

Measurable, Reportable and Verifiable (MRV)

Trends and Developments in
Climate Change Negotiations



Institute for
Global Environmental Strategies

IGES

December 2010

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Introduction

1. Background and Objectives

Discussions on a post-2012 future climate regime have been rigorously carried out, not only within the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, but also at other principal international forums, including the Group of Eight (G8) and the Group of Twenty (G20) Summits and the Major Economies Forum on Energy and Climate (MEF), as well as domestically in each country. Among the various negotiation topics put on the table, establishment of a Measurable, Reportable and Verifiable (MRV) system for greenhouse gas emissions reduction targets and the implementation of Nationally Appropriate Mitigation Actions (NAMAs) by the developing country parties to the Convention are placed as key topics, and are essential elements in ensuring the effectiveness, transparency and equity of mitigation actions implemented by each party country.

While international negotiations on MRV have been centered around the appropriate framework of and detailed design of the system, disparity in the views of each country is particularly evident on the points of the stringency of MRV and the issue of differentiation for Annex I and non-Annex I countries. Solutions to these points of opposition must be ushered within the negotiation process among party countries. In considering an ideal framework for MRV, solid understanding of the history, background, and current status of the negotiation is essential.

Against this backdrop, this document contributes to the current discussion for an ideal system of MRV conducive to mitigation pledges and actions, by providing a synopsis and analysis of the following six items related to MRV.

- The process of formation of MRV in international negotiations and its current status
- Elements of foundations for MRV in the existing climate regime (the function of national communications and the currents of debate)
- Elements of foundations for MRV in the existing climate regime (the function of greenhouse gas inventories and the currents of debate)
- Trends in MRV for developing countries support
- MRV in the Clean Development Mechanism
- MRV-related systems implemented by other international organisations and conventions

2. Structure

This document is comprised of the seven chapters, summarised below.

Chapter 1, "MRV in International Negotiations", highlights the significance of MRV, starting from the Bali Action Plan agreed at the 13th Conference of the Parties to the UNFCCC (COP 13) to the Copenhagen Accord (COP 15), as well as the status of negotiations following the COP 15 and the points of opposition between developed and developing countries.

Chapter 2, "National Communications", focuses on the national communications that provide the foundation for reporting aspect of MRV on the implementation of mitigation actions, and outlines an interpretation of the currents of international discussions, the processes for formulation and the state of formulation of the system of national communications.

Chapter 3, “Greenhouse Gas Inventories”, focuses on greenhouse gas inventories and provides an interpretation of the currents of international discussions, the processes for formulation and the state of formulation of the system for the inventories.

Chapter 4, “MRV for Developing Countries Support”, focuses on the support for developed countries that was stipulated as another target of MRV in the Bali Action Plan, and gives a general outline of the issues surrounding MRV for financial support and the appropriate modes of MRV for Japan’s existing forms of support.

Chapter 5, “MRV in the Clean Development Mechanism”, addresses MRV from the perspective of crediting of emissions reductions arising from market mechanisms and mitigation actions.

Chapter 6, “MRV-related Systems in non-Climate Regime”, provides a synopsis of similar systems for MRV that have been introduced or implemented in other international conventions or institutions and related issues.

Based on the above content, Chapter 7, “Remaining Issues and the Way Forward”, introduces proposals on the appropriate modalities for MRV in a post-2012 climate framework, based on a discussion of each element of measurement, reporting and verification related to remaining issues for design and implementation of an MRV system.

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- Chapter 2: National Communications (Takashi Morimoto, Takeshi Enoki)
- Chapter 3: Greenhouse Gas Inventories (Kiyoto Tanabe)
- Chapter 4: MRV for Financial Support (Makoto Kato, Kentaro Tamura, Koji Fukuda)
- Chapter 5: MRV in the Clean Development Mechanism (Yuji Mizuno, Akiko Fukui)
- Chapter 6: MRV-related in non-Climate Regime (Koji Fukuda, Madoka Yoshino)
- Chapter 7: Remaining Issues and the Way Forward (All Authors)

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Chapter 1

MRV in International Negotiations

MRV in International Negotiations

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1.1. The State of International Negotiations on MRV

Measurement, reporting and verification (MRV) has become a highly important issue following the 15th Conference of the Parties (COP15) to the Framework Convention on Climate Change in Copenhagen. At COP15, MRV was a central focal point of negotiation. In subsequent Ad Hoc Working Group (AWG) meetings, deliberations on MRV have continued. MRV is necessary for the achievement of, 1) confirmation of the state of emissions reductions on a global scale, and 2) the identifying/specifying potential needs for support, with effective use of emissions inventories and national communications as key.

The Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA) Chair's text released in July 2010 and subsequent negotiating text state an option that developed countries and developing countries are to submit information on national circumstances once every two years. Discussion continues on the content and frequency of this information. In particular, streamlined communications to be submitted biennially is under deliberation, due to the considerable burden for preparation of hitherto national communications that are lengthy in content.

After the Copenhagen Accord, a partnership for the actual implementation of MRV independent of negotiations, as well as negotiations work in texts of the chair or negotiation, have progressed.

Further international negotiations will take place in the future regarding the creation of a systematic framework for MRV and the adoption of additional guidelines required toward this purpose. Points at issue will include whether MRV will target actions or outcomes, whether information will be provided ex-post or ex-ante, the nature and definition of appropriate mitigation actions for developing countries, calculation of BAU, scope of financial and technical support, adaptation, support needs, and content to be included in long-term full-fledged national communications. Further points for deliberation include rules for accounting credits and removals by sinks and issues involving the process for MRV, such as the nature/role of MRV (punitive or facilitative), a concrete picture of the detailed process of MRV, development and securing of necessary experts, flexibility and a matching mechanism for MRV results and support.

1.1.1. The significance of MRV

While international negotiation on a post-2012 climate regime is ongoing, the role of measurement, reporting and verification (MRV) including international consultation and analysis (ICA) in increasing the transparency of mitigation actions (particularly of developing countries) is a major focus of this discussion. This section will first examine the significance of MRV from the standpoint of negotiations.

In the process of global climate change mitigation, the Kyoto Protocol is an important first step in reducing GHG emissions at the international level with definition of concrete reduction amounts for developed countries. The next step is to scale up efforts for GHG emissions reduction on a global scale and in more countries, including major emitting countries, toward the ultimate goal of the Framework Convention on Climate Change, i.e. the "stabilisation of greenhouse gas concentrations in the

atmosphere". As such, mitigation of greenhouse gases in even more countries, and establishment of measures to improve the transparency of these efforts, are inevitably required.

Kyoto-type methods that set total reduction amounts are functioning for countries equipped with robust inventory systems (i.e. developed countries). However, if methods should include other countries lacking sufficiently robust inventory preparation structures, a new system that can evaluate mitigation efforts other than absolute terms and thereby ensuring transparency of such efforts is required. For example, based on the Copenhagen Accord, developing countries submit a variety of mitigation actions. Included are the total mitigation targets compared to BAU (where growth continues) set by Korea and Brazil, and China and India's targets for emissions converted to intensity targets such as per GDP unit and targets for forestation and adoption of renewable energy (Table 1 and Table 2). Ensuring such target setting and transparency of these reduction targets would lead to a true understanding of the status of worldwide reductions.

Table1. Mitigation actions of developing countries submitted to the Copenhagen Accord

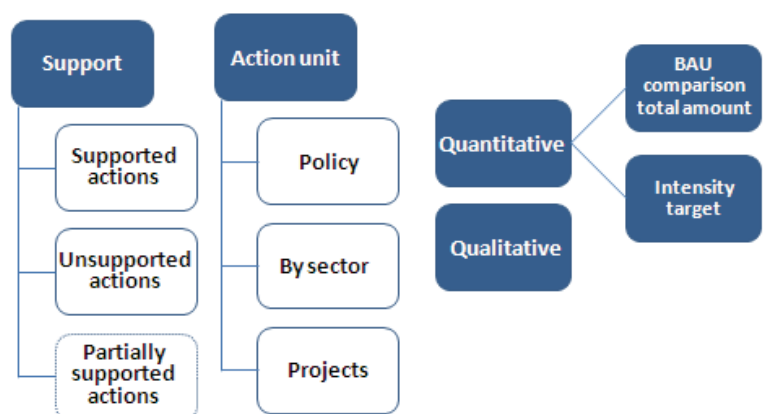
Country	Base year /baseline	Action target (2020)	Content of measures by sector
A	1990	30%	nothing listed
B	BAU	30%	nothing listed
C	1990	25%/GDP	nothing listed
D	2005	30%/GDP	<ul style="list-style-type: none"> • forest management • introduction of renewable energies • transportation efficiency
E	BAU	15%	<ul style="list-style-type: none"> • 20% improvement in energy efficiency • 50 mil ha increase in forest area
F	none	none	<ul style="list-style-type: none"> • forest management • 30% improvement in energy efficiency • transportation efficiency

Hypothetical listing based on NAMAs submitted under the Copenhagen Accord

In order to promote future global GHG reductions by inviting participation of more countries, a highly flexible framework in which more countries can conduct various mitigation actions is required. Furthermore, transparency is even more necessary if a flexible framework is to be created.

If transparency is increased and leading countries report information on states of mitigation actions and support, and developing countries report on areas and content requiring support, both 1) confirmation of the state of mitigation actions on a global scale, and 2) the identification/specification of potential needs for support, can be made possible. In relation to the identification/specification of potential needs for support MRV is not merely a burden to developing countries, but brings positive elements as well.

Figure 1. Various types of mitigation actions



If the present Framework Convention on Climate Change agreement is to be utilised in a post 2012 framework, the keys to an MRV system are 1) emissions inventories, and 2) national communications. Discussion on MRV (including international consultation and analysis (ICA)) has made headway since the Copenhagen Accord in subsequent Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) meetings. Moreover, the range of MRV is expanding to be extremely

comprehensive, covering not only inventories up to present, but all present agenda items, such as baseline calculations (estimates based on BAU models) in the case of business as usual growth of developing countries, support for developing countries, and offset mechanisms. For the time being, the main current of negotiation will focus on how to establish a framework for MRV; however, this issue is expected to remain an extremely important area for several years as preparation of detailed guidelines, preparation of actual country reports and MRV support for developing countries becomes necessary.

Future negotiations are expected to attempt to balance the call by developed countries for MRV for mitigation actions, with the call by developing countries for MRV for funding. MRV is expected to be an important element in any agreed package.

1.1.2. MRV in the Copenhagen Accord

At the 15th Conference of the Parties (COP15) to the Framework Convention on Climate Change in Copenhagen in 2009, negotiation took place on a post-2012 framework. Following consultations at the leaders' level, the Copenhagen Accord was prepared, and the parties agreed to "take note" of it (UNFCCC, 2010a).

One of the greatest points of contention regarding preparation of the Copenhagen Accord was MRV, with China reportedly being resolutely opposed (Guardian 2009). According to the news on the leaders' level talks, the US, along with China, Brazil, India and others, held direct talks on a number of remaining points and reached a compromise whereby international consultation and analysis (ICA), not MRV, would be conducted for unsupported mitigation actions (New York Times 2009).

MRV and ICA in the Accord and their main elements are outlined below.

Developed countries are to list mitigation "economy-wide-targets" in Appendix I, and developing countries are to list mitigation "actions" in Appendix II.

Implementation of mitigation actions and provision of funding by developing countries is to continue to be subject to robust measurement, reporting and verification, as it has to present. For this purpose, existing guidelines and additional guidelines are to be followed.

Developing countries are to submit national communications once every two years, including an inventory. Actions receiving support are to be subject to international MRV, and actions not receiving support are subject to MRV domestically in combination with international consultation and analysis (ICA).

1.1.3. Current state of international negotiations after the Copenhagen Accord

Under the Copenhagen Accord the biennial submission of national communications including inventories, domestic MRV, international MRV and international ICA, are required. On the other hand, the Accord gives no specification regarding details of the processes of MRV and ICA, or what to report. Following the COP15 in Copenhagen, the Ad Hoc Working Group (AWG) was held in April, where negotiation took place on how to proceed in fiscal year 2010. A new text of the chair released to the AWG in June and MRV was discussed in depth. In particular, the Umbrella Group (UG) distributed a paper at the June AWG that reported in detail on MRV, and made a proposal on the appropriate nature of a concrete system for MRV. Subsequently, the text of the chair was revised, with descriptions of MRV becoming more detailed (Table 2).

According to the present text, both developed and developing countries are to submit information on national circumstances biennially, with discussions ongoing on content and frequency (UNFCCC 2010b¹). In

¹ Excerpt from the Copenhagen Accord (UNFCCC 2010a)

4. Delivery of reductions and financing by developed countries will be measured, reported and verified in accordance with existing and any further guidelines adopted by the Conference of the Parties, and will ensure that accounting of such targets and finance is rigorous, robust and transparent.

5. Mitigation actions subsequently taken and envisaged by Non-Annex I Parties, including national inventory reports, shall be communicated through national communications consistent with Article 12.1(b) every two years on the basis of guidelines to be adopted

particular, refinement of the content of national communications, which are currently lengthy and put a large burden on countries for preparation, is under deliberation.

Specifically, the text states an option that each developed country is to submit a progress report biennially. Further, present requirements are also included, which are an expert review, an in-country visit when necessary, deliberation in the subsidiary bodies (SB), and a full-fledged national communication every three to five years (Table 3).

Each developing country is to report every two years on a portion of the elements of the national communication, and a proposal is stated for submission of a complete communication every four to six years, an analysis by an expert panel, and deliberation by the subsidiary bodies (SB). Further, in the same manner as the Copenhagen Accord, respect for the sovereignty of developing countries is incorporated, as it is generally thought self-evident that no country would accept injury to its sovereignty on the part of an international treaty.

In May 2010, an unofficial ministerial level meeting was held in Petersberg, Germany, and a partnership on MRV and mitigation was launched. Japan has hitherto been active in implementing capacity-building on inventories and MRV, through the Workshop on Greenhouse Gas Inventories in Asia (held since 2003, the 8th workshop in 2010) and the Asia-Pacific Seminar on Climate Change (held since 1991, the 19th seminar in 2010). Japan has made efforts in a variety of areas toward the development of the MRV capacity of developing countries, focusing particularly on Asia. The Institute for Global Environmental Strategies (IGES) has also augmented capacity in the Kyoto mechanisms in Asian

Table 2. Items under deliberation for listing in national communications

Developed countries	Developing countries
<ul style="list-style-type: none"> Emissions inventories Status of progress toward achieving targets Estimated reduction through implementation of policies Methodologies used and assumptions made in calculating reductions State of affairs of support (financial, technology, capacity-building) State of emissions trading activities or other offsets 	<ul style="list-style-type: none"> Emissions inventories Status of implementation of policies and estimated reductions resulting Methodologies used and assumptions made in calculating reductions Result of domestic verification of unsupported actions (low-emissions development strategy) (Methodologies used for calculation of BAU) (State of emissions trading activities)

MRV as noted in the current text of the chair (9 July 2010)
 Items under deliberation for submission once every two years. Items in parentheses added by the author.

Table 3. Proposed Frequency of MRV

Emissions inventories		
	Developed countries	Developing countries
Present framework	annually	irregularly
Post-2012	biennially	biennially

National communications		
	Developed countries	Developing countries
Present framework	once every 3-5 years	irregular
Post-2012	progress report (biennially) full-fledged national communication (once every 3-5 years)	listed elements (biennially) full-fledged national communication (once every 4-6 years)

by the Conference of the Parties. Those mitigation actions in national communications or otherwise communicated to the Secretariat will be added to the list in appendix II. Mitigation actions taken by Non-Annex I Parties will be subject to their domestic measurement, reporting and verification the result of which will be reported through their national communications every two years. Non-Annex I Parties will communicate information on the implementation of their actions through National Communications, with provisions for international consultations and analysis under clearly defined guidelines that will ensure that national sovereignty is respected. Nationally appropriate mitigation actions seeking international support will be recorded in a registry along with relevant technology, finance and capacity building support. Those actions supported will be added to the list in appendix II. These supported nationally appropriate mitigation actions will be subject to international measurement, reporting and verification in accordance with guidelines adopted by the Conference of the Parties.

countries, and the Japan International Cooperation Agency (JICA) has conducted capacity-building support for preparation of inventories.

In this manner, partnerships separate from negotiations toward actual implementation, as well as formalisation of MRV in negotiations text, has been furthered following the preparation of the Copenhagen Accord.

1.1.4. Issues surrounding MRV

Discussion on MRV is expected to further develop in the future. Points in dispute are the target of MRV, its process, calculation methods, and creation of MRV structures and support for implementation in developing countries. Conceivable points of discussion are listed briefly (Table 4).

In order to carry out MRV, it is first necessary to decide the target of MRV and then consider the MRV itself accordingly. Toward this purpose, the target of MRV must be sorted out in the first place. The concept of MRV requires definition, including such points as whether it is to cover actions or their outcomes, ex-post or ex-ante information (for example, planning for a NAMA or the results of its implementation).

While the mitigation actions of developing countries are important targets of MRV, the definition of nationally appropriate mitigation actions (NAMA) in the first place has not been made entirely clear in negotiations up to present. A related issue is the relationship between various NAMA and mitigation actions (MA) to be submitted in Appendix II according to the Copenhagen Accord. The definition of NAMA and MA remain unclear, concerning whether they are one and the same, or different.

Calculation of the BAU, which is the target for comparison when conducting mitigation actions, is technically very difficult. In programme-based CDM, drafting and verification of the baseline is difficult, and in some cases applications are rejected due to baseline calculation. It can thus be readily assumed that calculation and verification of the baseline for an entire country is even more difficult. Further, calculation of the BAU will be a new element added to current national communications.

Another point of discussion will focus on how MRV of financial and technical support is to be ensured. Thus far, the national communications of developed countries have noted results of support for developing countries. The first question for deliberation will be whether to continue as is or to adopt some improvements. In the background is the Bali Action Plan compiled at COP13, which contained wording on MRV following mention of “nationally appropriate mitigation actions” and “technology, financing and capacity-building”, where both can be read as targets of MRV. Some countries assert that the main target of MRV is support for technology, financing and capacity-building by developed countries, and this opinion remains strong (UNFCCC 2007, Reference Materials 2²). The OECD is deliberating the use

Table 4. Content under deliberation for inclusion in national communications

MRV targets	<ul style="list-style-type: none"> • Actions or their outcomes, ex-post or ex-ante information • Nature and definition of nationally appropriate mitigation actions (NAMA) of developing countries • Calculation of BAU • Financial and technical support • Adaptation • Support needs • Content included in long-term full-fledged national communications
MRV process	<ul style="list-style-type: none"> • Nature/role of MRV(punitive or facilitative) • Distinction between ICA and MRV and a concrete image of detailed processes • Development and securing of experts required for the process • Relationship between support and a matching mechanism (registry system) • MRV process considering wide-ranging levels of capacity of developing countries
Methods of calculation	<ul style="list-style-type: none"> • Treatment of calculation rules for credits and sinks, etc. (particularly dealing with credits)
Creation of MRV structures and implementation support	<ul style="list-style-type: none"> • Support for developing countries in setting up structures for and implementation of MRV

Drafting of additional guidelines based on the results of deliberation on these items

² This argument refers to excerpted text from the Bali Action Plan (UNFCCC 2007): *The Conference of the Parties, ...*

of Rio Markers³ as indicators of support. Utilisation of the Rio Markers is an option to be considered (OECD 2009).

MRV for adaptation is also important for developing countries. For many developing countries, adaptation takes a higher priority over mitigation in policy. Thus MRV can be utilised for identification of support needs for adaptation. It is crucial to deliberate on what is to be measured and reported, and how it is to be verified by MRV for adaptation, an area of high interest for developing countries.

MRV of support requirements is significant for developing countries as well. Through preparation of national communications, each country can clarify its necessary actions and priorities, whereby shedding light on requirements for support. This clarification will also make it easier for the parties providing support to do so. Preparation of national communications is not merely a burden for developing countries. It is important in negotiations to fully recognise the positive aspects and ensure that they are functioning.

Along the same lines, the relationship between support and a matching mechanism is an important element for an MRV framework. A registry system for NAMAs to receive support has been proposed in international negotiations. If benefits arise for developing countries in carrying out MRV, a win-win system can be created. Further, if support needs can be determined through MRV in some shape or form, support will be easier to obtain, creating incentive for developing countries to actively carry out MRV.

Current negotiation text contains statements on the content to be included in biennial reports. The content of full-fledged national communications to be submitted every four to six, or three to five years should be further discussed. Submission requirements for items that are not presumed to change in the short period of two years could be set for a longer term. For example, based on the OECD publication, these could include national circumstances, vulnerability assessments and adaptation measures, future emissions estimates (BAU), and low-emissions development strategies (LEDS) (Ellis et al. 2010).

In deliberation of the process for MRV and ICA, the function of MRV is the first important point of dispute. For example, the Kyoto Protocol calls for observation by developed countries. An important precursor for deliberation of a concrete process for MRV is whether punitive role of MRV will be called for in a new framework, or whether MRV will not be punitive but facilitative.

Differentiation and clarification between ICA and MRV and creation of a concrete large picture of their entire processes are also required. Will the actual process involve verification and analysis by a team of experts, or in-country visit by experts? Will existing organisations of the Framework Convention on Climate Change, such as the subsidiary bodies (SB) or the Consultative Group of Experts (CGE) on National Communications from Non-Annex I Parties be utilised? Such details of the process must be concluded. Moreover, the process for domestic MRV will likely be implemented according to the national circumstances of each country. For this purpose, principles are necessary, and deliberations to create these rules (for example, verification by external experts) are required.

