed binding targets, the adoption of this idea for resolving additionality issues may be very unlikely. Developing countries could be left to decide whether or not to accept binding targets, in which case this idea would be worth keeping as an option. The idea can also be used in encouraging developing countries to shift to a world in which they also bear binding targets.

(4) Crediting Period

In general, short crediting periods increase the certainty of baselines but obstruct long-term investment outlooks [13] . With developing country

[13] Schneider, Lambert and Martin Cames (2009) "A framework for a sectoral crediting mechanism in a post-2012 climate regime"advovates that short crediting periods should be adopted for the initial phase when uncertainties are high and adjustments are required, gradually extending the periods.

governments acquiring the credits, there is little opportunity for the involvement of private investors in SCMs and the uncertainties in baseline estimations are higher than those of PBCMs. Therefore, in SCMs, shorter crediting periods should be set, compared to PBCMs, and baselines should be reviewed at shorter intervals.

(5) Monitoring period

A shorter monitoring period accelerates crediting but at the same time increases the costs and efforts required for monitoring and verification. Considering data collection, monitoring periods are likely to correspond with calendar or fiscal years, as in CDMs, but would not be required to be uniformly fixed in either PBCMs or SCMs. Fixing a calendar year-based monitoring period, will cause the concentration of verification work, thus possibly delaying the process. Designing schemes to allow a flexible choice of monitoring periods would be possible by diversifying the timing of credit generation and incorporating it into market rules.

(6) Measurement, reporting and verification (MRV)

The Copenhagen Agreement provides that mitigation actions by development countries that receive international support are subject to international MRV. Mitigation actions based on offset crediting mechanisms receive financial support through selling credits, and thus should, according to the Copenhagen Accord, undergo MRV based on internationally common standards, in order to be acknowledged in the post-Kyoto framework. Furthermore, MRV related to direct support as well as to offset crediting mechanism-based support – MRV regarding how the funds provided were used and what effects they had, whether the pledged mitigation actions were really implemented – as discussed in chapter 3 section 4, should be organized.

In MRV-related rule-making, it would be most important to ensure a certain level of stringency and transparency. Then again, rules which are too stringent would require significant costs and time for MRV and would inhibit the implementation of mitigation actions that would otherwise have occurred.

Although there has been no notable progress regarding MRV in the COP forum, it is essential that efficient and effective MRV rules be formulated by referring to the flaws already discovered in ISO guidelines and CDM. Also, given the many alterations made to CDM methodology, these rules can be developed through a trial-and-error process. Japan should organize a domestic MRV system, taking into consideration the necessity of strict standards as advocated by the US and other countries and firmly implement MRV in bilateral offset crediting systems. Solving issues as they arise, Japan should lead the world in establishing an internationally-recognized MRV scheme. In the establishment of internationally MRV methodology, Japan should cooperate in the development of standards such as ISO and support the wider engagement of international standardization institutes.

Appendix B A study of the discrepancies in credit value

This appendix will begin with a study of the factors of the differences in credit value, followed by a study of common criteria for measuring credits generated in bilateral offset crediting mechanisms of different types or between different pairs of countries.

(1) Values of CDM-based credits

CDM is an offset credit mechanism under the Kyoto Protocol in which different measurement methodology is used to calculate reductions from different types of projects. Credit for CSR and public relations purposes, in particular, are often differentiated in terms of value, in accordance to the type of project and place of implementation. However, apart from values diversified due to the social image of a mitigation project, the Kyoto Protocol, which serves as the basis for CDM, provides that all types of CDM bear the same value[14] and can be equally used for compliance with the reduction targets of developed countries.

Under the CDM, all credits are issued "based on the emission-reduction project." Project certification, the issuance of credits and the approval of methodologies are all overseen by the CDM Executive Board and therefore a common standard prevails throughout the process and concept leading to the issuance of credits. For these two reasons, credits generated in a CDM are considered to be of equal value.

[14] Credits from sink projects have different characteristics due to their lack of durability in emission reduction.

(2) Credit values of credits from different mechanisms

However, the PBCM, the SCM and NAMA are varied in their approaches towards baselines and the rigidness of MRV; and therefore, no common standard exists between the mechanisms adopted by a pair of two different countries. Each mechanism is also different in terms of the larger framework – whether credits are based on a mitigation project or whether a sector-wide baseline is determined. By sorting these discrepancies, credits from different mechanisms can be measured with shared criteria, thus paving the way towards recognition in the post-Kyoto framework.