Although a concrete process of the MRV is not yet deeply discussed and not yet clear, the involvement of experts on some level will be necessary. The development and securing of these experts is expected to become an issue in the future. Moreover, the type of experts required (internal or external, the role of NGOs, areas of expertise) must be clarified.

Another important item for deliberation on MRV is the treatment of calculation rules for credits including market mechanisms and sinks. On the topic of credits, discussion is currently focused particularly on improvements to the Kyoto mechanisms as well as a new market mechanism in a post-2012 climate

1. *Decides* to launch a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, in order to reach an agreed outcome and adopt a decision at its fifteenth session, by addressing, inter alia: ...

(b) Enhanced national/international action on mitigation of climate change, including, inter alia, consideration of:

(i) Measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives, by all developed country Parties, while ensuring the comparability of efforts among them, taking into account differences in their national circumstances;

(ii) Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner;

³ Indicators under deliberation by OECD for comprehension of official development assistance (ODA) used for the Framework Convention on Climate Change, the Convention to Combat Desertification, and the Convention on Biodiversity.

framework. However, further deliberations are required on the issues of how to apply MRV to credits and sorting out the relationship with MRV for the country as a whole. As the Kyoto mechanisms put a price on a reduction unit, an extremely rigorous system for measurement, reporting and verification exists. Thus, MRV for credits can be sufficiently guaranteed by this current system. The issue to be addressed is MRV on the accounting of utilisation of credits toward domestic achievements. For example, worldwide reductions cannot be understood by merely clarifying what amounts were transferred into developed countries from what countries, or to what countries what amounts were transferred from developing countries. The establishment of principle is necessary to avoid double counting of mitigation efforts around the world.

Regarding implementation of MRV, the level of development in developing countries is varied, and the range of capacity for MRV is broad. In other words, the treatment of differences in national situations is an issue. If the role of MRV is to be a facilitative one, the amount of accuracy called for in MRV could be different according to the level of development/capacity of the developing country. If anything, a system that increases in accuracy little by little would function best.

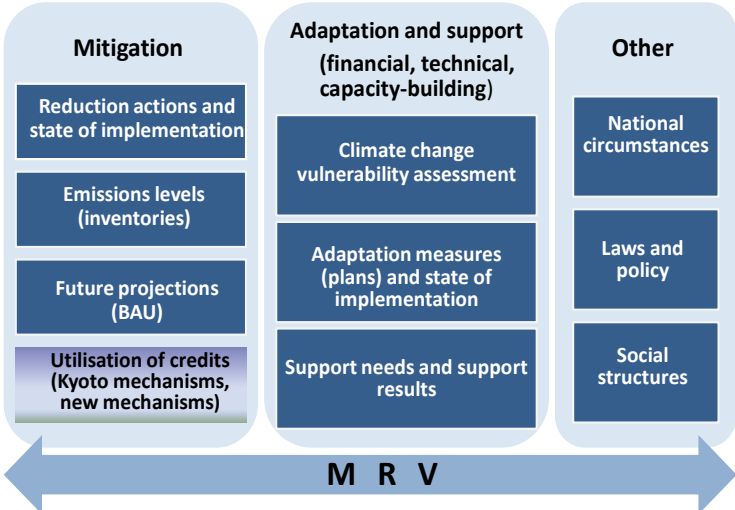
As MRV will no doubt put a new burden on developing countries at some degree, support for the creation of structures and implementation is required. Japan has already steadily carried out MRV support in the Asian region, but even more enriched and effective support will be necessary in the future.

MRV has become a major issue of discussion that bridges various negotiating areas (Figure 2). Regarding this issue, Japan should engage in domestic deliberations to proposed constructive ideas, as well as participate in future international negotiations on a framework for MRV and the adoption of necessary additional guidelines, aiming at a comprehensive, fair and effective post-2012 framework.

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Figure 2. The Relationship between MRV and various areas



1.2. Emergence of MRV and the Intentions of Different Countries

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Measurement, Reporting and Verification (MRV) of greenhouse gas emissions/sinks and Nationally Appropriate Mitigation Action (NAMA) are the starting point for practice of effective, efficient and fair global warming mitigation. When MRV is insufficient, assessment of emissions reduction is impossible, implying that government policy on carbon pricing would not function efficiently. Thus, criticism of government or regulators along the lines of “honesty does not pay” would be inevitable.

Yet in reality, it is difficult to force emitting parties, that is the emitting countries, companies and individuals, to actively comply with MRV. The reason being that since greenhouse gases have been regulated as “atmospheric pollutants”, the “polluter pays principle”, by which emitters are responsible only for the amount they emit, is becoming more strictly applied. Thus, there are many cases where companies refuse to release information for the reason of protecting business secrets.

Although it has something to do with the “political game”, the fact that the international society has begun to discuss the design of a concrete system for MRV in the midst of these circumstances is a positive step forward and a kind of the proof that global warming mitigation has become a very serious issue worldwide. It is extremely crucial that this momentum be maintained.

Section 1.2.1. will first discuss the background for the appearance of the term “MRV” in the negotiation processes of the Conference of the Parties (COP) to the Framework Convention on Climate Change (UNFCCC). Next, Section 1.2.2. will introduce the ways in which the MRV card was played in the negotiation processes of COP15 in Copenhagen in December 2009. Section 1.2.3. will clarify the respective intentions of developed and developing countries surrounding MRV. Section 1.2.4. will discuss the significance of active participation in MRV by Japan, and finally, Section 1.2.5. will summarise.

1.2.1. Reciprocal injury in Bali

Entanglements ensued in sessions on the final day of the COP13 held in Bali, Indonesia, in December 2008, and negotiations were on the verge of a breakdown. The main reason for this was an opposition regarding the content of wording relevant to the greenhouse gas emissions mitigation obligations of developing countries. Developed countries, on the evening before the final day, strongly called for the wording just below to be used, while developing countries strongly called for the latter wording below.

< Wording proposed by developed countries >

“...*measurable, reportable and verifiable* nationally appropriate mitigation actions by developing countries in the context of sustainable development, supported and enabled by technology, financing and capacity building.” (“Proposal by the President”, FCCC/CP/2007/L.7)

< Wording proposed by developing countries >

“...nationally appropriate mitigation actions by developing countries in the context of sustainable development, supported and enabled by technology, financing and capacity building, in a *measurable, reportable and verifiable* manner.” (Advance unedited version, Decision -/CP.13, Bali Action Plan)

Actually, it was here that the words “measurable, reportable and verifiable” were first entered into UNFCCC negotiation documents.

The point of dispute was over whether these words in italics, “MRVable”, hinge only on the mitigation actions of developing countries, or whether they also apply to the technology transfer and capacity building actions of developed countries (designed to facilitate mitigation in developing countries). Namely, the latter (developing country proposal), could be interpreted to mean that if technology transfer from developed countries to developing countries were not sufficient, developing countries would not have to implement mitigation actions.

As is commonly known, in the end developed countries had no choice but to compromise, and the proposal of the chair was revised. However, from the perspective of developing countries as well, the Bali Action Plan involved a considerable concession. The reason being that acceptance of concrete actions for emissions reductions and MRV greatly exceeded existing levels of commitment by developing countries as regulated by the Berlin Mandate. In other words, mutual injury was inflicted, by both developed and developing countries, at events in Bali.

1.2.2. The deliberately ambiguous Copenhagen Accord

The constitution of opposition in Copenhagen, two years after Bali, was as usual developed versus developing countries. Regarding several oppositions on concrete items, developed countries versus China, and the United States of America versus China, were the most prominent as far as intensity.

Compared to his predecessor, President Bush, US President Obama is markedly more aggressive on global warming mitigation. In order to pass a bill on global warming mitigation through Congress in his home country, it was necessary to force China, which has become a political and economic superpower, into a compromise of some sort. Namely, he could not go home empty-handed. However, getting China to raise its numerical target pledge, or to make this pledge a legally binding commitment under the UNFCCC, was not an easy task. The reason being that China’s numerical target is a basic unit target, for which comparative assessment is difficult, particularly considering the issue of the uncertainty and definition of the BAU scenario. Likewise, the reduction targets of the US itself are not that high, and the position of the US on restrictions under international law has been passive. Accordingly, more detailed and rigorous MRV was the only card the US had the room to play in the negotiations, as was the same for China in the sense that: 1) it is impossible to change the numbers instantly and 2) MRV system has already been installed to some degree.

In the midst of such circumstances, the fact that developed countries led by the US at Copenhagen were able to place developing countries under obligation to carry out MRV on their global warming policies (using the term International Consultation and Analysis (ICA), and despite some ambiguity in wording) was in the least a major diplomatic success for the government of the US. The US government was aiming for a headline such as, “US government sets straight the non-transparent and unfair developing countries”. Its success resulted in a declaration of victory by President Obama upon his return home and favourable evaluations by US think tanks.⁴

On the other hand, China was able to save face, in that it was not coerced into legally binding numerical targets, and in that a statement on respect for sovereignty was put into descriptions of MRV. Accordingly, the Copenhagen Accord was deliberately given an ambiguous interpretation, making a declaration of victory possible for both sides, with ICA as its focus.

1.2.3. Respective intentions of developed and developing countries

The respective intentions of developed and developing countries surrounding the advancement of MRV in the future are outlined below.

⁴ In negotiations at Copenhagen, the US first proposed the term “Examination and Assessment” for MRV of emissions reduction actions in the global warming mitigation of developing countries. However, as this term was rejected by the developing country faction (BASIC five countries), the term “International Consultation and Analysis” was settled upon. For details on the negotiations, see David Corn and Kate Sheppard. 2009. *The Real Story Behind Obama’s Copenhagen Deal*. Mother Jones, 18 December 2009, (<http://motherjones.com/environment/2009/12/obamas-copenhagen-deal>).

The developed country faction aims to make MRV for developing countries as rigorous as possible, and the scope of application as broad as possible. The reason being that rigorous MRV in actuality will have the same effect as strict reduction targets and international legally binding authority. In the first place, legally binding targets themselves do not lead to stricter carbon regulation, as is evident in the excessive assigned amounts (“hot air”) of Russia and Central and Eastern European countries. A developed country faction strategy to realise these aims could be, for example, to discriminate in technical and financial support from developed countries according to the level of contribution to MRV. Likewise, the rigorousness of MRV could be differentiated according to the bulk of emissions.

The developing country faction aims to further increase technology and financial transfer from developed countries. Its likely strategy is to first demand the application of rigorous MRV on developing country support, according to the previously mentioned Bali Action Plan that made support by developed countries a precondition. Moreover, this faction will make maximum use in negotiations of noble causes, such as interference in domestic affairs and prevention of injury to sovereignty, as well as criticism of the Monroe Doctrine-like position of the US.

Nevertheless, it should be recognised that developing countries did not accept MRV merely as a bargaining point. Of course, pressure on emerging countries from the Alliance of Small Island States (AOSIS) can be assumed. Regardless of the level of economic development, the reality is that developing countries themselves have become aware of the need to pursue global warming mitigation. In the midst of sudden rises in the price of energy resources such as petroleum and changes in industrial structure, this awareness stems from a greater recognition of the secondary effects of global warming mitigation as energy policy, such as promotion of energy conservation, establishment of energy security, poverty alleviation, air pollution mitigation and expansion of employment.

1.2.4. Implications for Japan

Active promotion of MRV has the following significance for Japan.

In the first place, the capacity that Japan has cultivated to present can be utilised. For instance, concerning emissions inventories, the Technical Support Unit (TSU) of the IPCC Task Force on Inventories, which promotes the creation of international standards for inventory preparation methods, is established in Japan. Moreover, Japan’s Official Development Assistance (ODA) carries out more projects than other developed countries related to global warming mitigation in developing countries, and has built cooperative relations with Asian countries for which the reduction potential is large. Furthermore, Japan has a stockpile of knowledge on MRV for domestic offset systems, such as that of Japan’s Voluntary Emissions Trading Scheme (JVETS) and domestic offset scheme (J-VER).

In the second place, in line with the thought of other developed countries, rigorous MRV is an effective means to promote reductions in developing countries. Although excessive promotion certainly has the potential to invite opposition, if Japan can further communication with an understanding of the current situation of developing countries, while utilising its previously mentioned capacity, it has the potential to take leadership in negotiations on the design of a concrete system.

In the third place, clarification of the content of each country’s reduction targets and the substance of MRV to be applied to these, will lead to the creation of a common metrics for understanding the actual situation in each country which help to understand the compatibility of the targets. These metrics will enable a balanced evaluation of the debate claiming that Japan’s numerical targets for emissions reduction stand out.

In the fourth place, promotion of MRV has significance not only from an international perspective, but domestically as well. It would accelerate the adoption of rigorous MRV for Japan’s domestic emissions and emissions reductions (e.g. release of basic unit and emissions amounts), thereby contributing to the design of effective and efficient systems for emissions trading and a domestic offset mechanism, the introduction of which is planned.

In the fifth place, while among developed countries there are those with a mind to put restrictions on use of the Clean Development Mechanism (CDM), the creation of a new credit mechanism that would generate credits from the emissions reduction actions of developing countries, would present an economic benefit to Japan, which is on the demand side for credits.

1.2.5. Conclusions

In international negotiations, time and again the birth of a concept or system greatly reforms the dominant paradigm of the time. The flexibility mechanisms prescribed at the Kyoto conference in 1997, i.e. the Kyoto mechanisms, are prime examples, which subsequently were called the “great surprise”.⁵ Likewise, MRV and ICA will exert extremely considerable influence on construction of a future paradigm for global warming mitigation.

At present, MRV and ICA are the hottest topics in international negotiations, and many governments and research institutes are actively working on the issue. For instance, the US government proposed to address MRV in an independent clause in the text of AWG-LCA at the AWG meeting in Bonn in June 2010. Likewise, the World Resources Institute (WRI), a US private sector think tank, is attempting to create a database regarding each country’s pledge for global warming mitigation targets and actions and the MRV systems that guarantee them.

Nevertheless, in a sense the paradigm made up of the elements of MRV and ICA, was formed by process of elimination in a situation where a strong legally binding international framework could not be chosen. Actual negotiations following COP15 in Copenhagen have been sluggish, and negotiation officials lack the enthusiasm they had before COP15. The level of interest in the issue of global warming itself is in decline. Debate on rejection of a institutional design based on a multilateral framework under the United Nations is occasionally heard both at home and abroad.

Under such circumstances, Japan is called to maintain its broad perspective on the effective and fair advancement of global warming mitigation worldwide, and to on occasion get actively involved in technical debate on MRV and ICA. Toward this purpose, Japan should without delay advance the creation of infrastructure for global warming mitigation of the country, such as the “Basic Act on Global Warming Countermeasures” bill and the emissions trading system. The draft of an institutional design for MRV in Japan must necessarily possess considerable persuasive power.

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⁵ Axel Michaelowa. 2005. Creating the foundations for host country participation in the CDM: Experiences and challenges in CDM capacity building. In *Climate change and carbon markets. A handbook of emission reduction mechanisms*, edited by Yamin, Farhana, 305-320, London: Earthscan.

Chapter 2

National Communications

National Communications

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In accordance with provisions in Article 4, paragraph 1, and Article 12, paragraph 1, of the Framework Convention on Climate Change, all Parties are obligated to submit a national communication including the following information.

- (a) A greenhouse gas inventory;
- (b) A general description of steps taken or envisaged by the Party to implement the Convention; and
- (c) Any other information that the Party considers relevant to the achievement of objectives of the Convention and suitable for inclusion in its communication.

Based on the principle of “common but differentiated responsibilities”, stricter provisions have been established for Annex I countries regarding the frequency and review of national communications, as compared to those of non-Annex I countries.

This chapter will examine the national communications of Annex I and non-Annex I countries, including an account of negotiations, reporting guidelines and circumstances surrounding preparation.

2.1. National Communications in Post-2012 climate regime negotiations (SB): progress and the current state

2.1.1. Agenda topics related to the national communications of non-Annex I countries

The activities of the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention

At the meeting of the Subsidiary Body for Implementation (SBI27) held in December 2007, steps to follow after the expiration of the mandate of the Consultative Group of Experts (CGE) (December 2007) were debated. Developed countries argued to switch the CGE’s main objective from technical support for preparation of national communications to improvement of their content, but developing countries were opposed. As a result, no agreements were reached, and the activities of the CGE ceased from 2008. Further, no agreements were reached at SBI28 or SBI29 regarding the content of activities of the CGE; however, an agreement was reached at SBI30. It was agreed that CGE activities would be resumed from 2010 to 2012, and that a mid-term review of activities would be implemented at COP17 (in the second year of the CGE activity period). At COP15, a draft decision related to the CGE was adopted, and CGE activities were resumed.

At SBI32, developing countries that supported the draft work programme prepared by the reconstituted CGE were opposed by developed countries that wanted to leave the door open to a change in the content of CGE activities based on debate at the AWG-LCA. In the end, the conclusion of the session report included a statement that “took note of and welcomed” the draft work programme.

Further, debate took place at SBI32 on tasks for the CGE to prioritise. In addition to technical support for carrying out periodic preparation of GHG inventories, vulnerability and adaptation assessments and

assessments of mitigation actions, developing countries (Canada, EU and others) purported the importance of provision of technical advice related to the processes of and maintenance of structures for continued preparation of national communications, including GHG inventories. Views diverged as developing countries argued that the former technical support should be priority. An agreement was reached whereby workshops held by the CGE are to put importance on the latter, while including technical support when possible. Thus the arguments of developed countries were accepted.

As the mid-term review of CGE activities is to be implemented at COP17, deliberation on the future expected role of the CGE, its organisation and the content of its activities is required, based on debate at the AWG-LCA on institutions for national communications in the post-2012 climate regime.

Information included in national communications

This issue was debated under the agenda topic of “compilation and synthesis of initial national communications” through SBI24, but as developing countries refused to debate on second and following national communications, the topic was removed from SBI25. On the other hand, at SBI26, there was a request from the UG and the EU to deliberate on the proper content of national communications for non-Annex I countries, so this topic was revived. Nevertheless, each time since SBI26, opposition from G77 and China upon adoption of the agenda has caused this item to be held in abeyance.

At SBI32, the Convention secretariat, favoring immediate initiation of compilation work on the second national communications, appealed to the Parties to issue instructions calling for work, but as in the previous session, this item was held in abeyance. Debate on the content of national communications is moving forward at AWG-LCA meetings. Thus, it is necessary to prioritise initiation of work on compilation and synthesis reports of the second national communications and proceed with negotiations on this agenda item.

Further implementation of Article 12, paragraph 5, of the Convention

There are provisions in Article 12, paragraph 5, that make reference to the frequency of submission of national communications, and debate on this topic was initiated at SBI31.

Holding a submission of opinions on the further implementation of Article 12, paragraph 5, was supported by developing countries. However, developed countries (USA, EU, Australia, and Japan) opposed, arguing that opinions should be submitted at another forum, such as the AWG-LCA, as this clause covers a broad range of topics, including frequency of submission, funding and capacity-building. As no agreement was reached, debate was carried over to the next SBI.

Provision of financial and technical support

At SBI32, points of discussion included items related to operations of the GEF, the number of project applications in relation to the number of GEF-funded projects, and national technical teams for preparation of national communications.

Non-Annex I countries voiced their discontent regarding operations of the GEF. This discontent stemmed from the unsmooth nature of disbursements from the implementing organs of the GEF (UNDP and UNEP), and the lack of transparency in discussions at the Assembly and procedural items related to GEF donations, which could imply the potential for funding to not make it to specific countries (petroleum exporting countries). (GEF explained that it had no policy to exclude any specific countries.) For these reasons, non-Annex I countries asserted that the GEF should report to the COP based on the detailed results of the COP and the situation of funding disbursements of implementing organs, and that the GEF should function under the guidance of the COP, which decides the level of priority of policies and plans and the standards of competency.

Regarding the number of project applications and funded projects, G77 and China asserted that the GEF should promptly provide the COP with information on the number of projects in national communications that are those receiving grants from the GEF. A statement to this effect was added to the conclusion.

Regarding the continued support for national technical teams, an opinion arose from non-Annex I countries regarding the importance of technical teams within non-Annex I countries in contrast to the insufficiency of funding for the teams, calling for continued support for national technical teams. Because the EU rejected wording that suggested GEF funds flow directly to national technical teams, agreement was reached on a statement that “stressed the importance of the maintenance of the national technical teams”.

2.1.2. Agenda topics related to national communications of Annex I countries

Reporting inventory data for Annex I countries

Decision 19/CP.8 contains a request for information related to inventory data reported to the secretariat by Annex I countries for the purpose of deliberation by the subsidiary bodies (SB) and the COP. G77 and China along with Brazil asserted that draft concluding statements should include a strongly worded call for trends in emissions of developed countries and augmentation of Annex I mitigation actions. However, Annex I countries opposed, and the stand-off has continued.

Time of submission of national communications

Decision 11/CP.4 sets the frequency of submission of national communications for Annex I countries at three to five years, and a concrete deadline has been discussed at SBI. Further, decision 10/CP.13 sets the submission of the sixth national communications to be approximately four years after submission of the fifth national communications. Non-Annex I countries asserted that the date of submission should be 2011, with the seventh national communications being submitted one year following. Developed countries opposed, and no decisions have been reached.

2.2. Reporting Guidelines for National Communications

2.2.1. Reporting guidelines for national communications of Annex I countries

Up to present, submissions deadlines have been set five times for national communications of Annex I countries, and most Annex I countries have completed the submission of the fifth national communications (The deadline for submission of the fifth national communications was 1 January 2010 (10/CP.13)). Annex I countries must follow the “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention” in the preparation of national communications. The information to be included in national communications as stipulated by these guidelines is outlined in Table 1. Annex I countries are required to use one of the official languages of the United Nations to compile this information into one document for submission to the secretariat of the Convention.

Table 1. Information to be included in the national communications of Annex I countries

Item	Details
National circumstances relevant to greenhouse gas emissions and sinks	Information related to the influence of national situations on greenhouse gas emissions and sinks. In order to improve the potential for comparison of national communications, information on the following is recommended: government institutions, population, geography, climate, economy, energy, transport, industry, waste, urban structure, agriculture and forests.
An inventory of greenhouse gas emissions and sinks	Information on aggregate emissions of greenhouse gases from 1990 to the latest year, etc.
Policy and measures	Information on key policy and measures that influence the level of emissions and sinks of greenhouse gases (reported by sector and by gas), etc.
Projections and effects of policy and measures	Future projections based on different scenarios, such as “measures not enacted”, “measures enacted” and “additional measures enacted”, etc.
Vulnerability assessment, climate change impacts and adaptation measures	Information on the impacts of climate change and measures related to adaptation to the impacts of climate change, etc.
Financial assistance and technology transfer	Information related to financial assistance, technology transfer and international cooperation based on Article 4, paragraphs 3, 4 and 5 of the Convention, etc.
Research and systematic observation	Information on measures related to research and systematic observation
Education, training and public awareness	Information on measures related to education, training and public awareness

Source: An Interpretation of the Kyoto Protocol, July 2005, Research Group on the Kyoto Protocol

Further, Article 7, paragraph 2, of the Kyoto Protocol stipulates that Annex I countries that are signature states to the Kyoto Protocol should include supplementary information as stipulated in the “Guidelines for preparation of the information required under Article 7 of the Kyoto Protocol (15/CMP.1)” in the national communications submitted under Article 12 of the Convention (see Table 2). For preparation of the fifth national communications, an integrated outline for the structure of national communications covering both the “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention” and the “Guidelines for preparation of the information required under Article 7 of the Kyoto Protocol” was prepared.⁶ Annex I countries are recommended to use this outline for preparation of national communications.

⁶ <http://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/nc5outline.pdf>

Table 2. Supplementary information to be included in the national communications of Annex I countries

Item	Details
National systems in accordance with Article 5, paragraph 1, of the Protocol	<p>An explanation of how each Party is performing the general and specific functions as stipulated in the guidelines for national systems under Article 5, paragraph 1. The information that should be included is as follows.</p> <ul style="list-style-type: none"> • The name and contact information for the national entity and its designated representative with overall responsibility for the inventory of greenhouse gas emissions and sinks • The roles and responsibilities of various organisations and entities in relation to the preparation process of the inventory of greenhouse gas emissions and sinks, as well as the institutional, legal and procedural arrangements for preparation of the inventory of greenhouse gas emissions and sinks • A description of the process for collection of activity data, selection of emissions factors and calculation methods, and estimation of emissions • A description of the process and results of key source identification and, where relevant, archiving of test data • A description of the recalculation of previously submitted data of inventories of greenhouse gas emissions and sinks • A description of the quality assurance and quality control plan and its implementation, as well as established quality objectives, and information on internal and external evaluation and review processes and their results in accordance with the guidelines for national systems • A description of the procedures for official deliberation and approval of the inventory of greenhouse gas emissions and sinks <p>Further, in cases where the Annex I country Party has not carried out all functions, the Party shall submit an explanation of the situation and information on existing plans and measures to carry out these functions in the future.</p>
National registries	<ul style="list-style-type: none"> • The name and contact information of the registry administrator designated by the Party to manage the national registry • The names of other Parties with which the concerned Party cooperates in maintaining national registries in a consolidated system • A description of the database structure and capacity of the national registry • A description of how the concerned national registry conforms to technical standards for data exchange between registry systems for the purpose of ensuring the accurate, highly transparent and efficient data exchange between national registries, the CDM registry and the transaction log • A description of the measures taken to minimise discrepancies in the issuance, transfer, acquisition, cancellation and retirement of ERUs, CERs, tCERs, ICERs, AAUs and RMUs, and replacement of tCERs and ICERs, and of measures adopted to terminate transactions and to correct problems in cases where a discrepancy is notified • A summary of security measures implemented to prevent unauthorised manipulations and operator error and of how these measures are kept up to date • A list of the information publicly accessible through the user interface to the national registry • The Internet address of the interface to the national registry • A description of measures implemented to safeguard, maintain and recover data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster • The results of tests developed to test the performance, procedures and security of the national registry, undertaken pursuant to the provisions of decision 19/CP.7 relating to technical standards for data exchange between registry systems

Table 2. (continued)

Item	Details
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Protocol	Information on how each Party's use of the Kyoto mechanisms is supplemental to domestic action, and how its domestic action thus constitutes a significant element of efforts made to meet reduction objectives under Article 3, paragraph 1, of the Protocol
Policy and measures in accordance with Article 2 of the Protocol	Information on policy and measures implemented or further elaborated as well as cooperation with other such Parties carried out to achieve reduction commitments pursuant to Article 3 of the Protocol
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	<p>All relevant information on domestic and regional legislative arrangements and enforcement and administrative procedures, established in line with the implementation of the Kyoto Protocol, according to national circumstances. This information shall include the following.</p> <ul style="list-style-type: none"> • A description of any domestic and regional legislative arrangements and enforcement and administrative procedures established by the Party to achieve its commitments under the Kyoto Protocol • A description of any regulations to make information on these legislative arrangements and enforcement and administrative procedures (e.g. regulations on enforcement and administrative procedures, measures implemented) publicly accessible • A description of any institutional arrangements and decision-making procedures that the Party has put into practice in order to coordinate activities relating to participation in the mechanisms pursuant to Articles 6, 12 and 17, including the participation of legal entities <p>Further, a description is to be made of all domestic legislative arrangements and administrative procedures that aim to ensure that the implementation of activities pursuant to Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, also contributes to the preservation of biodiversity and sustainable use of natural resources.</p>
Information under Article 10 of the Protocol	<ul style="list-style-type: none"> • Information on activities, actions and programmes put into practice toward achievement of commitments pursuant to Article 10 of the Protocol • Information on measures devised to promote, facilitate and provide financial support for the transfer of technology to developing countries and to build the capacity of developing countries
Financial resources	<ul style="list-style-type: none"> • Information on the implementation of Article 11 of the Protocol, in particular information on what new and additional financial resources have been provided, in what way these resources are new and additional, and how the Party has taken into consideration the need for adequacy and predictability in the flow of these resources • Information on contributions to the organisation entrusted with the operation of the financial mechanism • Information on financial contributions to the Adaptation Fund established pursuant to decision 10/CP.7 (in the case funding was provided)

Source: An Interpretation of the Kyoto Protocol, July 2005, Research Group on the Kyoto Protocol

2.2.2. Reporting guidelines for the national communications of non-Annex I countries

Each non-Annex I country must submit its initial national communication within three years of the entry into force of the Framework Convention on Climate Change for that Party, or of the availability for use of financial resources (excepting LDCs). As of September 2010, 137 countries of the total 153 non-Annex I

countries have submitted their initial national communications, and 28 countries have submitted their second national communications.

The content to be included in the national communications of non-Annex I countries and reporting methods are stipulated in the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention”. According to these guidelines, the following key items should be included in national communications.

- National circumstances (information on aspects of geography, climate and economy that influence the implementation of climate change mitigation and adaptation measures, etc.)
- National greenhouse gas inventory (For the initial national communication, levels of GHG emissions and sinks for the year 1994 or the year 1990 are to be used for estimation. For the second national communication, levels of GHG emissions and sinks for the year 2000 are to be used for estimation. The Revised 1996 IPCC Guidelines should be used for calculation of levels of emissions and sinks, and use of the GPG2000 (Good Practice Guidance) is encouraged. Three types of gases are targeted, CO₂, CH₄, and N₂O, with estimation of levels of the three fluorinated gaseous compounds (HFC, etc.) as well as emissions of indirect GHGs being recommended items.)
- General description of the steps taken or envisaged to implement the Convention (content of activities, policy or programmes designed to respond to climate change that the Party is implementing or planning, etc.)
- Other information considered on the achievement of objectives of the Convention (information related to technology transfer, research and systematic observation, education, training and public awareness, capacity development, information and networking)
- Constraints and gaps, and related financial, technical and capacity needs

2.3. National Communications of Japan

In Japan, research and deliberation on items of the national communication (inventory, mitigation measures and adaptation measures) is undertaken continually, and content is fundamentally a compilation of existing information. A summary of the Japan greenhouse gas inventory report, submitted every year to the secretariat of the Framework Convention on Climate Change, is used for the inventory. Further, Japan reorganises information from progress reviews of its Kyoto Protocol Target Achievement Plan to utilise for reporting of mitigation measures. In relation to adaptation measures as well, content of investigative research conducted by the Ministry of the Environment is compiled and utilised.

As submission of national communications for Annex I countries is once every four to five years, preparation of the national communication is implemented ad hoc, with no continuous structure established for preparation, as in the case of the inventory. Japan’s internal policy regarding compliance requires deliberation based on the content and frequency of preparation of national communications for the post-2012 climate regime.

2.4. Preparation of National Communications for Developing Countries

Each non-Annex I country must prepare and submit an initial national communication within three years of the Framework Convention on Climate Change taking effect in that country, or of receiving financial support from the GEF (Global Environment Facility) for capacity-building for preparation of the communication. However, submission for least developed countries is left to their discretion (Article 12, paragraph 5).

Non-Annex I countries are required to submit national communication preparation project applications to the GEF via the implementing agencies (UNDP, UNEP and the World Bank) in order to receive funding support for preparation of national communications. There are two types of applications, the normal process and expedited process, where countries requiring more funding support for preparation of the

national communication apply through the normal process for application. The amount of funding that can be received through the normal process of application is considerably larger than the expedited process. (Through the expedited process, a maximum of approximately 420,000 USD can be received, but through the normal process, over twice this amount is possible.) Nonetheless, the expedited process is generally followed for applications as the detailed planning of project activity content required for normal application is a heavy burden on non-Annex I countries.

The preparation process for national communications differs for each non-Annex I country. The general approach is to form an ad hoc research group, implement research on inventories, adaptation, and mitigation in cooperation with external consultants, and compile the report. Further, as there is no clear requirement for non-Annex I countries to prepare the national communication at periodic intervals, research groups are disbanded upon completion of the national communication, and in many cases knowledge and know how related to national communications is lost.

2.5. System for Review

2.5.1. Review of the national communications of Annex I countries

Pursuant to decisions 2/CP.1 and 6/CP.3, the national communications of Annex I countries are to undergo in-depth review. In-depth reviews are conducted by an international team of experts organised by the secretariat of the Convention. There are two types of reviews, the paper-based review and country visits. The objective of the in-depth review is to provide a technical evaluation on fulfillment of the Party's commitments. The results of the in-depth review are compiled into a report and released to the public.

Furthermore, Annex I countries who are Parties to the Kyoto Protocol are to undergo review per Article 8 of the Kyoto Protocol regarding supplemental information reported in national communications pursuant to Article 7, paragraph 2, of the Kyoto Protocol. Items of review are listed in Table 3.

2.5.2. Review of the national communications of non-Annex I countries

There exists no similar system for the national communications of non-Annex I countries, such as the in-depth review for national communications of Annex I countries. Further, the national communications received from non-Annex I countries are edited, combined and compiled into a report by the Convention secretariat. The Convention secretariat has prepared six edited and combined reports of initial national communications between 1999 and 2005 to take into account new submissions from Parties.

Table 3. Items for review of national communications

Item summary	Details
(a) Relevant regulation and consistency	<ul style="list-style-type: none"> • to determine whether the concerned information was prepared and submitted following relevant regulations
(b) Review of national communications	<ul style="list-style-type: none"> • The following portions of the national communications are to be reviewed in detail: <ul style="list-style-type: none"> (i) national circumstances related to inventory of greenhouse gas emissions and sinks (ii) policy and measures (iii) projections and effects of policy and measures (iv) vulnerability assessments, impacts and adaptation measures (v) funding sources (vi) technology transfer (vii) research and systematic observation (including information on GCOS) (viii) education, training and public awareness
(c) Review of supplementary information	<ul style="list-style-type: none"> • The following supplementary information is to be reviewed in detail pursuant to Article 7, paragraph 2: <ul style="list-style-type: none"> (i) supplementary information related to mechanisms of Articles 6, 12 and 17 (ii) policy and measures pursuant to Article 2 (iii) national and regional policy and/or legal arrangements (iv) information pursuant to Article 10 (v) funding sources
(d) Identification of potential problems	<ul style="list-style-type: none"> • Identification of potential problems and factors that influence the achievement of commitments related to national communications as well as supplementary information pursuant to Article 7, paragraph 2 of the Protocol

Source: An Interpretation of the Kyoto Protocol, July 2005, Research Group on the Kyoto Protocol

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Chapter 3

Greenhouse Gas Inventories

Greenhouse Gas Inventories

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3.1. Current Inventory Reporting

According to Article 4 and Article 12 of the United Nations Framework Convention on Climate Change (UNFCCC), all parties to the Convention bear the responsibility to develop, periodically update and publish greenhouse gas inventories (hereafter called inventories). However, the details of obligations differ for parties included in Annex I to the Convention (Annex I parties) and those not (non-Annex I parties).

Inventories cover a wide range of sources and sinks of greenhouse gases, including the energy sector, the industrial processes sector, the agriculture sector, the land use, land-use change, and forestry sector, and the waste sector. While there are several exceptions, as a rule, a party is to include all anthropogenic emissions and removals taking place within national (including administered) territories and offshore areas over which the country has jurisdiction.

The following conditions are regarded as important in preparation and reporting of inventories.

- (1) **Transparency:** The assumptions and methodologies used for an inventory should be clearly explained to facilitate replication and assessment of the inventory by users of the reported information.
- (2) **Consistency:** An inventory should be internally consistent in all its elements with inventories of other years. An inventory is consistent if the same methodologies are used for the base and all subsequent years and if consistent data sets are used to estimate emissions or removals from sources or sinks.
- (3) **Comparability:** Estimates of emissions and removals reported by countries in inventories should be comparable among countries.
- (4) **Completeness:** An inventory should cover all sources and sinks and gases for the full geographic coverage
- (5) **Accuracy:** A relative measure of the exactness of an emission or removal estimate. Estimates should be accurate in the sense that they are systematically neither over nor under true emissions or removals, as far as can be judged, and that uncertainties are reduced as far as practicable.

3.1.1. Inventory reporting of Annex I parties

Annex I parties are required to follow the UNFCCC reporting guidelines on annual inventories (UNFCCC 2006a) and to update yearly inventories for all years from the base year (1990 for most Annex I parties) to the latest year (two years prior to the year of submission). They are required to submit a National Inventory Report (NIR) describing the details of this content, and a table of various types of data in the Common Reporting Format (CRF), by 15 April every year to the Conference of the Parties via the Convention secretariat.

Annex I parties must use the “Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories”, the “Good Practice Guidance and Uncertainty Management in National Greenhouse

Gas Inventories” and the “Good Practice Guidance for Land Use, Land-Use Change and Forestry” in the preparation of inventories.

Gases to be included in reporting by Annex I parties are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆). Annex I parties are to calculate the emissions of each individual gas, and using the global warming potential (GWP) values, aggregate them into national total emissions in carbon dioxide equivalents. At present, the 100-year GWP values set forth in the Second Assessment Report (SAR) of the IPCC are used. Furthermore, Annex I parties should report on indirect greenhouse gases, including nitrogen oxides, carbon monoxide, non-methane volatile organic compounds, and sulphur dioxide.

The inventories of Annex I parties have a particularly important significance under the Kyoto Protocol. Compliance on targets for greenhouse gas emissions reductions and control under the Kyoto Protocol are judged upon completion of the commitment period based on a comparison of the assigned amounts held by each Annex I party and total greenhouse gas emissions during the first commitment period. The items used for comparison in both cases are calculations based on the inventories.

Pursuant to Article 3, paragraphs 7 and 8, of the Protocol, the initial assigned amounts are calculated and determined before the start of the first commitment period, based on total emissions for the base year (in the case of Japan, 1990 for CO₂, CH₄ and N₂O, and 1995 for HFCs, PFCs and SF₆). For Japan, a figure of 5,928,777,090 tonnes (CO₂ equivalent emissions) was determined in August 2007. Even if values for total emissions for 1990 or 1995 are recalculated in the subsequent inventory submissions, the value of this initial assigned amount will not change. However, each country can potentially increase or decrease its assigned amount through use of Kyoto mechanisms (emissions trading, joint implementation and the clean development mechanism (CDM)) and efforts in removals such as domestic forestry activities (activities of Article 3, paragraphs 3 and 4, of the Protocol).

Meanwhile, total emissions for the commitment period are to be updated yearly, starting with 2008 values reported in inventories submitted by countries in 2010. Total emissions for the five-year first commitment period are finally to be determined following reporting of 2012 values of national GHG inventories, and completion of their review. These figures are expected between 2014 and 2015.

The inventories of Annex I parties under the Kyoto Protocol, which are extremely important for judgment on compliance, are subject to additional conditions above and beyond obligations and conditions under the Convention. These are reporting on the set-up and renewal of national systems for preparation of inventories, reporting on information related to the Kyoto mechanisms, and reporting on changes in removals by sinks based on activities under Article 3, paragraphs 3 and 4 of the Protocol.

3.1.2 Inventory reporting of non-Annex I parties

Non-Annex I parties prepare and report national greenhouse gas inventories as part of national communications submitted every few years, and are not required to prepare or report on a yearly basis. As of 15 September 2010, 137 of the non-Annex I parties have submitted the initial national communication, and 27 countries have submitted the second national communication. Mexico is the exception, having submitted its fourth national communication.

Current guidelines for the preparation of national communications by non-Annex I parties are the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention” (Annex to Decision 17/CP.8), which were adopted at COP8 (India, 2002). According to these guidelines, non-Annex I parties are not required to prepare multiple-year inventories for their national communications. Rather, at a minimum, inventories for the

designated year are to be prepared and reported. (As a general rule, an inventory of 1990 or 1994 is to be prepared and reported for the initial national communication, and an inventory of the year 2000 is to be prepared and reported for the second national communication. Least Developed Countries have no obligation, and are to prepare inventories when possible.) The minimum requirement for reporting covers only the three gases of CO₂, CH₄ and N₂O, with no obligation to calculate or report total emissions using GWP.

According to the same guidelines, use of the “Revised 1996 IPCC Guidelines” only should be used for preparation of inventories, with use of the two Good Practice Guidance Reports merely encouraged. Unlike Annex I parties that must submit detailed information in the format of NIR and CRF, the only requirement for reporting is the results of emissions calculations based on a very simple table.

3.2. Inventory Review at Present

The inventories of Annex I parties undergo review by inventory experts of other countries every year. There are two types of review, a technical review implemented under the UNFCCC, and a review based on Article 8 of the Kyoto Protocol. These reviews have been conducted yearly for each country for the past few years.

On the other hand, review of the inventories of non-Annex I parties has not been institutionalised, and reviews of inventories for individual countries have not been conducted.

3.2.1. Technical review under the UNFCCC

Inventories submitted by Annex I parties under the UNFCCC are to undergo technical review by a review team comprised of experts on inventories, and appropriateness is to be assessed. According to the latest revised version of the UNFCCC guidelines for the technical review, adopted at COP8, there are four objectives of the inventory technical review, as follows.

1. To ensure that the Conference of the Parties (COP) has adequate and reliable information on annual inventories and emission trends of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol;
2. To provide the COP with an objective, consistent, transparent, thorough and comprehensive technical assessment of the annual quantitative and qualitative inventory information submitted by Annex I Parties, and a technical assessment of the implementation of Annex I Parties’ commitments under Article 4, paragraph 1 (a), and Article 12, paragraph 1 (a), of the Convention;
3. To examine, in a facilitative and open manner, the reported inventory information for consistency with the “Guidelines for the preparation of national communications by Annex I Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories” and the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories as elaborated by the IPCC report entitled Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories;
4. To assist Annex I Parties in improving the quality of their GHG inventories.

Technical review of inventories under the UNFCCC is conducted in the three stages listed below. At the end of each stage of review, draft review results are presented to the subject country, which is given the opportunity to submit additional information.

(1) Initial check of annual inventories

The Convention secretariat confirms the state of input in the CRF of the country. The results of this check are publicly released as a status report.

(2) Synthesis and assessment of annual inventories

The Convention secretariat and other inventory experts conduct a close examination, including a comparison of the implied emission factors of each country, a comparison with international statistics, and a check for any inconsistencies in information. Results are compiled into a synthesis and assessment report. This report is divided into two parts. The first part shows the results of simple comparison of data and information reported by Annex I parties, and the second part enumerates on the particular circumstances of each country based on the information in the first part. The first part is released to the general public, whereas the second part is a closed document prepared individually for each country, which is provided only to the country subject to review and the expert review team.

(3) Review of individual annual inventories

After receiving the results of the synthesis and assessment, review teams made up of experts on inventories review each country's inventory individually. The results of this review are released as the Individual Review Report. There are three formats to the individual review, as listed below, and each year one of the three is implemented for each party.

- **Desk Review:** This review is conducted by experts in the subject country based on information received from the Convention secretariat. In actuality, this format of review is currently not implemented.
- **Centralised Review:** Experts gather at the Convention secretariat to conduct this review based on various types of materials collected by the secretariat.
- **In-country Review:** Experts conduct this review with a visit to the subject country to exchange questions and answers with the persons who prepared the inventory.