The former "common standard" refers to an international MRV rule. Establishing an internationally common MRV rule that is reliable is the most important step towards measuring credits generated in different mechanisms with common criteria.

(3) Adjustments based on uncertainty

The largest issue in relation to differences in the larger framework is the discrepancies in the uncertainties of baseline emissions. When the uncertainties of baseline emissions are high, large amounts of credits exceeding actual mitigation efforts may be issued as a result of overestimated baseline emissions. In such cases, the question is whether these credits should be valued the same as credits representing guaranteed mitigation efforts. Furthermore, not only do many SCMs have a high level of uncertainty because mitigation methods are not specified, their wide coverage generates large amounts of credits, having a great impact when issued irrelevantly with actual mitigation efforts.

This could be solved by having each sector set a discount rate according to the level of uncertainty that would be applied to the credits issued. Credits would be "modestly" valued; for example, credits that have been issued in mechanisms with high uncertainties could be discounted by 50 percent. However, there is no scientific evidence upon which discount rates can be determined and sector-specific discount rates would pose difficulties in convincing interested parties, including developing country governments, to accept.

Appendix C The concurrent operation of different mechanisms in a single sector

If credits are generated based on SCMs, with wide coverage, as well as project-based PBCMs or CDMs within a single sector, without undergoing any adjustments, reductions would be double-counted. Double-counting may be prevented by employing the following two methods.

(1) Apply one offset crediting mechanism per sector

Developing countries could select one offset crediting mechanism for each sector and prohibit the issuance of credits based on other mechanisms[15].

This will definitely prevent double-counting, but problems remain for sectors for which the SCM was chosen but in which CDM projects exist. CDM project implementers would risk being deprived of their expected credit revenue. Companies aiming to acquire credits through a PBCM may also be opposed to the adoption of a SCM. In addition to such controversy among interested parties in developing countries, developed countries with different preferences for offset crediting mechanism will also find themselves a state of conflict. For example, in a developed country like Japan where the government (a company) is seeking to acquire credits in a mitigation project that employs its technology, the adoption of a PBCM, in which credits would be issued to project implementers, would provide opportunities to deploy its technology, while the adoption of an SCM, in which the developing country government (or trade union) would acquire the credits, would disincline project implementers in developing countries to pay

[15] PBCM and CDM can be applied in the same sector as long as they are not both applied in one single project.

the high costs of employing the mitigation technologies of developed countries. In contrast, developed countries more focused on paving the way for the future introduction of mitigation targets for developing countries or issuing massive amounts of credits would prefer the adoption of an SCM to a PBCM. The adoption of either mechanism would result in competition among developed countries over the source of credits. Therefore, we should abandon the narrow perspective of choosing between offset crediting mechanisms and move to a larger platform – NAMA. Discussions should be NAMA-oriented to provide assistance for other approaches such as developing technological standards for the expansion of product markets in developing countries and seek resolution from an expanded equilibrium approach.

(2) Adjusting the amount of credits issued

This section will study an approach to accept different offset crediting mechanisms within a sector instead of a single mechanism, preventing the double-counting of credits by adjusting the amount of credits issued. This approach seeks to eliminate as many discrepancies as possible among different mechanisms, for example by uniformly defining monitoring periods to be based on calendar years, so that in a mechanism such as SCM, with wide coverage, credits can be issued by deducting the number of credits generated from mechanisms in the same sector with narrower coverage.

The largest question in avoiding double-counting using this method is how to approach and determine the baseline. For example, the baseline in a PBCM is basically BAU whereas in a SCM, a benchmark higher than BAU is often adopted.

If the problem were limited to differences in the baseline level, adjusting the amount of credits issued by simple subtraction would be enough to overcome the issue of double-counting. However, in reality, the strictness of

baseline levels is not the only difference among mechanisms. Various gaps in approach and methodology underlie baseline setting: the boundaries of various mechanisms are not always nested within one another and are instead overlapped; and data sources are diversified. Therefore, it is extremely difficult to precisely resolve double-counting by adjusting the number of credits issued by simple subtraction.

The first approach of applying one offset crediting mechanism per sector, would cause each mechanism to become exclusive, thus arousing conflict among interested parties; whereas the second approach would encounter difficulties in precisely rectifying the double-counting as a consequence of the differences related to baseline setting.