Members of the review teams are selected by the Convention secretariat from the UNFCCC Roster of Experts taking into account geographical balance and expertise. Experts participating in review teams are required to sign the Agreement for Expert Review Services, and promise to follow various regulations such as the duty of confidentiality.

3.2.2. Review under Article 8 of the Kyoto Protocol

Any Annex I party that is party to the Kyoto Protocol undergoes a review on the state of fulfillment of commitments pursuant to Article 8 of the Protocol (review under Article 8 of the Kyoto Protocol). Moreover, the review under Article 8 of the Protocol can serve as the UNFCCC technical review. Thus, there is no need for Annex I parties party to the Kyoto Protocol to separately undergo the technical review.

Guidelines for the review under Article 8 of the Kyoto Protocol were determined by Decision 22 at the first Meeting of the Parties to the Protocol. The following are objectives of the review.

- (a) To establish a process for a thorough, objective and comprehensive technical assessment of all aspects of the implementation of the Kyoto Protocol by parties included in Annex I;
- (b) To promote consistency and transparency in the review of information submitted by parties included in Annex I under Article 7 of the Kyoto Protocol;
- (c) To assist parties included in Annex I in improving their reporting of information under Article 7 and the implementation of their commitments under the Protocol;
- (d) To provide the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (COP/MOP), and the Compliance Committee, with a technical assessment of the implementation of the Kyoto Protocol by parties included in Annex I.

Table 1. Conditions for reporting and review of inventories for Annex I and non-Annex I parties

	Annex I parties	Non-Annex I parties
Frequency of reporting	Annually (prepared separately from the national communication)	Irregularly: roughly once every few years (prepared as one part of the national communication)
Format for reporting	Required to prepare a table for data reporting following the National Inventory Report (NIR) and the Common Reporting Format (CRF)	No requirement to prepare the NIR or CRF. Merely required to report results of calculations using a simple table found in the guidelines for non-Annex I party national communications (Annex of Decision 17/CP.8)
Target gases	CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ (+ CO, NO _x , NMVOCs, SO ₂)	CO ₂ , CH ₄ , and N ₂ O are compulsory HFCs, PFCs, SF ₆ , CO, NO _x , NMVOCs, and SO ₂ are encouraged
Target years	Required to report on emissions and sinks for all years from the base year (1990 as a rule) to the latest year (two years prior to the reporting year)	Initial national communication: reporting on 1994 (or 1990) Second national communication: reporting on the year 2000 only Third national communication: undecided
Guidance	Required to use the Revised 1996 IPCC Guidelines and the IPCC Good Practice Guidance Report (2000, 2003)	Required to use the Revised 1996 IPCC Guidelines (Use of the IPCC Good Practice Guidance Reports (2000, 2003) is encouraged)
Use of GWP	Required to calculate total emissions amounts using the 100-year GWP values of the Second Assessment Report (SAR) of the IPCC	No requirements to calculate total emissions using GWP
Review	Required every year to undergo technical review under the Convention or review under Article 8 of the Kyoto Protocol. Both reviews are performed by review teams comprised of experts from other countries. Under the Kyoto Protocol, in some cases adjustment of estimate values by the review team may be applied according to Article 5, paragraph 2.	No requirement to undergo review

There are three types of review under Article 8 of the Protocol, including an initial review required when Annex I parties determine the initial assigned amount, the annual review conducted every year, and the periodic review, conducted once every few years on information related to Article 7, paragraph 2, of the Protocol. Procedures for the annual review are nearly the same as those of the UNFCCC technical review.

Further, the conditions required of members of the expert review teams that perform review under Article 8 of the Protocol are slightly stricter than those for the technical review under the Convention. Namely, in addition to being registered on the UNFCCC Roster of Experts, as a rule, experts must also take a designated training course on the review under Article 8 of the Protocol and pass examinations. The Convention secretariat forms review teams from experts meeting these qualifications. Members to participate in the review of each country are selected taking geographical balance and expertise into consideration.

In regards to content as well, review under Article 8 of the Protocol is carried out under stricter standards than the technical review under the Convention. Thus the influence of review results is remarkably larger. For example, if inappropriate methods are used for calculation of commitment period emissions, and the review team judges the figures to be underestimated, the value for reported emissions could ultimately be forcibly revised by the expert team (“adjustment” procedures according to Article 5, paragraph 2, of the Protocol). If this type of adjustment takes place, not only will the Annex I party’s total emissions increase for the commitment period, but in some cases disadvantages will arise, such as the country temporarily losing its eligibility to participate in the Kyoto mechanisms, or a country facing the risk of being non-compliant.

3.3. Discussion on Future Inventory Reporting and Review

Discussion surrounding the future of inventory reporting and review is ongoing in AWG and SB meetings and is expected to continue in SB meetings following COP16 (Cancun, Mexico), to be held at the end of 2010.

3.3.1. Future inventory reporting and review for Annex I countries

The focus of debate surrounding the inventories of Annex I parties is on how to make the switch from the present system that requires use of the Revised 1996 IPCC Guidelines and the two IPCC Good Practice Guidance Reports, to a new system based on use of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

The 2006 IPCC Guidelines were prepared after the SBSTA17 (November 2002, New Delhi, India) requested the IPCC to complete the revision work of the Revised 1996 Guidelines by early 2006. The IPCC responded precisely to the request of the SBSTA, completing the work at its 25th Session in April 2006, and the completed 2006 IPCC Guidelines were submitted to SBSTA24 in May 2006. Nevertheless, debate at the SBSTA surrounding these 2006 IPCC Guidelines, which the SBSTA had itself requested, dragged on without progress. Finally at SBSTA 30 in June 2009, agreement was reached to aim for use from 2015 by Annex I parties.

A shift to a new system based on use of the 2006 IPCC Guidelines is going forward in the form of a revision to the UNFCCC reporting guidelines on annual inventories (UNFCCC 2006a). In this process, several issues related to methodology for inventory preparation have been indicated as items requiring deliberation (whether and how to include forest-related emissions and removals in the total emissions of the country, methods for calculating and reporting on emissions related to harvested wood products, methods for calculating emissions from wetlands, methods for calculating emissions of N₂O from soil, and so on). Debate on these issues is to continue while provision of opinion from the IPCC is requested, and further twists and turns may be unavoidable along to road to the start of a new system in 2015.

The future rules for inventory reporting by Annex I parties are closely connected to debate in the AWG-KP on quantified emission limitation and reduction objectives for the future commitment periods. For example, there is the issue of what gases are to be included as the subjects of numerical targets. The 2006 IPCC Guidelines add various halogen compounds, including NF₃ and SF₅CF₃, as subjects for calculation, in addition to the six gases (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆) designated as targets in the first commitment period. Debate has not yet concluded on whether all of these gases, or only a portion of them, should be included in new reduction targets. Further, there is the issue of common metrics to convert differing types of gases to CO₂ equivalents. Possibilities include continued use of the GWP of the IPCC Second Assessment Report (SAR) in the same manner as the first commitment period, or use of the GWP of the latest IPCC assessment report to date, the Fourth Assessment Report (AR4). Conversely, metrics other than the GWP (the GTP, etc.) could be used. Selection of metrics affects the importance of each gas in judgment on achievement of targets or credit calculation for CDM. Thus, this choice is very important to each

country. For example, certain countries, including Brazil, are strongly calling for use of the GTP, but no conclusions have been reached in the debate.

There is little dispute in debate on a future climate regime regarding the review of inventories of Annex I parties. The current review system seems unlikely to undergo any major changes.

3.3.2. Future inventory reporting and review for non-Annex I countries

The subject of non-Annex I party inventories differs as the topic is covered within the debate on national communications in AWG-LCA and SBI meetings, not as a separate agenda item. Points of debate also differ from those for Annex I parties. Rather than technical issues related to inventory content, debate is focused on the frequency of reporting and rules for post-reporting international consultation and analysis (ICA) (see Chapter 1 for details). As non-Annex I parties are wary about review, discussions on implementation of review cannot be held for the time being.

Deliberations on technical issues related to national communications including inventories, are carried out by the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention (CGE). At present, the CGE is active pursuant to the TOR (Decision 5/CP.15) decided at COP15 (December 2009, Copenhagen, Denmark), and is currently executing tasks such as the ones below.

- Provide technical assistance to non-Annex I Parties for the regular development of national greenhouse gas (GHG) inventories, vulnerability and adaptation assessment, mitigation assessment, research and systematic observation, education, training and public awareness, technology transfer and capacity-building, with a view to improving the accuracy, consistency and transparency of information in their national communications
- Provide recommendations, as appropriate, on elements to be considered in a future revision of the guidelines for the preparation of national communications from Parties not included in Annex I to the Convention, taking into account the difficulties encountered by non-Annex I Parties in the preparation of their most recent national communications.
- Provide technical advice to non-Annex I Parties to facilitate the development and long-term sustainability of processes, and the establishment and maintenance of national technical teams, for the preparation of national communications, including GHG inventories, on a continuous basis.

The TOR that stipulates the above CGE tasks was decided upon at COP15, but prior to adoption of resolutions related to the Copenhagen Accord. Thus, the details of the Copenhagen Accord, which states the necessity for guidelines for the preparation of national communications and reporting biennially, are not reflected on the TOR. For this reason, it is difficult for the CGE to conduct debate in response to the Copenhagen Accord. In order for the CGE to be able to debate freely and in depth on the future role of non-Annex I party national communications (inventories), an additional decision by the SBI and the COP is advisable.

Intentions are varied among non-Annex I parties regarding the frequency of future inventory preparation. While there are enthusiastic countries, such as Korea that has already made preparations for yearly inventory, or India and Indonesia, which have declared to undergo preparation every two years, there are also many countries for which implementation of the Copenhagen Accord will present many difficulties. On the other hand, there seems to be a consensus about the point that experiences accumulated and pools of experts enhanced through inventory preparation in non-Annex I parties will constitute a basis for a NAMAMRV system in the future.

In order to increase the frequency of inventory preparation for non-Annex I parties, and to improve inventory quality, the financial and technical support of developed countries is necessary,

a fact regarding which developing countries are highly aware. For example, at the G8 Environment Ministers Meeting in 2008 (May 2008, Kobe, Japan), the “Kobe Initiative” was agreed upon for capacity-building for developing countries related to inventory preparation and data collection. The United States is working on projects to develop inventory preparation capacity targeted at Central and South America, as well as Southeast Asia. The EU initiated a project for inventory preparation capacity-building for developing countries in 2010.

Japan has been carrying out inventory preparation support targeted at non-Annex I parties in Asia for quite some time. The Workshop on Greenhouse Gas Inventories in Asia (WGIA) is the most representative of these activities, held yearly since 2003 by the Ministry of the Environment and the National Institute for Environmental Studies. This workshop, which gathers government officials and researchers on inventory preparation under one roof, is designed to improve the quality of the inventories of Asian countries through sharing of experiences and information on inventory preparation. The 6th workshop (July 2008, Tsukuba, Japan), held following the previously mentioned agreement on the Kobe Initiative at the G8 Environment Ministers Meeting, was designated a workshop for “capacity-building support for developing countries on measurability, reportability and verifiability” of greenhouse gas reduction activities. Furthermore, at the 8th Workshop (July 2010, Vientiane, Lao P.D.R.), mutual learning where WGIA participating countries closely study each other’s inventories was agreed upon as a beneficial activity, and the National Institute for Environmental Studies plans to act as coordinator to proceed with “mutual learning” from 2011 (NIES 2010). Further, other than the WGIA example, JICA intends to proceed with a project to support inventory preparation capacity-building for Asian countries, with the first project to be started in Viet Nam in 2010.

A political agreement in the AWG and SBI regarding improvements in the preparation and reporting frequency of inventories is important to advance MRV for non-Annex I parties; however, reaching an agreement will not be an easy task. Nevertheless, with the deployment of active support from developed countries, including Japan, the number of non-Annex I parties that engage voluntarily in improvements to the preparation and reporting frequency of inventories is expected to increase.

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Chapter 4

MRV for Developing Countries Support

MRV for Developing Countries Support

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4.1. MRV of Financial Support

4.1.1. Introduction

Creation of a system for the measurement, reporting and verification (MRV) of the actions and commitments of Parties to the United Nations Framework Convention on Climate Change (UNFCCC) has been placed as a main negotiation topic in international negotiations for post2012 climate regime. This section will focus on an examination of MRV for financial support, while mitigation support includes international support for the funding, technology and capacity-building for drafting and implementation of mitigation actions of developing countries.⁷

The concept of MRV for financial support was first introduced into international negotiations with the Bali Action Plan, adopted by the 13th Conference of the Parties (COP13) to the UNFCCC. Subsequently, MRV is referenced in the Copenhagen Accord, which was taken note of at COP15. Nevertheless, understanding and discussion on the appropriate form of a concrete system for MRV is yet to develop. Within series of negotiations on MRV in the Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA) following COP15, discussions aimed chiefly at MRV for the mitigation actions of developing countries have intensified. While the divergence in opinions between developed and developing countries are evident, discussion on MRV for financial support has not been sufficient. Thus, in order to build mutual trust and advance international negotiations as a whole, it is necessary to pursue parallel discussions on MRV for financial support.

This section will first provide an overview of debate to date regarding financial support. Further, in light of the objectives of MRV for financial support, and based on consideration of issues and problems with the current reporting system, this section will point out the need for consideration on transparency, consistency, comparability, completeness and accuracy, similar to aspects of preparation and reporting of GHG inventories. Next, through an examination of the national reporting system under the UNFCCC, and systems for measurement and reporting of public funding flows (funds under the UNFCCC and the Kyoto Protocol, bilateral support) and private financial flows (carbon market, foreign direct investment, donations), discussion on future developments will be brought together.

4.1.2. Overview of negotiations to date regarding financial support

Support for developing countries, including financing, technology transfer, capacity building, and information provision, is necessary to formulate, implement and expand climate change mitigation at global level. Questions on who is and how to provide this support remain to be a major point of discussion in international negotiations.⁸ In the context of the UNFCCC, in addition to disbursement of the “agreed full costs” required for developing countries to carry out the reporting obligations of Convention Article 12, paragraph 1, developed countries are to appropriate “agreed full incremental costs” for the

⁷ The start of MRV for support of the mitigation actions of developing countries was the Bali Action Plan, in which support is described to include, 1) funding, 2) technology, and 3) capacity building. Due to restrictions on document length, this chapter will examine MRV for financial support.

⁸ For details, see IGES (2009).

purpose of carrying out other obligations under Article 4, paragraph 1, of the same, and are to provide “new and additional” financial resources (Article 4, paragraph 3).

Regarding fulfillment of commitments under the Convention, developing countries assert that most developed countries have not fully performed their duties for the provision of financial resources outlined in the UNFCCC, as well as the lack of transparency in pledges outside the UNFCCC for bilateral or multilateral support and actual disbursements. On the developed country side, disappointments exist regarding the impacts generated from international support to date, and there are rising demand for increased accountability of support, claiming more effective, efficient, and transparent utilization of international support disbursed to developing countries in achieving targets. . Divergent perspectives between developing and developed countries also exist regarding the new and additional nature of the financial resources.⁹ This divergence has resulted in mutual distrust, and remained as a bottleneck in international negotiations on a post-2012 climate regime.

A major turning point for the discussion on financial support was seen in the Bali Action Plan agreed at COP13. BAP stipulated “nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner” (paragraph 1 (b)(ii)) as an item for further consideration.¹⁰ While the inclusion of a paragraph regarding their own mitigation actions by developing countries for the first time could be viewed as the largest step forward of the BAP, the international support to enable these actions was also made subject to MRV. Furthermore, Paragraph 1(e)(v) stipulates broad-ranging forms of revenue sources to support the mitigation (and adaptation) actions of developing countries, including not only public funds but private sector finance and investments as well (. However, no reference is made as to who will carry out MRV or how it is to be carried out, which was left to future negotiations.

In the subsequent Copenhagen Accord of the COP15, while the MRV for the provision of financial support by developed countries conforming to existing guidelines and further guidelines to be adopted by the COP, as well as ensuring accounting in rigorous, robust and transparent manner were stipulated (paragraph 4), no further progress on more concrete framework for MRV was made. On the other hand, regarding concrete amounts of support to climate finance (public sector funding support or private sector investment that contributes to the drafting, adoption and implementation of the climate policy of developing countries), progress was evident in commitments made by developed countries to mobilise short-term funding between 2010 and 2013 equivalent 30 billion USD, and long-term funding by 2020 of 100 billion USD (paragraph 8). The revenue sources for contribution amounts to climate finance, including alternative funding sources¹¹, are to include those provided through a wide variety of channels, including those of a public and private, bilateral and multilateral nature. Thus, these varieties of funding channels could potentially become subject to MRV in a future climate regime.

At present, disbursement of climate finance to developing countries is carried out through a variety of channels. Identifying opportunities and challenges on measuring, reporting and verification being implemented for the existing financial flows of each channel would be beneficial for designing concrete framework for MRV of climate finance. The main objective of MRV for public financial support is to guarantee the transparency of measurement and reporting while accurately discerning the scales and shifts of financial flows and guaranteeing the comparability of each developed country’s efforts. Toward

⁹ For instance, regarding how to calculate the new and additional criteria of existing aid (ODA), the developing country side asserts that financial support for climate change by developed countries is an obligation based on historical emissions, and that these should not be included in aid. Here, aid refers to financial grants in relation to the development assistance targets of the Monterey Consensus (0.7% in relation to GNP target). Thus new and additional financial support would be that exceeding this aid. Meanwhile, the developed country side claims that because it is difficult to separate financial grants for climate change and development particularly at the project level, all should be recorded as ODA regardless of how the funding is spent.

¹⁰ Different interpretations of paragraph 1(b)(ii) of the Bali Action Plan are possible; however, the summary of the chair of the AWG-LCA indicates a certain consensus that both the actions of developing countries and the support that enables their implementation are subject to MRV. (FCCC/AWG/LCA/2008/11, paragraph 20).

¹¹ Though no specific definition of alternative funding sources is provided, such sources could include, for example, revenues from auctioning of emissions allowances, carbon taxes, levies on international transportation and/or international financial transactions, and the effective prices for carbon abatement that influence investment patterns in developing countries. See IGES (2009).

this purpose, the general principles that govern the MRV system for public financial support could be interpreted as follows (see Tirpak et al. 2010):

- Accuracy: Calculation/accounting of financial flows should be performed to minimize uncertainties (errors), avoiding overestimation and underestimation.
- Completeness: All main financial flows, all forms of financing, uses of funds and investment areas should be covered to the extent possible.
- Consistency: A consistent method must be used for measurement and reporting on all target years to allow for appropriate assessment of financial flow time series data.
- Comparability: Information provision from Parties must be conducted based on an internationally agreed upon common format to allow for comparison with other countries.
- Transparency: Methodology, processes and procedures for calculation of funding amounts must be clarified to facilitate the checking of information (and, if required, to allow third-party verification).
- Efficiency: An MRV process should be conducted with a minimum of effort, expense or waste.

The following subsection covers an examination of the monitoring and reporting systems of the current national reporting system under the UNFCCC, public financial flows (UNFCCC and Kyoto Protocol funds, bilateral support), in light of the above principles. Other important forms of public financial flows such as export credits and overseas investment loan was omitted due to limited space. However, the reporting system for public bilateral support could in theory apply to export credits, and the Chapter 4.2 will cover a “Global action for Reconciling Economic growth and Environmental preservation (GREEN)”, a form of oversea investment loan by the JBIC.

There is also a question over whether an MRV framework for public financial support could apply in the same way to private market-based transactions. The issue of MRV for the private flow component of the Copenhagen pledge would raise a serious challenge. After examining the public financial support, thus, the MRV for the private sector financial flows will be examined in terms of feasibility. Because of limited space, this chapter will focus on three distinguished forms: carbon market, foreign direct investment and donations).

4.1.3. System for National Reporting under the UNFCCC

UNFCCC Annex II countries¹² are obligated to report on financial support for developing countries (including funding granted to the GEF and other multilateral institutions, and bilateral and regional support) stipulated in UNFCCC Article 4, paragraphs 3, 4 and 5, based on the “Guidelines for the preparation of national communications” (UNFCCC 2000). In particular, provision of information on the types of new and additional funding sources provided, as well as on the nature in which these are new and additional, is required. Further, they are to report in a common format (table) on annual funding related to mitigation (energy, transport, forest, agriculture, water resources management and industry) and adaptation (capacity building, coastal regional management and other vulnerability assessments) for designated countries and regions, as well as on a three-year contribution amount for bilateral, regional and multilateral support. Additionally, Annex II countries are recommended to clarify how funding supports the activities of the private sector, as well as what contributions have been made to fulfil the commitments under the Article 4, paragraphs 3, 4 and 5 of UNFCCC.

The following three challenges are evident in the current reporting system by national communications, concerning the implementation of MRV for financial support.

Firstly, neither the UNFCCC nor “Guidelines for the preparation of national communications” provide clear definition on boundary of climate financing, and common rules on what should be reported hence

¹² Annex II is the list of developed countries (23 OECD member states and the EU), excluding economies in transition. These countries must provide new and additional funding to support the execution of UNFCCC obligations by developing countries.

do not exist. No precise agreement on the definition of new and additional criteria regarding financial resources also adds complexity to the issue. The fourth national communications showed a large gap among Annex II countries regarding the approach to the new and additional criteria of the financing they provided (UNFCCC 2007). Communications included cases in which all funding reported was claimed to be new and additional, as well as other cases in which provided no description on the basis for new and additional criteria. As a result, the comparability of the financial support of each country as reported in national communications is limited (Fransen et al. 2008).

Secondly, not all of the national communications of Annex II countries necessarily provide content and details of information in accordance with the guidelines. A portion of Annex II countries indicate reporting years and volume of contribution in a form different from the common format, and the depth of information provided vary across countries (UNFCCC 2007). It was pointed out that in some cases countries are reluctant and refrain from providing detailed information and data, whereas in other cases countries have not set up a robust, cross-cutting domestic MRV system across domestic institutions related to climate change support, resulting in technical difficulty in information collection and management and reporting (Moncel et al. 2009). These issues hinder the comparability of financial support, and in the meanwhile present a barrier to the measurement of consistency and accuracy of support. Moreover, only half of Annex II countries have provided information on measures to promote the private sector involvement/contributions, and programmes based on public-private partnerships (UNFCCC 2007). From the perspective of grasping private financial flows, very limited information can be extracted from the national communications. This leads to an issue of completeness.

The third challenge is that verification procedures have not been sufficiently prepared. Based on Decisions 2/CP.1 and 6/CP.3, the national communications of Annex I countries undergo an in-depth review, and financial support is defined as a criteria for review. An expert review team appointed by the UNFCCC carries out a review of submitted information through consultations with in-country experts in the concerned country. However, in relation to financial support, in most cases, confirmation of the consistency of information on the volume of financial contribution of the concerned Annex II country, based on cross-checks with primary data, such as data from the GEF and other multilateral organisations, data from the recipient country, and the national budget of concerned Annex II country, is not carried out (Breidenich and Bodansky 2009). It should be noted, however, that such cross-check would encounter technical difficulties, such as exchange rates adjustments.

As a result, it is considered that the current system of national communications do not provide sufficient level of information required for MRV for financial support. Table 1 summarises the issues surrounding implementation of MRV for financial support related to national communications under the UNFCCC.

Table 1. Financial support relevant to national communications under the UNFCCC

Reported content	Advantages for MRV implementation	Challenges for MRV implementation
<p>National communications</p> <ul style="list-style-type: none"> ➤ Newness and additionality of source of funds ➤ Amount of financial support (single year) for mitigation and adaptation by sector for designated countries and regions ➤ Three-year contribution amount for bilateral, regional and multilateral support ➤ Level of contribution to the private sector 	<ul style="list-style-type: none"> ➤ Financial support came to be included in national communications according to the UNFCCC reporting guidelines, and a common format was presented. 	<ul style="list-style-type: none"> ➤ Lack of clear definition of climate finance to be reported and newness and additionality—damages the comparability of provided information ➤ Not all Annex II country national communications are submitted according to guidelines for content and detail—consistency issue ➤ Insufficiently prepared verification procedures—completeness issue

4.1.4. Public Funds

Funds under the UNFCCC and the Kyoto Protocol

In the current framework, the Global Environment Facility (GEF) acts as the operational entity of the financial mechanism of the UNFCCC. In addition to the GEF Trust Fund, the GEF also carries out management and operation of the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF), funds under the UNFCCC. In regards to the Adaptation Fund established under the Kyoto Protocol, the Adaptation Fund Board carries out management and operation. The GEF and the Adaptation Fund Board are operated under the guidance of the COP and Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), respectively, and bear the obligation to report and give account to the COP and the CMP.

An overview of GEF records shows 2.7 billion USD for climate change projects to date, 17.2 billion USD scale contributions implemented in cooperative financing, with a yearly 25 million USD spent in the climate change sector during the GEF's fourth phase (2007-2010).

With respect to MRV, the pledged amounts of support for developing countries targeted for various support in the GEF fourth phase were released in advance, thus can be compared with the actual amounts received by developing countries. Furthermore, the GEF reports information on developed country financial contributions by country for the GEF Trust Fund, the LDCF and the SCCF. However, each country's contributing amount is the total contributed amount for the GEF's focal areas, i.e. climate change, international waters and biodiversity. At present, the contribution amounts of individual countries in the climate change area cannot be confirmed (Tirpak et al. 2010). Accordingly, cross-checks cannot be made between the contributions to the GEF reported on Annex II countries' national communications and funding amounts released by the GEF, which is an issue related to improvement in transparency.

Table 2 summarises issues of MRV implementation for funds under the UNFCCC and the Kyoto Protocol.

Table 2. Issues for MRV implementation for funds under the UNFCCC and the Kyoto Protocol

Reported content	Advantages for MRV implementation	Challenges for MRV implementation
<p>Global Environment Facility (GEF)</p> <ul style="list-style-type: none"> ➤ Data by project ➤ Distribution of funds by GEF focal areas <p>Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF)</p> <ul style="list-style-type: none"> ➤ Data by project <p>Adaptation Fund (AF)</p> <ul style="list-style-type: none"> ➤ A detailed template for reporting content is under preparation 	<ul style="list-style-type: none"> ➤ Ease by which information on support is gained (e.g. GEF projects bring together recipient country name, scale of gratuitous funding, project total cost and objectives, etc.) ➤ Establishment of modalities for monitoring and reporting (e.g. the Operational Policies and Guidelines and result-based management and evaluation system of the AF) 	<ul style="list-style-type: none"> ➤ Identification of the level of contribution of supporting countries in the climate change area and for separate projects is not possible ➤ Lack of a system for cross-checks. Insufficiently prepared verification procedures

ODA by OECD-DAC member states

Regarding trends in the Official Development Assistance (ODA) of developed countries, the Development Assistance Committee of the Organization for Economic Cooperation and Development (OECD-DAC) carries out information collection and monitoring. The OECD-DAC has an information management infrastructure set up for statistical data on ODA flows, including the DAC annual aggregates database that

provides comprehensive data on supporting countries, total amounts of support and forms of support, and the creditor reporting system (CRS) that provides detailed information on targeted sectors and project summaries of individual support activities. Donor countries report information on support directly to the OECD-DAC, where it is classified by sector codes and policy markers according to information content and specific characteristics. Whereas the sector code shows the specific economic or social sector that is the respective target of support, the policy marker classifies support by the targeted policy objective. The policy marker utilises a system that evaluates individual support activities according to three ranks by their level of contribution to various policy objectives, such as the MDG. These rankings are 0 (no relation), 1 (significant), and 2 (principal). Joint use of the sector code and marker system allows for differentiation between areas closely related to mitigation and those not (emergency food aid, etc.), as well as an understanding of the shift in aid amounts for individual renewable energy technologies in the energy sector.

Further, DAC member states are requested to use the label “Rio markers” for “climate change”, regarding support activities in line with the ultimate objective of the UNFCCC (objectives related to mitigation). The eligibility standard for support Rio markers is a contribution to one of the following: controls of GHG emissions, preservation and expansion of sinks, mainstreaming of climate change in development plans, or execution of developing country obligations under the UNFCCC. DAC member states use the Rio marker label per their own judgment (OECD-DAC 2004). Through utilisation of these Rio markers, discernment of ODA flow contributing to the mitigation actions of developing countries is made possible. Reporting on Rio markers was included as an optional item of the CRS in 2005, and became a required item for reporting in 2008. Further, an agreement was reached at the DAC meeting in December 2009 in relation to markers for ODA contributing to adaptation actions, which will apply to new items following 1 January 2010 (OECD-DAC 2010).

In terms of having already established specific modalities related to monitoring and reporting, such as the existence of statistical data on ODA support by DAC member states in the climate change area and the OECD-DAC Rio markers, the DAC system could be called more systematic in its reporting than the current system under the UNFCCC. On the other hand, challenges remain, such as those related to data gaps (Corfee-Morlot et al. 2009). Concrete challenges are discussed below.

First, from the perspective of accuracy, support categorised by Rio markers does not necessarily contribute to the mitigation policy of developing countries. The results of an analysis of project summaries in the Project-Level Aid (PLAID) database of bilateral support showed that only about one-fourth of aid projects labeled by Rio markers actually contributed to mitigation actions (GHG emissions reduction or expansion of sinks). Additionally, the fact that over half of the aid projects thought to relate to mitigation have not been labeled by the Rio markers has also been pointed out (Roberts et al. 2008). In order to decrease such discrepancies, improvement in the accuracy of reporting based on the Rio markers is important. In addition, as the level of contribution to policy objectives is exhibited by the three rankings in the marker system, it is not possible to measure what ratio (percentage) contributes to mitigation actions in relation to the aid as a whole. Thus, the numerical value of the actual support amount is only a rough estimate.

Next, on the aspect of completeness, the CRS covers only some portion of climate finance. There is no obligation to report multilateral support to the CRS, only the option for voluntary reporting. Further, information on the private sector and public funding by OECD-DAC non-member countries is limited. The issues described above, particularly regarding ODA contributing to mitigation actions, relate to accuracy, and other issues remain related to whether this system fully covers all ODA funding flows that should be reported. In addition, since the United States does not report on climate change markers, the Rio markers provide a partial picture (OECD-DAC 2010).

The following challenges relate to the aspects of consistency and comparability. The Rio markers underwent a pilot period from 2005 to 2007, during which reporting on the Rio markers was optional, and not all DAC member states carried out reporting based on the Rio markers. Furthermore, the Rio markers for climate change were developed in cooperation with the UNFCCC under the objective of

promotion by DAC member states of reporting to the UNFCCC. However, out of the Annex II countries, only the four countries of Australia, Belgium, Japan and the Netherlands used the Rio markers in their fourth national communications (UNFCCC 2007).

Table 3 summarises issues of MRV implementation for financial support under the OECD-DAC.

Table 3. Issues for MRV implementation for the OECD-DAC

Reported content	Advantages for MRV implementation	Challenges for MRV implementation
<p>DAC database</p> <ul style="list-style-type: none"> ➤ Supporting country, total amount of support, form of support <p>Creditor Reporting System (CRS)</p> <ul style="list-style-type: none"> ➤ Economic or social sector targeted for support ➤ Support activities recognised to contribute to UNFCCC objectives (Rio markers) 	<ul style="list-style-type: none"> ➤ Establishment of modalities for monitoring and reporting (observation by the CRS and Rio markers) 	<ul style="list-style-type: none"> ➤ Accuracy of Rio markers ➤ Difficulty in quantitative assessment of relevancy and level of contribution to climate change (mitigation and adaptation impacts) of upper-level (programme and national plans, etc.) and lower-level programmes ➤ No reporting obligation for multilateral support in the OECD-DAC Creditor Reporting System ➤ Rio markers not sufficiently utilised in national communications

4.1.5. Private sector financial flows

Carbon market

The Clean Development Mechanism (CDM) functions as a medium for financial flows to developing countries. According to World Bank calculations, 1.9 billion CERs (23 billion USD equivalents) were traded between the years 2002 and 2008, and a total of 150 billion USD equivalent of investment was channeled into the CDM project pipeline during the same period¹³. From the perspective of MRV, monitoring of the financial flows of the carbon market by host countries has become more difficult with the increase in number of players and CERs traded in recent years. Further, the issue of the secretive nature of trading details has presented an obstacle to apprehension of the big picture of financial flows. Meanwhile, the viewpoint exists that collection of various types of basic data on financial flows could be improved with utilisation of the designated national authority (DNA) of each country (World Bank 2009).

One lesson learnt from the current CDM is that the rigorous, one-size-fits-all type MRV procedures results in greater burdens on both CDM developers and designated operational entities (DOEs) (Mizuno and Fukui 2010). This implies that it is important to consider what would be the appropriate and practical level of stringency in MRV for financial flows in which the private sector is involved.

¹³ The total of 150 billion USD equivalent of investment includes financial flows from both developed and developing countries.

Table 4. Issues for MRV implementation for the carbon market

Reported content	Advantages for MRV implementation	Challenges for MRV implementation
<ul style="list-style-type: none"> ➤ Project investment and CER trading via CDM programme 	<ul style="list-style-type: none"> ➤ Potential utilisation of designated national authorities (DNA) for collection of various basic data (CER trading, current state of investments, etc.) 	<ul style="list-style-type: none"> ➤ Difficult nature of monitoring of carbon markets by host countries (increase in number of trades and players) ➤ Secretive nature of trading details (traded amounts, risk-sharing items, etc.) ➤ Absence of unified methods for the calculation of international financial flows related to CDM projects.

Foreign direct investment (FDI)

Foreign direct investment (FDI), in combination with domestic private sector finance in developing countries, is the most important financial flow that drives the economic growth of developing countries. Investment in sectors relevant to the mitigation actions of developing countries, including industry, energy and infrastructure, is actively carried out. Worldwide totals of FDI in 2008 reached the scale of 1.4 trillion USD, 517 billion USD of which was the amount of flow to developing countries (UNCTAD 2009).

The United Nations Conference on Trade and Development (UNCTAD) sorts and releases data on FDI flows. In addition to nationwide and sector-based data, this data includes information on the geographical and sector breakdown of up to 1.1 million cases of FDI flows and stocks, as well as information on 1.9 million cases of multinational company activity (headquarters and foreign subsidiaries). As both the investing country and recipient country report on data related to FDI, guarantee of transparency and accuracy based on cross-checks is possible.

Meanwhile, several issues remain. In the first place, while apprehension of FDI flows to sectors related to mitigation is possible, it is not possible to apprehend from UNCTAD data the percentage of flows to related sectors that contribute to reduction and control of emissions or preservation and expansion of sinks, or to what extent these flows result in increased emissions. Moreover, for some countries, there are cases of missing detailed sector breakdown data or missing annual data. Accordingly, the UNCTAD data is not necessarily sufficient related to consistency and comparability, when examined from the standpoint of MRV for climate finance.

Private sector databases for financial flows of the private sector, such as the New Energy Finance and Dealogic databases, provide financial data related to mitigation policy (Tirpak et al. 2010). The New Energy Finance database includes information on the annual investments of leading countries and investment by region, separated by type of technology (solar, wind, biomass, geothermal, marine, small-scale water power and energy conservation) and type of finance (venture capital, research and development by government and business, projects, stock investments). New Energy Finance publishes an annual report in cooperation with the UNEP Sustainable Energy Finance Initiative (SEFI), and furnishes a database for paid subscribers. Dealogic provides a database for banks at a cost, containing information on the financial markets and corporate finance of various sectors, including energy-related investments. From the perspective of MRV for climate finance, however, the main problem for private sector databases is that data is collected and processed for specified clients, thus the data itself is not provided by Parties (Tirpak et al. 2010).

Regardless of public or private sector databases, information on private financial flows is subject to stringent confidentiality restrictions at the level of individual transactions. On the other hand, an MRV system is by definition designed to improve, inter alia, transparency, consistency and comparability. This implied that the extent to which an MRV system is stringent might negatively affect actual financial flows. Thus, meticulous care is required to design an MRV system for private sector financial flows.

Table 5. Issues for MRV implementation for FDI

Reported content	Advantages for MRV implementation	Challenges for MRV implementation
<p>UNCTAD</p> <ul style="list-style-type: none"> ➤ Database on private sector financial flows and stocks by country and sector ➤ Information separated by technology and type of finance ➤ Corporate finance, financial markets 	<p>UNCTAD</p> <ul style="list-style-type: none"> ➤ Cross-check possible for private sector database ➤ Detailed data on individual projects and technologies 	<ul style="list-style-type: none"> ➤ How to strike balance between policy objectives of MRV (inter alia, transparency, consistency and comparability) and confidentiality of private market-based financial flows

Donations by individuals and foundations

Donations by individuals and foundations are an important source of revenue in financial flows to developing countries. In fiscal year 2007, a total of 18.5 billion USD was donated (66 percent of which were funds from the United States). Although these funds are important in that they satisfy the condition of “new and additional”, from the standpoint of MRV, points can be raised regarding difficulty in discernment of information on support, such as the name of the recipient country and content of support. Thus, increased coordination and cooperation with existing funds under the UNFCCC is desirable.

Table 6. Issues for MRV implementation for donations

Reported content	Advantages for MRV implementation	Challenges for MRV implementation
<p>Donations by individuals Donations by foundations Donations by other private sector companies or groups</p>	<p>Satisfies the conditions of “new and additional”</p>	<ul style="list-style-type: none"> ➤ Difficulty in discernment of information on support (including recipient country name and content of support)

4.1.6. Other issues and the way forward

Although the current system for national communications under the UNFCCC framework faces the challenges and problems discussed herein, it provides a foundation for implementation of MRV on public financial flows. Improvements on the aspects of transparency, consistency, comparability, completeness and accuracy are required in the future. With regard to private sector financial flows, further consideration on an appropriate form of MRV for should be made. Apprehension of private financial flows contributing to climate change mitigation (and adaption) is the first step for MRV, but too stringent procedures might conflict with confidentiality requirements and have negative effects on investments. It is necessary to explore the practical design of an MRV framework for private financial flows.

MRV for financial support covered in current international negotiations is targeted at financial support by developed countries for developing countries. In the meantime, provision of public funding from developing country to developing country has increased of late, reaching a scale that cannot be ignored. In fiscal year 2007, 5.6 billion USD of funding provision was confirmed only for the portion discerned by the OECD-DAC.¹⁴ From the perspective of MRV, institutions and modalities for reporting and monitoring on the financial flows from non-OECD countries have not been established, and a bottleneck situation has

¹⁴Saudi Arabia (2.24 billion USD), India (one billion USD), Brazil (437 million USD), Russian Federation (210 million USD), and China (1.4 billion USD). Public data does not exist for China. Calculations by the World Bank (World Bank 2009).

arisen over difficulties in grasping the big picture of financial flows (particularly to climate change areas), revenue sources and recipient countries.

Moreover, effort is required on the part of the developing countries receiving the financial support to improve consistency with climate change mitigation. Domestic institutional reforms to cut back on subsidies related to fossil fuels results in the potential to secure domestic revenue. Such efforts are important for improving the effectiveness and efficiency of financial support.

To summarise, the following measures are required for the creation and augmentation of systems for MRV of financial support.

- Augmentation of consultations among the UNFCCC Secretariat, OECD-DAC and multilateral development banks, toward creation and adoption of a unified measuring and reporting system and verification system;
- Observation and identification of ODA financial flows in climate change related sectors based on more rigorous Rio markers and mandatory utilisation of Rio markers for the national communications of Annex II countries;
- Complete compliance with guidelines for National Communications;
- Continued monitoring of the climate change investment portfolio by multilateral development banks;
- Initiation of consultations among the UNFCCC Secretariat and any other relevant stakeholders¹⁵ to discuss the appropriate form and scope of MRV for private sector financial flows;
- Adoption of a comparable recording and reporting system for support by non-OECD countries conforming to the system for OECD countries;
- Deliberation on MRV modalities and the roles of various institutions in MRV for support from non-member states of the OECD-DAC; and,
- Apprehension of financial flows and information sharing based on creation of an on-line financial platform.

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¹⁵ Such stakeholders might include, for example, UNCTAD, International Monetary Fund (IMF), the Bank for International Settlements (BIS) and industrial associations.

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4.2. MRV: Existing Practices Related to Developing Country Support

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This section will discuss already existing support for the mitigation actions in developing countries and the closely related efforts of Japan, with respect to design of a system and procedures for measurement, reporting and verification (MRV). Issues involving the various features and the current state of these efforts will be raised.

4.2.1. MRV: Existing practices related to developing country support

Monitoring and MRV of the Climate Change Program Loan

The “Cool Earth Partnership”¹⁶ proposed by Prime Minister Fukuda at the World Economic Forum Annual Meeting in Davos in January 2007, is a financial mechanism initiated to support developing countries actively engaged in climate change mitigation. Funding on the scale of approximately 10 billion USD will be used over a five-year period starting in 2008, to support developing countries working to balance emissions reductions and economic growth while contributing to climate stability. In order to devise countermeasures for both mitigation and adaptation, Official Development Assistance (ODA) provided via bilateral cooperation, other government funding known as Other Official Flows (OOF) and support provided via international organisations are put together in a package. Management of the content of programmes and the state of progress of their implementation is conducted through policy consultations with the country targeted for support (Figure 1). It was later strengthened as the “Hatoyama Initiative” and presently referred as fast-start financing.

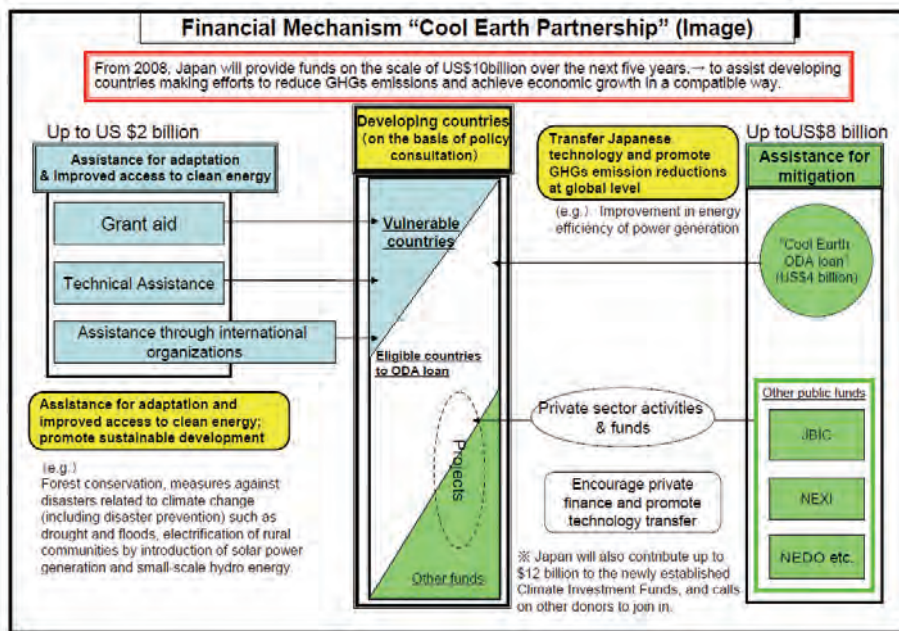
The Climate Change Program Loan (CCPL) for the government of Indonesia was the initial action of this support policy in July 2007. Indonesia, which had drafted a “National Action Plan Addressing Climate Change”, including goals and action plans by sector, was viewed to be actively engaged in climate change mitigation. In order to support Indonesia’s efforts, a maximum amount of 300 million USD was extended in the first phase (CCPL1) at a special interest rate applicable to the Climate Change Program Loan¹⁷, as general financial support.¹⁸

¹⁶ The “Cool Earth Initiative” was renamed the “Hatoyama Initiative” per policy expansion on support measures announced by Prime Minister Hatoyama in 2009. (New funds of approximately 700 billion JPY (500 billion JPY of which are public funds) were added to the existing public funds yet to be implemented (approximately one trillion JPY, 800 billion JPY of which is public funds) through donations to CIF and active use of law revision related to JBIC.) This policy has subsequently been referred to as fast-start financing, or efforts by developed countries in advance of an agreement on a post-2012 climate agreement.

¹⁷ The Climate Change Programme Loan is provided to those provided to efforts against climate change in preferential areas. The loan condition applied to the preferential areas is more concessional than other ODA loans, in terms of interest rates and payback period. more concessional compared with other ODA loans in terms of interest rate and payback period.

¹⁸ The yen-based Program Loan, differing from a project loan, which must be used for a concrete project (construction of power station, harbour repair, etc.), takes the form of a loan for finance support provided for the purpose of facilitating implementation of policy and institutional improvements based on the economic and social development plans of the supported country.

Figure 1. Financial Mechanism “Cool Earth Partnership” (Image)



Source: Ministry of Foreign Affairs, Japan

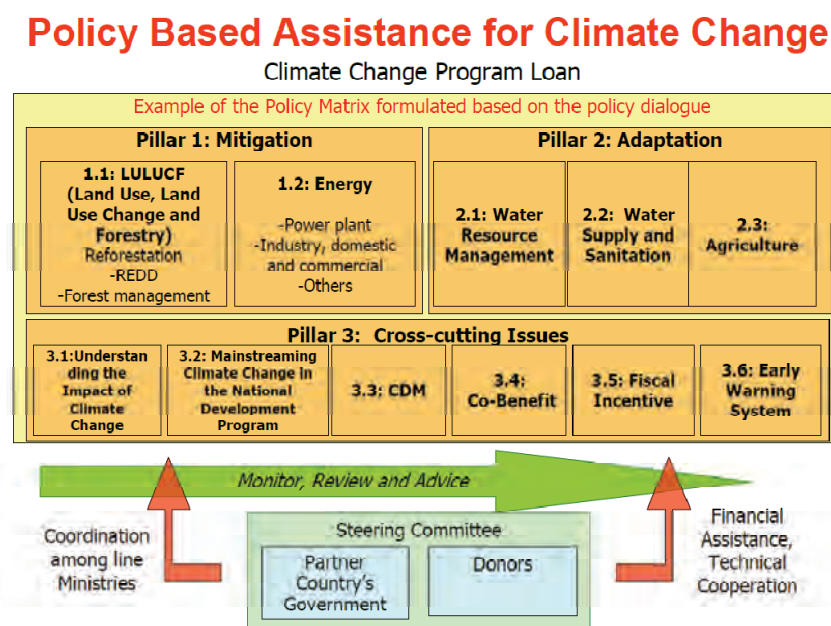
Programmes for mitigation actions (land use, land use change and forestry (LULUCF) and energy), programmes for adaptation actions (water resources management, public sanitation management, and agriculture), and cross-cutting programmes (co-benefits approach, etc.) are targeted for support. These programmes are stipulated in the “policy matrix”¹⁹ which is determined in policy consultations between the governments of Indonesia and Japan and is an important indicator of programmes implemented in Indonesia (Figure 2). The policy matrix includes targets for which impact can be assessed quantitatively, such as one drawn up in the energy sector, “to increase the capacity of geothermal power facilities by 9,500 MW in 2025” (estimated yearly 60 million tonnes of greenhouse gas emissions reduction), as well as programmes not suited to quantitative assessment, such as “mainstreaming of climate change issues in national development plans”. Moreover, even when quantitative assessment is possible for some content of the targets, if certain policy actions that respond to the target are qualitative in nature, such as maintenance of institutions and related laws or research on the part of the donor, quantitative results cannot necessarily be achieved.

Up to the present, funding has been provided for the Climate Change Program Loan to the government of Indonesia based on policy dialogue on climate change mitigation between Japan and Indonesia, following establishment of concrete policy actions for climate change mitigation and monitoring of the state of enactment of these policy actions. Currently, work is underway on implementation of policy actions and assessment for CCPL1 (granted August 2008) and CCPL2 (granted December 2009), and CCPL3 (granted June 2010) based on the policy matrix drafted in 2007.

The Steering Committee, comprised of representatives of Japan, Indonesia and the cooperative financing French Development Agency (AfD), meets about three times a year for monitoring of programme activities. The steering committee confirms the state of enactment of policy actions, with a monitoring team established under it to carry out routine monitoring on concrete action efforts.

¹⁹ The French Development Agency (AfD) participates in the Indonesian government Program Loan from the first phase, in the form of support and cooperative financing with the Japanese government, and the World Bank plans to participate from phase three. The policy matrix drafted in policy consultations with the Indonesian government is to be implemented not individually by donor countries and institutions, but per coordination among them. This effort is significant in relation to the on-going issue of donor coordination.

Figure 2. Structure of support and system of review of the Climate Change Program Loan (CCPL)



Source: Japan International Cooperation Agency (JICA)

Monitoring activities to present (excerpt from Ministry of Foreign Affairs of Japan document)

(1) Japan-Indonesia Policy Consultation (6 March 2008 and 10 June 2008, Jakarta), CCPL1-3 (3 years) policy action agreement, CCPL1 policy action assessment

- Sharing of information and exchange of views was conducted on the state of progress of climate change mitigation in 2007. Following consultations on a three-year policy matrix for CCPL1 (calendar year 2007) to CCPL2 (calendar year 2009), an agreement was reached and assessment of the CCPL1 policy matrix was conducted.

(2) 1st Steering Committee (SC) meeting, 14 November 2008, Jakarta, CCPL2 policy action

- Sharing of information and exchange of view was conducted on the state of progress of climate change mitigation in 2008, and discussions were held on augmentation of future monitoring systems and activities. The level of accomplishment of the policy matrix was found to be satisfactory overall, but delays were found for forest revitalisation, preparation of the CO2 roadmap and energy audits, and a need for further effort was indicated.

(3) 2nd Steering Committee meeting (12 February 2009, Jakarta), CCPL2 policy action

- Regarding the state of progress of climate change mitigation for 2008, actions were assessed to be generally accomplished. Meanwhile, delays in the progress of forest revitalisation, energy audits and the waterworks and sanitation programme were indicated.

(4) 3rd Steering Committee meeting (20 May 2009, Jakarta), settlement on the CCPL2 policy action assessment and revision of the CCPL3 policy actions

- Assessment by the advisory and monitoring team of climate change mitigation in 2008 found the level of achievement to be overall high. The government of Indonesia, government of Japan and French Development Agency (AfD) confirmed this assessment. Further, planned goals for 2008 were not achieved in a few areas, regarding which problem points were analysed and fundamental systematic improvements were included in the policy actions for 2009.

(5) 4th Steering Committee meeting (25 November 2009, Jakarta), CCPL3 policy action assessment

- Sharing of information and exchange of views was conducted on the state of progress of climate change mitigation in 2009. Assessment by the advisory and monitoring team found the state of progress of policy matrix implementation in 2009 to be overall satisfactory. The government of Japan and AfD were in agreement on the assessment. Further, it was agreed to proceed with deliberations on the 2010 policy matrix.

When examining CCPL activities from the perspective of MRV, there are several noteworthy elements. For example, actions regulated by the policy matrix drafted by the government of Indonesia in consultation with the Japanese and French governments, overlap in part with content submitted by the Indonesian government for information provision by countries based on appeals in the Copenhagen Accord reached at COP15. The actions supported by the CCPL are the same as programmes that Indonesia will implement as NAMAs under a post-2012 climate agreement. Further, the monitoring procedures in accordance with the CCPL have the potential to be utilised for the measurement, reporting and verification (MRV) of the corresponding NAMAs. Meanwhile, as mentioned earlier, actions of the policy matrix include both those suited to direct quantitative assessment and those unsuited (impacts on mitigation expected in an indirect manner). In this regard, measurement can be conducted either through quantitative or qualitative assessment. It is common that finance provided for budgetary support does not become revenues for specific purpose, in order to respect recipient country's ownership or system. However, the measurement of the effect of actions (including GHG emission reduction amount) is important in view of ensuring transparency and accountability. Therefore, it is worth considering that general budget support in this sort can employ supplementary measures, which can meet MRV standard to be introduced under the UNFCCC.

In the future planning of actual NAMAs, implementation of technical support by Japan in the form of an augmented CCPL project is planned. It is particularly vital to support projects that can adequately respond to MRV procedures, on which debate is progressing internationally.

4.2.2. Efforts concerning J-MRV

The Japan Bank for International Cooperation of the Japan Finance Corporation (hereby JBIC) is a Japanese government financial institution in charge of policy-based finance to support development of economies. JBIC supports the programmes of developing countries through financing of enterprises related to the environment and energy conducted by Japanese private companies in foreign countries. JBIC revealed its basic stance on implementation of "Global action for Reconciling Economic growth and Environmental preservation and energy condu, and released the JBIC MRV guidelines (J-MRV) in June 2010 to apply to these activities.

For GREEN, financing is implemented for projects aimed at climate change mitigation in various sectors, including equipping of power plants and power grids in the energy efficiency and renewable energy sectors, introduction of new technologies to steel, cement, pulp and oil and chemical plants, and development of infrastructure in the transport sector. Criteria for measurement, report, and verification (MRV) have been established for this financing, and such is carried out based on guidelines referred to as J-MRV.

Main areas for MRV of GREEN (quoted from JBIC official materials)

1. Policy on environmental protection of a host country
 - (1) Policy on greenhouse gas emissions reductions of a host country
 - (2) Programmes in the sector where project is implemented
 - (3) Programmes recognised to be particularly important or urgent
2. Assessment of technology introduced within the project
 - (1) Consistency with "target enterprises and technology list" (attached)
 - (2) Advanced nature (recognized in major international programmes, such as the Asia-Pacific Partnership (APP) on Clean Development and Climate and the International Energy Agency (IEA))
 - (3) Appropriateness (considering the average level of diffusion and availability of fuels in host country)
 - (4) Expected impacts in a host country (technology diffusion, etc.)
3. Project impacts on environmental protection
 - (1) Expected greenhouse gas emissions reduction effect

The J-MRV guidelines were developed upon the experiences of JBIC work and are implemented based on a simple and practical quantification method that compares to widely-used existing approaches for international good practices, such as those of the Kyoto mechanisms and the International Organization for Standardization (ISO) (emissions reduction quantification methods based on existing approaches are hereby referred to as “methodologies”). Specifically, for JBIC financing, a baseline is established (expected emissions in the absence of the targeted project), and pre-project (ex ante) calculation of emission reduction within the project, by comparing the baseline scenario and project scenario. (The emissions reduction amount is based on the F/S submitted by the borrower/project owner). Subsequently, monitoring and post-project (ex post) calculations are conducted, and the advisory committee established by JBIC is requested to provide an opinion on the appropriateness of calculations and monitoring. Finally, verification of the emissions reduction amount is carried out.²⁰

Procedures for the J-MRV guidelines follow methodologies related to project-based (or programme-based) activities, such as those used in the Clean Development Mechanism, and they are very familiar to the government institutions and private enterprises of Japan. Methods follow the steps of ex ante calculation of emissions reduction amounts, monitoring, ex post calculation, and verification, seemingly bearing in mind crediting of emissions reductions. Meanwhile, compared to procedures to prove additionality, a challenge in designing CDM projects, the J-MRV’s methods for establishing a baseline, namely the “in the absence of the proposed project activity” scenario, are characteristically relatively simple. These methods could serve as a reference for a credit mechanism under discussion, but separate from the current CDM.

At this point, the J-MRV guidelines have yet to be applied to any actual programmes. As examples arise in the future, a more detailed image of these guidelines can be clarified. One major characteristic of the J-MRV guidelines is quantitative assessment of greenhouse gas reductions, developed based on an awareness of the measurement called for under a post-2012 framework. Further, the J-MRV guidelines reveal an awareness of verification in a future framework. On the other hand, it is yet unclear at what level MRV will be implemented under a post-2012 climate regime (for example, will measurement, reporting and verification being carried out merely on the macro level based on national communications and GHG inventories at the national level, or will MRV be applied to the individual NAMAs that make up these data). Thus, JBIC programmes using the J-MRV guidelines must stay in tune with future developments in international negotiations.

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²⁰ Japan Finance Corporation Japan Bank for International Cooperation (June 2010) “Guidelines for Measurement, Reporting and Verification of the GHG Emission Reductions in JBIC’s GREEN”

Chapter 5

MRV in the Clean Development Mechanism

MRV in the Clean Development Mechanism

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5.1. Introduction

The Clean Development Mechanism is an institution first introduced with the adoption of the Kyoto Protocol in 1997. Projects for additional greenhouse gas emissions reductions are implemented in developing countries, and credits (in the form of a Certified Emission Reductions, or CERs) are issued according to the reduction amounts. CERs can be counted toward achievement of Kyoto Protocol targets for developed countries, have economic value and are tradable. In order to be issued CERs, the project proponent conducts monitoring of emissions reduction amounts and prepares a report based on these results, and the Designated Operation Entity (DOE), an independent third party agency, undergoes verification. Namely, procedures for measurement, reporting and verification (MRV) are required. (In order for CERs to be issued, a paper checking by the Framework Convention on Climate Change (UNFCCC) Secretariat, and a final decision by the CDM Executive Board that oversees the CDM, are required subsequent to the MRV procedures.)

Emissions reductions in the CDM, defined as “reductions in emissions that are additional to any that would occur in the absence of the certified project activity” by Article 12, paragraph 5(c) of the Kyoto Protocol, undergo rigorous verification and review. At the time of CDM project registration, the project proponent is to calculate both the “emissions that would occur in the absence of the certified project activity (i.e. baseline emissions)” and the “emissions reduced by the certified project activity” on the Project Design Document (PDD), following methodology approved by the CDM Executive Board, and are to report monitoring plans that will enable actual calculation of these figures following implementation of the project. For monitoring following the implementation of the project, data must be collected and recorded for the purpose of measurement, calculation and estimation of both the actual greenhouse gas emissions from the project and the established baseline emissions.

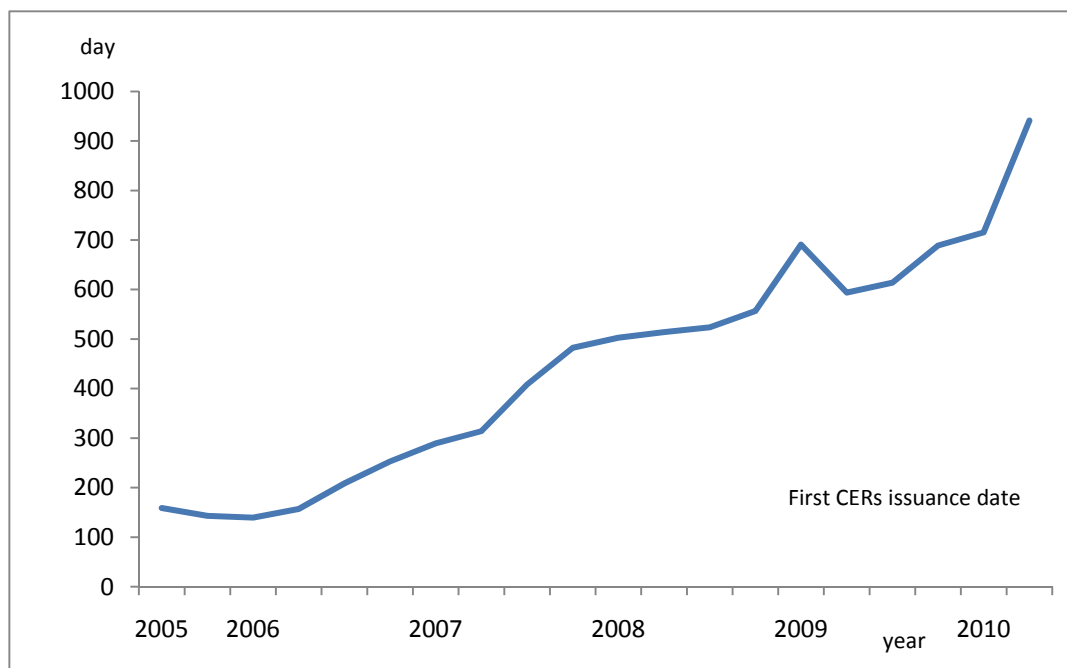
Approximately 13 years have passed since the adoption of the Kyoto Protocol and five years since it went into effect in 2005. Numerous projects have been implemented under the CDM system with many twists and turns along the way. As of July 2010, 2,307 CDM projects have been registered with the UN, and the total amount of CERs issued for CDM registered projects exceeds 400 million tonnes of carbon dioxides equivalent. All CERs have been issued after passing through the MRV procedures of the CDM. Accordingly, as the CDM offers a plentiful number of experiences of MRV for emissions reduction amounts, those could provide many hints for devising a future system for MRV.

5.2. Shift in Duration of MRV Procedures

As of 11 August 2010, 3,090 monitoring reports prepared by the project proponents have been released on the website of the UNFCCC secretariat for the DOE to begin verification. However, the number of CERs issuance applications is only 1,801. Among the projects that have not applied for CERs issuance, some are currently undergoing verification by the DOE, but meanwhile there seem to be projects for which procedures have halted. (For example, there is a project with a complete monitoring report as of 10 July 2007, for which a CER has not been issued.)

Furthermore, as of 1 August 2010, 748 projects have reached CERs issuance following CDM project registration and the MRV procedures, a ratio of 32.4 percent of the registered projects. The average duration from registration to the first CERs issuance for these projects is 472 days, but this duration is exhibiting an increasing trend, with the average exceeding 700 days for the year 2010. This trend reveals that rather than becoming more efficient based on experience, the MRV procedures have become protracted due to increased rigorousness.

Figure 1. Average number of days from CDM projects registration to first CERs issuance



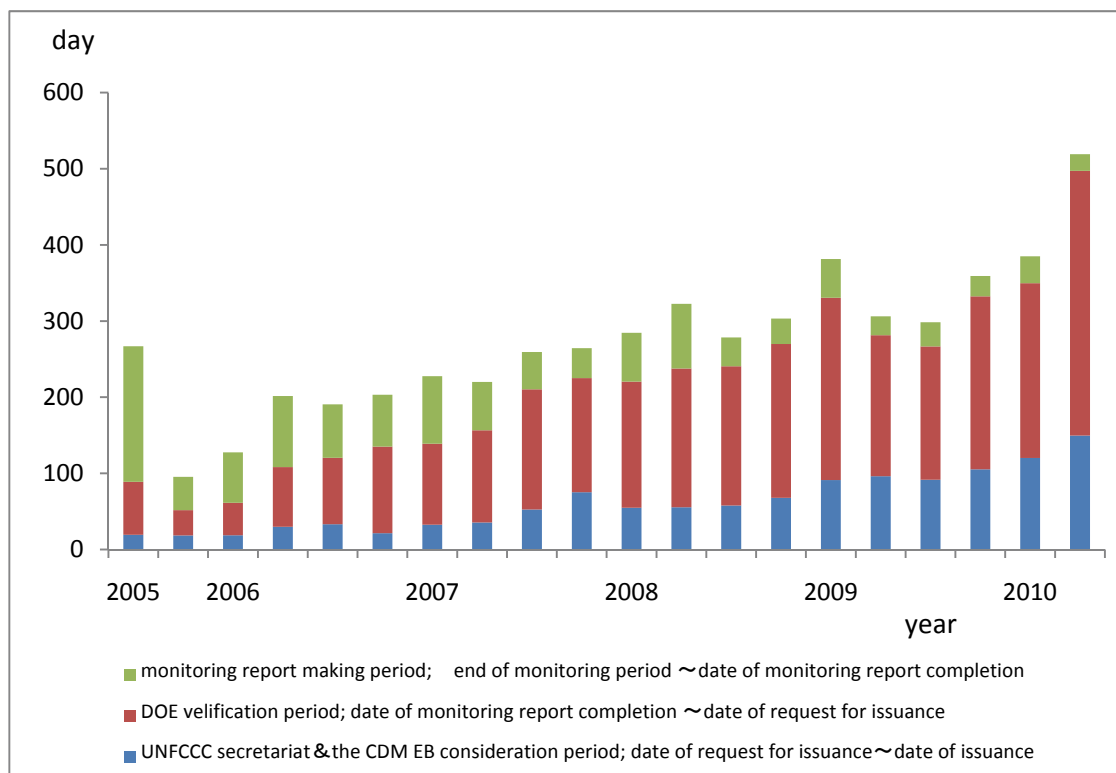
Source: IGES CDM Project Database, as of 1 August 2010

Note: Horizontal axis is the date of first CERs issuance

There are no regulations in UNFCCC documents regarding the timing of submission and frequency of preparation of the monitoring reports prepared by the project proponents. In other words, the project proponents freely decide the length of monitoring period for calculation of emissions reduction amounts. The average monitoring period for initial monitoring reports is 382 days, and durations range from less than a month to seven years. Projects with numerous issuances and large volumes of emissions reductions often have shorter monitoring periods.

An examination of the shift in the duration required for procedures from the end of the monitoring period to CER issuance, reveals that while the duration for preparation of monitoring reports by the project proponents shows a decreasing trend, the duration for verification by the DOE and the duration for review by the UNFCCC secretariat and the CDM Executive Board is in an increasing trend (Figure 2). Causes for these trends could be the increased rigour of review related to MRV for the CDM and an increasingly cautious approach to DOE verification in response to this rigorous review. Nevertheless, such protracted MRV procedures are definitely not ideal from the perspective of adding incentives to emissions reductions.

Figure 2. Average number of days from the end of monitoring period to the first CERs issuance



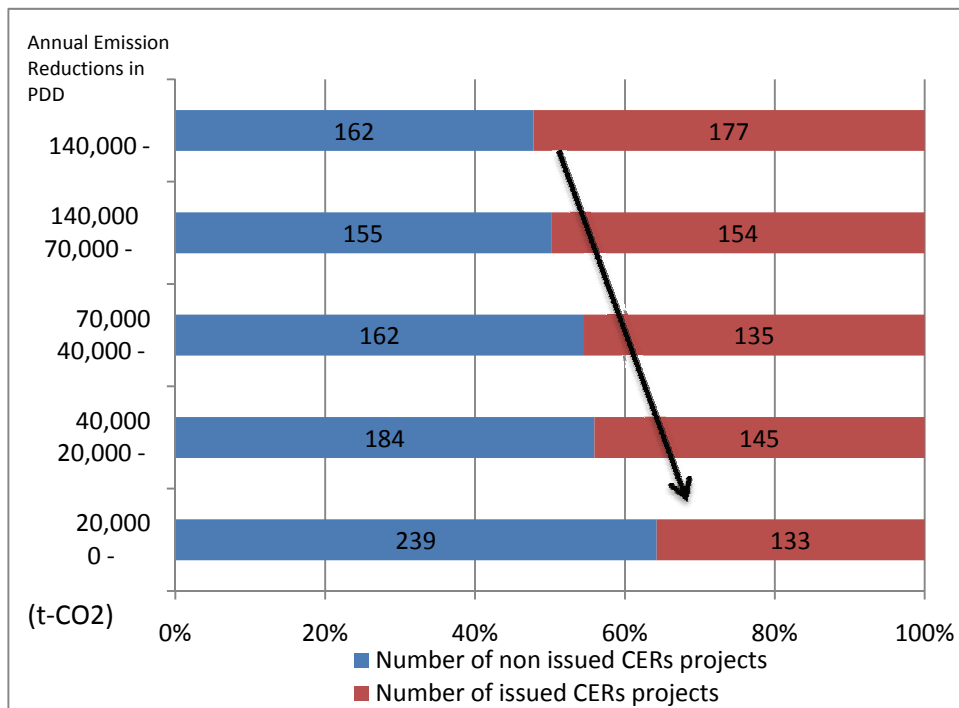
Note: Horizontal axis is the date of first CER issuance

5.3. Current State of MRV by CDM Project Scale

An examination of the state of CER issuance of CDM projects that have exceeded 472 days in length since registration, upon grouping by annual expected emissions reduction amounts as reported on PDD forms, shows that large-scale projects (emissions reductions over 140,000 tonnes) have a high ratio of CER issuance. However, as emissions reduction amounts decrease, this ratio falls, and the percentage of small-scale projects (emissions reductions less than 20,000 tonnes) that have been issued CERs is only 35 (Figure 3). In summary, projects of a small scale are surmised to face more issues in the process leading up to CER issuance.²¹

²¹ It should be noted that another factor is the longer duration of monitoring subject to CER issuance application for small-scale CDM projects.

Figure 3. Share of CERs issued projects categorised by emission reduction amounts in PDD



Source: IGES CDM Project Database, as of 1 August 2010

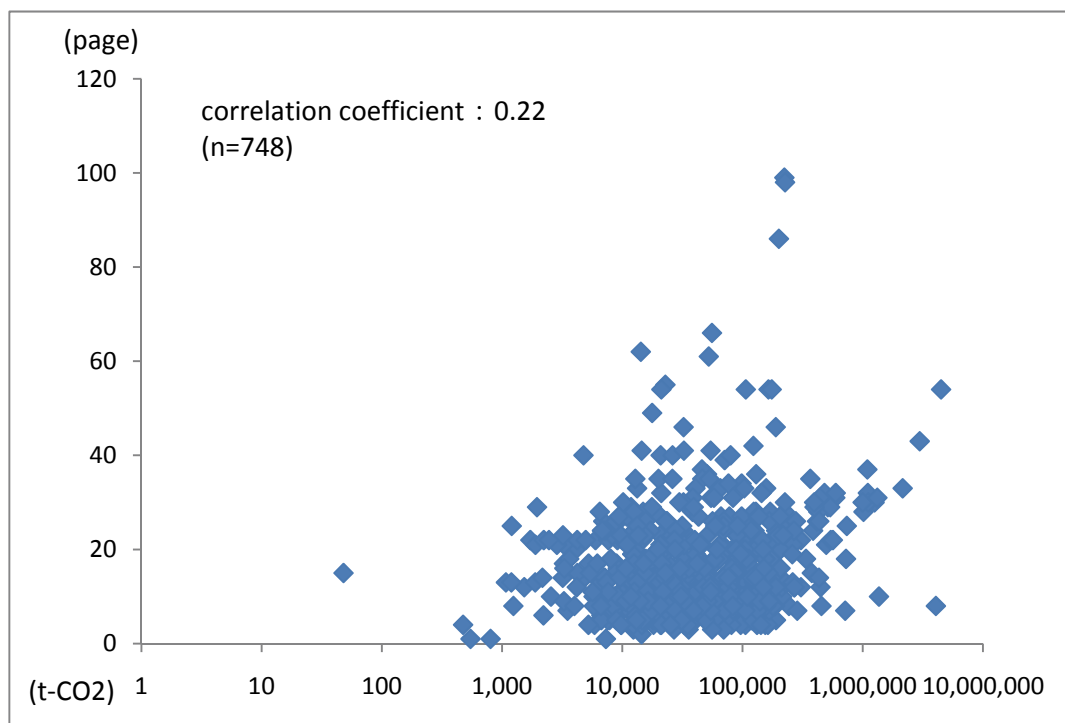
Note: Only projects more than 472 days passed from registration

5.4. Relationship between Emissions Reduction Amounts and Length of Monitoring Reports

The necessary documents for CERs issuance are the monitoring report, the verification report and the certification report. The format of the monitoring report varies, as does its length, which ranges from one page to nearly 100 pages.²² As shown in Figure 4, there is no strong correlation between the number of pages of the monitoring report and the number of CERs issued, and monitoring reports of small-scale projects are not necessarily short in length. The DOE prepares the verification report and the certification report. There is no official designated format, and in many cases the two reports are not separated, rather are combined into one report for submission. Separate verification reports and those combined with certification reports range in length from just under 10 pages to over 150 pages. Separate certification reports that summarise the verification reports, composed of emissions reduction amounts and the DOE certification signature, are about two pages in length.

²² At the 54th CDM Executive Board meeting on 28 May 2010, provision of a standardised format and preparation guidelines were set forth, which are to be applied to reports submitted after 28 September 2010.

Figure 4. Scatter diagram between the first CERs Issuance amounts and length of monitoring report



5.5. MRV by CDM Project Type

The rate of success in CERs issuance differs according to the type of CDM project, seemingly relative to gaps in the level of difficulty of the monitoring methodology employed. As shown in Table 1, the ratio of CERs issued relative to registered projects is low at fewer than 30 percent for CDM projects on hydropower and biogas. Regarding the hydropower, one factor is the relative newness of many projects, with approximately half registered in 2009 or later. Regarding the biogas, the low ratio could be a result of the small scale of many projects.

Further, the length of monitoring reports differs according to the type of CDM projects, with the reports of wind power and hydropower projects being relatively short. This could be due to most monitoring parameters being set at the default value for the methodology utilised. Meanwhile, items that must be measured for N₂O decomposition projects are numerous, thus monitoring reports are lengthy.

The duration of procedures for HFC reduction projects tends to be short at all stages, including the duration of monitoring report preparation, the duration of DOE verification, and the duration of review by the UNFCCC secretariat and the CDM Executive Board. As HFC reduction projects are large in scale for CERs issued (few million tonnes scale annually), the frequency of CERs issuance application is also great (several times a year). Thus it is surmised that both the project proponents that apply for issuance, as well as the DOE that verifies and certifies the application, have become proficient in these procedures.

Table 1. Status of CERs issuance of registered CDM projects categorised by project type

CDM project type	Num. of CERs issuance/ Num. of registered	Num. of CERs issuance project	Length of monitoring report (ave.pages)	Length of Verification report (ave. pages)	Monitoring report making period (ave. days)	DOE verification period (ave. days)	UNFCCC secretariat & CDM EB review period
HFC reduction/avoidance	90.0%	18	33	30	13	87	55
Transportation	66.7%	2	18	44	33	267	33
Fuel switch	52.7%	29	19	30	80	139	82
Cement	43.3%	13	29	33	110	254	69
Biomass	43.2%	118	14	27	65	182	61
Wind Power	40.9%	159	10	29	43	137	76
Waste gas/heat utilization	37.7%	61	17	35	62	164	82
Energy efficiency	36.7%	29	19	23	76	228	84
Methane recovery & utilization	35.1%	60	22	43	20	216	85
N ₂ O decomposition	33.9%	21	35	44	29	213	114
Hydro Power	25.6%	167	11	34	33	164	77
Biogas	21.0%	63	17	31	33	228	69
Other renewable energies	19.4%	7	30	36	33	244	79
Methane avoidance	2.0%	1	28	27	27	121	85
	32.4%	748	16	32	46	173	76

*Except non CER issued projects

5.6. MRV of the CDM: the Issues

Reasons listed below by stage are factors influencing the registered CDM projects that have not progressed to CERs issuance.

- ① Cancellation or change of project
- ② Suspension of monitoring or preparation of the monitoring report
- ③ Rejection at the verification or certification stage by the DOE
- ④ Rejection following review by the CDM Executive Board or withdrawal by the project proponent

With the exception of the first stage, all stages above are related to MRV. Regarding the fourth stage above, there have been 25 cases to date either rejection by the CDM Executive Board or withdrawn by the project proponents, which is not a very large number. Thus, if projects can pass through the second and third stages, they have a high probability of reaching CERs issuance.

Regarding stages two and three above, as shown in section 5.2, “Shift in Duration of MRV Procedures”, the number of CERs issuance applications is few compared to the publicly released number of monitoring reports. Even for projects with CERs issued, the duration of DOE verification has become more protracted. In other words, preparation of monitoring reports that are of the level to achieve DOE verification has put an increasingly greater burden on the project proponents.

Several challenges have been pointed out by the actual project proponents. These include the economic burden for monitoring (securing of human resources, new installations of calibration devices, commissions for specialised monitoring institutions), the difficulty of measurement and calculation of parameters (direct measurement of raw materials, collection of statistical data, absence of specialised measuring institutions or devices, the enormous number of parameters), and estrangement following planning and implementation (market changes (price of raw materials used, demand), shrinkage of project scale, poor conditions of facilities used).²³ This situation reveals issues related to the implementation potential of developing countries, and stems from the idealistic preparation of monitoring methodology for CDM before any monitoring was actually carried out.

Further, according to the World Bank, verification costs of DOEs are on the increase, and this trend is particularly striking for the small-scale projects more than the large-scale ones.²⁴ Pricing is influenced not by the amounts of the CERs issued, but by the complexity of projects.

At the 44th CDM Executive Board meeting (28 November 2008), DOEs were placed under obligation to conduct rigorous verification according to the Validation and Verification Manual (commonly called the VVM). Moreover, because the DOE bears liability in the case that a project is judged to be inappropriate following issuance of a CERs, verification and certification work is concentrated in large-scale DOEs (at present the top five companies account for 82.65 percent of the total 4,143 projects currently undergoing validation). The increase in duration required for verification procedures by DOEs is also remarkable. These various factors are raising the cost of DOE verification and certification.

5.7. Conclusion

As discussed above, there are various issues facing MRV for the CDM. Rigorous monitoring methodology has resulted in greater burdens for both preparation of monitoring reports by project proponents and verification and certification by DOEs. Further, except for projects on reduction of industrial gases such as HFC and N₂O, the average CERs amount per issuance is small at 75,000 tonnes, and small-scale projects are numerous. However, there is basically no correlation between the amount of the CERs and the duration of procedures for CERs issuance. Thus, regardless of the project scale, the same MRV procedures are applied.

There is yet to be a case for CERs issuance for a new afforestation or reforestation CDM or programme CDM targeted at multiple project activities, which have finally begun to be registered in recent years. Considering the issues faced by conventional CDM regarding MRV, obstacles will likely arise in the MRV procedures for these new types of CDM projects as well.

While appropriate verification and certification of emission reduction amounts are important, procedural difficulties have increased due to rigorous MRV, leading to disruptions in the volition of project proponents toward reduction actions. In order to simplify future MRV methods while ensuring reliability, the establishment of feasible measuring and reporting methods in project-based is required. Meanwhile, utilisation of CDM experiences for new mechanisms and for the design of institutions for MRV for the nationally appropriate mitigation actions of developing countries is essential.

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²³ Based on interviews with CDM project proponents of Cambodia within IGES CDM capacity-building activities.

²⁴ The World Bank (2009), "The World Bank's 10 years of experience in carbon finance: Insights from working with carbon markets for development & global greenhouse gas mitigation".

Chapter 6

MRV-related Systems in Non-Climate Regimes

MRV-related Systems in Non-Climate Regimes

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6.1. Existing MRV-related Systems in International Organisations

Existing MRV-related systems adopted by existing international organizations and conventions provide insights into designing and developing MRV systems under the UNFCCC regime. The review processes to examine and evaluate the implementation status and effectiveness of policy, objectives and commitments of the members in these existing systems can be particularly relevant. Attention is given to their frequency of the review, compliance procedures, and differentiation among the members. First half of this chapter provides overview of selected review processes of international organisations, including International Monetary Fund (IMF); World Trade Organization (WTO); Organisation for Economic Co-operation and Development (OECD); and UN Human Rights Council (UNHRC). The latter half of the chapter then focuses on examining MRV-related systems in multilateral environmental agreement such as the Montreal Protocol on Substances that Deplete the Ozone Layer; the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal; and Stockholm Convention on Persistent Organic Pollutants.

6.1.1. International Monetary Fund (IMF)

As shown in Table 1, International Monetary Fund (IMF) has established surveillance systems for economic and monetary policy measures introduced and implemented by member countries. Under this surveillance system, the IMF conducts annual visits to its member countries to collect information and exchange views with stakeholders including national governments, central banks, NGOs and others, in addition to reporting from countries and monitoring on a regular basis. Based on the information collected, the IMF produces reports which are discussed at the Board of Directors meeting and eventually disclosed through Public Information Notice (PIN) upon countries' consent. Surveillance for each country takes the form of evaluation and suggestions on economic and monetary policy measures. There are no provisions on compliance.

Table 1. Review System of the International Monetary Fund (IMF)

Title	Bilateral Surveillance
Purpose	Increased transparency of IMF views and analysis
Institutions	<ul style="list-style-type: none"> • IMF expert review team (country- and issue-specific IMF experts) • IMF Executive Board (24 Executive Directors)
Target countries	186 IMF Member States

Table 1. (continued)

Target	Implementation, effectiveness, conformity with obligations, and effect on international monetary system of economic and financial policies and measures by IMF member states
Process	<ol style="list-style-type: none"> ① Member states' ongoing report and IMF monitoring ② IMF expert review team prepares preliminary analysis that includes assessment of economic policies and recommendation (Information collected through member state report, international institutions, publicly available information, etc.) ③ In-country review and preparation of draft staff report (views exchanged with government, central bank and stakeholders) ④ Executive Board consults the report and transmits recommendations to the country under review (closed meeting with minutes made public in 5 years) ⑤ Information disclosed via Public Information Notice (PIN) with the country's consent²⁵
Frequency	<ul style="list-style-type: none"> • Review conducted annually (biennial allowed for countries irrelevant to the global financial system, perceived as low risk or under fund-supported arrangements) • Continuous monitoring of all member states by IMF experts
Outputs	<ul style="list-style-type: none"> • PIN (97% of the countries agree to publish) • IMF staff report (granted 88 %) • Other publications of multilateral surveillance²⁶
Compliance/ consequences	<ul style="list-style-type: none"> • No compliance procedure • IMF can intensify consultations with member countries. • Ad Hoc Consultations and multilateral consultations can be initiated to address systemic or regionally important issues.
Others	<ul style="list-style-type: none"> • Burden is modest for member countries • Surveillance takes up approximately half of the IMF operational budget • Frequency and focus of the reviews are somewhat flexible with reviewer given discretion

Source: Pew Center on Global Climate Change, 2010; International Monetary Fund, 2010.

6.1.2. World Trade Organization (WTO)

Similar to IMF, the World Trade Organization (WTO) conducts policy reviews on trade policies and measures implemented by the member countries (Members), and evaluates their effectiveness under the Trade Policy Review Mechanism (TPRM)²⁷. In addition to reports submitted from the Members, the WTO experts collect and analyse official and unofficial information in the review process and submit reports to the Trade Policy Review Board (TPRB) (Table 2). Similar to the IMF process, TPRM is utilised as a tool to evaluate the current situation and impact of trade policies and measures. No provisions on compliance exist under the existing system.

Table 2. Review System of the World Trade Organization (WTO)

Title	Trade Policy Review Mechanism
Purpose	<ul style="list-style-type: none"> • Increased transparency and understanding of the trade policies and practices of the member countries. • Improved adherence to rules and commitments under the trade agreements.
Institutions	<ul style="list-style-type: none"> • WTO expert investigation team (in-house economists) • Trade Policy Review Body (TPRB²⁸)

²⁵ Public Information Notice (PIN): General overview of IMF expert staffs and evaluation report by the Board on each country's policy measures. Disclosure based on consent of target countries.

²⁶ "Outcome of Bilateral Surveillance feeds into multilateral surveillance such as the World Economic Outlook, Global Financial Stability Report, and Regional Economic Outlook reports (Pew Center on Global Climate Change, 2010)"

²⁷ TPRM was established to "contribute to improved adherence by all Members to rules, disciplines and commitments made under the Multilateral Trade Agreements and, where applicable, the Plurilateral Trade Agreements, and hence to the smoother functioning of the multilateral trading system, by achieving greater transparency in, and understanding of, the trade policies and practices of Members (WTO, 1999).

²⁸ Trade Policy Review Body (TPRB) was established at the Uruguay Round of the General Agreement of Trade and Tariffs (GATT) in 1989 pursuant to the WTO Article 4.4. General Council attended by all the Members functions as TPRB for trade policy consideration.

Table 2. (continued)

Target countries	153 WTO Member States
Target	Implementation and effectiveness of trade policies and measures, and their impact on multilateral trading systems
Process	<ol style="list-style-type: none"> ① Reports by the Member States ② Reports based on expert reviews ③ Comprehensive discussion by TPRB ④ Publication of reports
Frequency	<p>Frequency of reviews depending on the trade volume</p> <ul style="list-style-type: none"> • Every two years for the world's four largest trading countries (EU, US, Japan and China); every four years for those ranked from the 5th to 20th, every six years for other member countries, and a lower frequency for LDCs
Output	<ul style="list-style-type: none"> • Policy report on the member countries (trade policies, measures, economic situation, development needs); WTO review report, and meeting minutes of TPRB • Review results reflected to TPRB yearbook, and to the WTO Chair's annual report
Compliance/Consequences	<ul style="list-style-type: none"> • No compliance procedures, (no intent to enforce specific obligations, conflict resolution, or commitments to new policies) • For countries in breach of WTO trade regulations, separate application of process exist for conflict resolution
Others	Modest burden on member states and WTO Secretariat

Source: Pew Center on Global Climate Change, 2010; World Trade Organization, 2010.

6.1.3. Organisation for Economic Co-operation and Development (OECD)

Organisation for Economic Co-operation and Development (OECD) conducts performance reviews of environmental activities introduced and implemented by member countries. The performance review system includes questionnaires, as well as national review process for each target member country conducted by expert review team. The result of performance review is further reviewed by Working Party on Environmental Performance (WPEP) before publication. Similar to other previous organisations reviewed, no provisions of compliance exist.

Table 3. Review System of Organisation for Economic Co-operation and Development (OECD)

Title	Environmental Performance Review
Purpose	Evaluate and improve environmental policies of the member countries and their implementation
Institutions	<ul style="list-style-type: none"> • Expert investigators made up of OECD Secretariat, member countries and experts from international organisations • Working Party on Environmental Performance (WPEP) : all member countries
Target countries	<ul style="list-style-type: none"> • 30 OECD member countries • (If required) non-member country can be reviewed (six has been reviewed)
Target	Internal targets on environmental management and sustainable development, and performance of signatory countries on achieving international agreements
Frequency	<p>No set frequency (in practice, reviews conducted in each country every 8 to 9 years)</p> <p>Two reviews for all member countries completed. The third round is currently underway. Japan has been reviewed in 1994, 2002, and 2010.</p>

Table 3. (continued)

Process	<ol style="list-style-type: none"> ① Consultations and set up for review by target countries and OECD Secretariat (national and international environmental targets, situation, policies/measures, implementation situation) ② Questionnaire produced by OECD Secretariat ③ National review by expert review team (clarification of information from wide range of stakeholder, activity evaluation) and production of draft report (clarify, evaluate and make proposals on results and issues) ④ Review of contents of draft report by WPEP (Including interviews with target countries) ⑤ Approval of WPEP evaluation, proposals, corrections to draft report → formulation and publication of report by secretariat ⑥ Report on implementation of proposals in target countries (there is no obligation, but implementation is preferred within 2 years)
Output	<ul style="list-style-type: none"> • Report by OECD Secretariat • Self evaluation by each country on implementation of proposals • Progress report for the following review
Compliance/Consequences	No compliance procedure exist
Others	Considerable burden on OECD Secretariat and target countries

Source: Pew Center on Global Climate Change, 2010; Ministry of the Environment, Japan, 1992 & 2010.

6.1.4. United Nations Human Rights Council (UNHRC)

The United Nations Human Rights Council (UNHRC) was created in 2006 by the UN General Assembly. It conducts periodic review of human rights records of all UN Member States. This review is based on “national report”, information submitted from the country under review, and inputs from experts, human rights groups, international organisations, non-governmental organisations (NGOs) and other stakeholders. The Office of the High Commissioner for Human Rights (OHCHR) provides secretariat support to UNHRC. UPR is unique as it includes all the UN Member States.

Table 4. Review System of UN Human Rights Council (UNHRC)

Title	Universal Periodic Review
Purpose	“Improvement of the human rights situation in every country with significant consequences for people around the globe” (OHCHR, 2008)
Institutions	UPR Working Group (47 Member of the HRC and other interested countries)
Target Countries	All 192 UN Member States
Target	Efforts towards commitments included in eight human rights: conventions and related laws
Frequency	Every four years (48 countries each year)

Table 4. (continued)

Process	<ol style="list-style-type: none"> ① Reports formulated: Member State reports (compliance on policies and measures, commitments on protection of human rights); Secretariat Report (input from independent experts, human rights groups, convention bodies, and other UN organisations); and Secretariat Report (input from NGOs and other stakeholders) ② Interactive discussion within UPR-WG sessions assisted by the 3 countries (Troika) chosen by drawing of lots ③ Formulation of a the draft outcome report by the Troika, country under review, and OHCHR ④ Approval or rejection of recommendation by country under review ⑤ Adoption of outcome report by WG (including recommendation both approved or rejected) ⑥ Presentation of outcome report by the Troika at the next HRC meeting. Additional inquiries made to target countries, statements by interested parties and stakeholders ⑦ Adoption of the outcome report
Output	<ul style="list-style-type: none"> • Publication of the first Secretariat report and the final report • Report by the target country by the next review • Support given for capacity building on addressing human rights issues
Compliance/Consequences	<ul style="list-style-type: none"> • The target country has main responsibility for compliance • All countries have collective accountability for implementation progress or failure • The Human Rights Council (HRC) decides whether or not to adopt “appropriate measures after exhausting all efforts to encourage a state to cooperate” • Separate complaints procedure exists under HRC and on compliance on all human rights conventions
Others	<ul style="list-style-type: none"> • Modest burden on member states and to the Secretariat/UPR-WG • The same process for all Member States

Source: Pew Center on Global Climate Change, 2010; Ministry of Foreign Affairs, Japan, 2009.

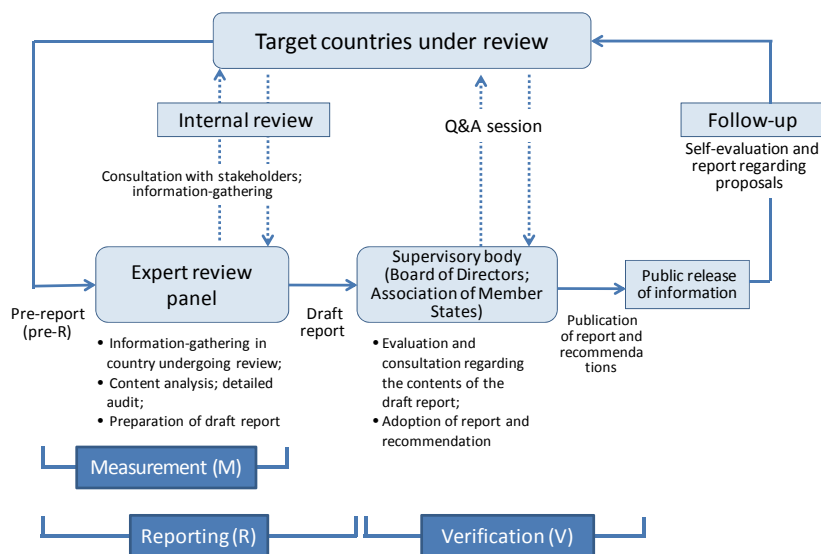
6.2. Comparison of Review Processes for Policy Measures in Member Countries

Common practices observed in the review systems among above international organisations include a preliminary analysis and/or pre-reporting (pre-R) by member countries under review on target agenda such as implementation, effectiveness and impact of policy measures as a way to evaluate the policies. Under this pre-R process, all the above international organisations establish review framework by establishing an expert review team. The structural detail of expert review teams, however, differs slightly from one another. While the review team consists of internal experts for IMF and WTO, mixture of internal and external experts is incorporated into the expert review team for the OECD.

In addition to pre-R process, both the IMF and OECD implement in-country reviews for target countries. The draft report (R) based on these review processes are subject to verification (V) by all of above international organisations, which is done by the supervisory bodies such as the Board of Directors. The IMF has a Board comprised of 24 members who carry out verification, whereas the WTO’s TPRB and OECD’s WPEP are bodies comprised of all member countries which conduct verification processes.

The results of the review are disclosed to the public in the form of a report by each of the above organisations. The WTO and OECD have set up follow-up systems for self-evaluation and reporting from each member country on the progress against recommendations for improvements. Likewise, the UNHRC mandates member countries to implement recommendations given at the previous review by the following review. These follow-up processes are designed to enhance the effectiveness of actions and policy measures, which leads to improvements.

Figure 1. Policy Review Procedures for Member Countries by Major International Organisations



6.2.1. Frequency

Frequency setting for review serves as an important criterion for ensuring equity among member states. The WTO differentiates the frequency of review among member countries by their trade volume. Under this differentiated review system, the top four countries, in terms of trade volume, are reviewed every two years, the next fifteen countries are reviewed every four years, and the rest are reviewed every six years. The least developed countries (LDCs) are allowed to further reduce the frequency of their reviews.

The UNHRC and IMF, on the other hand, generally do not differentiate frequency of review among member countries, except for some considerations given to a few countries. As for the OECD environmental performance review, frequency is not set. In practice, review has been taking place every eight to nine years.

6.2.2. Compliance Procedure

No compliance procedures exist for the above IMF, WTO nor OECD review processes. The compliance of member countries with their pledged policies or commitments is therefore not subject to enforcement. Member countries do not face any penalty for incompliance and underachievement. Rather, implementation of actions and policy measures are on a voluntary basis. The UNHRC, on the other hand, requires the Member States to “demonstrate implementation of recommendations” by the following review. All countries are “collectively accountable for progress or failure in implementing recommendations”.

6.2.3. Resource Intensity Required for Review Processes

Review processes under the WTO and UNHRC requires modest level of resource intensity for their implementations. As for the IMF, member countries bear a modest burden for implementing the surveillance, while the IMF Secretariat devotes half of its operational budget to surveillance, indicating a substantial amount of resource intensity and work burden incurred to the process. Likewise, review system under the OECD represents a considerable burden for both the member countries undergoing the review and the OECD Secretariat. In addition to the frequency with which they are conducted, the scope and level of detail of surveys carried out by the Secretariats affect both the quality of and burden and resource intensity required by a review.

6.3. Existing MRV-related Systems in Selected International Conventions

This chapter has so far gathered and analysed examples of MRV-related policy review institutions that are subject to major international organisations, and will give an overview of those MRV-related institutions that have been established under international conventions for the purpose of managing environmental substances.

6.3.1. MRV-related System of the Montreal Protocol

Summary

Based on the Vienna Convention for the Protection of the Ozone Layer (adopted 1985), the Montreal Protocol on Substances that Deplete the Ozone Layer was adopted in 1987 to phase out the use and production of ozone-depleting substances and entered into force in 1989 with country ratifications. The Protocol established “legally binding controls for developed and developing nations on the production and consumption of halogen source gases known to cause ozone depletion” (UNEP 2006).

It establishes clear objectives for reducing the production and consumption of ozone-depleting substances (ODS). (Birnie et al. 2007). As the scientific evidence became clearer and substitutes and alternatives to the ODS became available, amendments and adjustments were made to the protocol to strengthen the protocol. Revisions added “substances under regulation, accelerated existing control measures, and prescribed phase-out dates for certain productions and consumptions” (Fahey, 2006).

Ten-year grace-period for implementation of ODS control measures was granted to developing countries (or the Parties operating under paragraph 1 of Article 5 of the Protocol), with an intention to further expand participation and ratification of the Protocol by developing countries. The revised Protocol also provides incentives to the developing countries to comply with the control measures, Article 5 of the Montreal Protocol states that the “developing the capacity to fulfill the obligations of the Parties operating under paragraph 1 of this Article (5) to comply with the control measures...and their implementation by those same Parties will depend upon the effective implementation of the financial co-operation ...and the transfer of technology... (Paragraph 5 of Article 5: Special situation of developing countries)” (Benedick 1998; Birnie et al 2007).

Measurement

The Protocol imposes legally-binding restrictions regarding the production and consumption of controlled substances. Signatory Parties are obliged to calculate (Article 3) and report (Article 7) the annual amounts of such substances produced and consumed. In developing countries, however, where there is insufficient infrastructure for the collection of national data regarding controlled substances, the Protocol stipulates that supplementary financial aid and technological assistance (including technology transfer) will be provided.

Reporting

“Each Party shall provide statistical data to the secretariat on its annual production (with separate data on amounts destroyed by technologies to be approved by the Parties), imports, and exports to Parties and non-Parties, respectively, of such substances for the year during which it becomes a Party and for each year thereafter. It shall forward the data no later than nine months after the end of the year to which the data relate. (Article 7)”. Signatory Parties are also required to produce biennial reports regarding other activities such as promoting research, development, public awareness, and exchange of information on best technologies, possible alternatives, and

costs and benefits of control strategies (Article 9). Moreover, each party must report to the Secretariat regarding the establishment of its licensing system (for the import and export of controlled substances) by “1 January 2000 or within three months of the date of entry into force of this Article for it, whichever is the later” (United Nations Environmental Programme Ozone Secretariat). Information on the licensing system shall be reported to the Implementation Committee, via the Secretariat, for consideration and appropriate recommendations to the Parties (paragraph 4, Article 4B). The Parties shall assess the control measures at least every four years after 1990 “on the basis of available scientific, environmental, technical, and economic information” by convening panels of experts at least one year before the assessment. The conclusions reached by the panel will be reported to the Parties through the Secretariat (Article 6).

Verification

In the event that a report is incomplete, or if no report is submitted (i.e. non-compliance) by the Party, provided that the Party in question has made effort towards compliance), efforts will be acknowledged and no official criticism are given. Rather, the Secretariat informs the Implementation Committee of the non-compliance of the Party. “Tools available to the Committee are limited to discussion, making recommendations, and making noncompliance transparent” (Victor, 1996). In the event of a late report, the Party is called to a hearing (Victor 1996).

It is widely thought that one of the chief successes of the Montreal Protocol is the fact that it places great emphasis on trust-based relationships: instead of conferring penalties on Parties that do not comply or do not meet their targets, the Implementation Committee co-operates with Parties by providing consultation on how to achieve their targets in the future. Furthermore, the establishment of the Multilateral Fund allows for the provision of finance to encourage developing countries that do not qualify for exemptions (such as deferred implementation of control measures) to comply. “The Fund provides finance for activities including the closure of ODS production plants and industrial conversion, technical assistance, information dissemination, training and capacity building aimed at phasing out the ODS used in a broad range of sectors” (Multilateral Fund for the Implementation of the Montreal Protocol). The Implementation Committee is able to handle issues without invoking the formal submission procedure. The Implementation Committee, backed by an active Secretariat, has fostered the growth of expertise and trust-based relationships with Signatory Parties. These valuable methods can surely be applied to other treaties, such as the UNFCCC.

Other notable items

Differentiated Obligations: There is no differentiation of reporting frequency among the Parties. Timing for the implementation of control measures is differentiated between developed countries and developing countries. The compliance of developing countries with their control measure obligations is “dependent on the effective implementation of regulations regarding financial co-operation and the transfer of technology” and, in the event that a developed country fails to carry out such implementation, a complaint can be brought before the COP. In other words, developing countries are accorded the authority to apply pressure to developed countries to achieve Protocol goals (Birnie et al. 2007, United Nations Environmental Programme Ozone Secretariat).

Non-compliance: Article 8 calls for procedures and institutional mechanisms for determining non-compliance and for procedures regarding Parties found to be in non-compliance; such a call is “the first for a multilateral environmental agreement” (Birnie et al 2007).

Reservation: No reservations may be made to this Protocol (Article 18).

Decisions: Decisions by the Parties under the Article shall be taken by consensus whenever possible. If all efforts have been exhausted and no agreement reached, decisions shall be adopted

by a two-thirds majority vote of the Parties present and voting. This shall, therefore, represent a majority of the Parties operating under paragraph 1 of Article 5, and a majority of the Parties not operating under paragraph 1 of Article 5 (Article 10).

6.3.2. MRV-related System of the Stockholm Convention

Summary

The Stockholm Convention on Persistent Organic Pollutants (POPs) (hereby the Stockholm Convention) aims to protect human health and the environment from POPs, giving heed to the precautionary principle (principle 15 of the Rio Declaration). The Stockholm Convention was adopted in May 2001 and went into effect in May 2004 as an international convention. As of September 2010, 172 countries have entered into this convention.

This convention classifies 21 types of POPs, mainly made up of agricultural chemicals, chemical products and by-product substances, in Annexes A through C (with overlap), and demands the implementation of necessary measures by party countries.

Table 5. Controlled substances under the Stockholm Convention on Persistent Organic pollutants

Classification	Content of countermeasures	POPs	
		Substances listed when Convention entered into force	Substances added by the Fourth Conference of the Parties
Annex A	Prohibition (abolishment) of manufacture, use and export/import	aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene, polychlorinated biphenyls (PCBs)	tetrabromodiphenyl ether and pentabromodiphenyl ether, pentachlorobenzene, chlordecone, hexabromobiphenyl, lindane, α -hexachlorocyclohexane, β -hexachlorocyclohexane, hexabromodiphenyl ether and heptabromodiphenyl ether
Annex B	Restrictions on manufacture and use	DDT	perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOSF)
Annex C	Reduction of unintentional production	polychlorinated dibenzo- <i>p</i> -dioxins and polychlorinated dibenzofurans, polychlorinated biphenyls (PCBs), hexachlorobenzene	pentachlorobenzene

Source: The Stockholm Convention and the Ministry of Foreign Affairs of Japan website

The items below are other obligations of parties.

- appropriate management and treatment of stockpiles and waste containing POPs
- formulation of a National Implementation Plan (NIP) on countermeasures
- other measures: measures to prevent the manufacture and use of new POPs, investigative research on POPs, monitoring, information release, education, and implementation of technical and financial support for developing countries

Measurement

Reporting on the actions, measures and monitoring data of each country related to the substances listed in the Convention forms the base. However, data required for the effectiveness evaluation described below is particularly insufficient, excluding the cases of Western European and other UN regions. Plans are being devised to acquire necessary data and share information through the formation of strategic partnerships with existing monitoring programmes, regions and international organisations.²⁹

Reporting

Parties are obligated to report to the Conference of the Parties on the impacts of measures devised toward implementation of the Convention and achievement of Convention targets. Reporting content (stipulated in Article 15 of the Convention), is as follows.

- numerical values or estimated values related to the total volume of manufacture, import and export of each chemical substance listed in Annexes A and B
- tabled list of the importing and exporting countries of each concerned chemical substance

Likewise, each party must draft a National Implementation Plan (NIP) as well as an action plan regarding reduction and elimination of unintentional production to fulfil its obligations under the Convention. Parties are obligated to send these action plans to the secretariat, and submission is designated as a part of reporting. Further, prior to implementation of effectiveness evaluations, regional and global monitoring reports on environmental concentrations of POPs on a global scale are prepared and submitted.

Verification

For this Convention, the implementation of an effectiveness evaluation (Article 16 of the Convention) is stipulated as a means of verification of the impacts of each country's countermeasures and actions on the substances listed in the Convention. At the Fourth Conference of the Parties (May 2009), the first effectiveness evaluation was carried out based on global scale environmental monitoring data. Regional organisation groups and a coordination group were established in each of the five UN regions for the implementation of the effectiveness evaluation. Regional organisation groups conducted collection of existing data in each region, additional monitoring and preparation of regional reports. These reports were submitted to the Conference of the Parties by the coordination group.

The establishment of a working group to deliberate on evaluation methods for the future implementation of effectiveness evaluations has been decided.

Other notable items

Differentiated obligations: No differentiation between party countries regarding obligations and reporting content are observed, but certain considerations are made for developing countries, such as provision of a longer grace period.

Non-compliance: Article 17 of the Convention stipulates that COP develops and approves procedures and systems for penalties to parties, and discussion has been continued since the first Conference of the Parties. A compromise has not been reached in negotiations regarding the establishment of a Compliance Committee. The issue has been carried over to the Fifth Conference of the Parties (UNEP 2008, 2009).

²⁹ Examples of partnerships and entities for cooperation for preparation of global monitoring reports are the Global Atmospheric Passive Sampling Network (GAPS), the Masaryk University RECETOX programme, the POPs Observation Project (JAPAN) and the WHO.

6.3.3. MRV-related System of the Basel Convention

Summary

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (hereby the Basel Convention) (United Nations & United Nations Environmental Programme, 1992)) is an international treaty drafted in Basel, Switzerland in March 1989 that went into effect in May of 1992. The Convention stemmed from deliberations by OECD and the United Nations Environment Programme (UNEP) in the 1980s, when issues arose on the movement of hazardous wastes across national borders without prior notice or consultation and with uncertain final responsibility. As of September 2010, 172 countries and organisations have entered into this treaty. The target for this Convention is the control of disposal or planned disposal of “wastes”, substances listed in the Annex, and substances defined as hazardous by domestic law (“hazardous wastes and other wastes”) (United Nations & United Nations Environmental Programme, 1992).

The following items are included in the obligations of parties.

- Prior written notification and acquisition of consent to importing countries and transit countries when hazardous waste is exported
- Controls to minimise generation of domestic waste and domestic disposal facilities for environmentally appropriate disposal
- Prohibition of import and export of hazardous wastes to non-Party countries
- Reimportation of concerned waste by exporter in cases where illegal trading was carried out
- Carrying of documents related to transfer of wastes at the time of waste transfer

Reporting

Each party to the Convention is to send the information listed below of the previous calendar year to the Conference of the Parties through the Convention Secretariat by the end of each calendar year, according to the laws of the said country (Article 13: Transmission of Information).

- Domestic agency of authority and focal contact information;
- The amounts of wastes, their category, characteristics, destination and transit countries; and disposal method of exported and imported wastes;
- Disposals which did not proceed as intended;
- Efforts to achieve reductions in the amounts of targeted wastes;
- Measures adopted by the party in the implementation of the Convention;
- Information on statistics on the effects on human health and the environment of the generation, transportation and disposal of wastes; and
- The state of export and import based on regulations in Article 11

Verification

Under Article 19 of the Convention, “Any Party that has reason to believe that another Party is acting or has acted in breach of its obligations under the Convention is to inform the Secretariat thereof. In such an event, the Party is to simultaneously and immediately inform, directly or through the Secretariat, the Party against whom the allegations are made, and all relevant information is to be submitted to the concerned parties by the Secretariat to the Parties (Article 19, Verification). For implementation of the Convention, establishment of “such subsidiary bodies as are deemed necessary” are referred to in Article 15, paragraph 5(e) of the Convention. Further, the Fifth Conference of the Parties (COP5) requested the legal working group to prepare a monitoring mechanism related to implementation and compliance with obligations under the Convention. Subsequently the establishment of a Compliance Committee, as a subsidiary body to the COP, was adopted at the Sixth Conference of the Parties (COP6) in 2002 (UN and UNEP 2003).

This committee is an auxiliary organisation of 15 members from five regions that promotes, supports and verifies execution of and compliance with the Convention by its parties, based on the two pillars of Specific Submission and General Review. Decisions in the Committee require the attendance of at least ten members, with two-thirds, or more than eight members, voting in favour.

Parties can make Specific Submissions when (a) a party forecasts its own compliance difficulty, (b) another party is acting in breach, or there is reason to believe it is acting in breach, of its obligations under the Convention, or (c) the secretariat reports to the Compliance Committee regarding violation of compliance by parties. The committee collects information (participation by concerned party, information from external experts, surveys within concerned country territories) related to the facts and factors of the violation of compliance and carries out a careful examination.

For the General Review, reviews on the following items are carried out related to compliance and implementation under the guidance of the COP: (a) ensuring environmentally sound management; (b) training of customs and other personnel; (c) technical and financial support for developing countries in particular, including technology transfer and capacity-building; (d) prevention of illegal traffic, including monitoring, sampling and analysis; (e) monitoring, assessment and preparation of reports under the Convention; and (f) implementation of, and compliance with, specified obligations under the Convention. Following the implementation of the verification process, the Compliance Committee reports to the next session of the COP on the conclusions of the verification and its suggestions, as well as on future issues of implementation and compliance. The COP can take suggestions under consideration and approve them (Basel Convention Compliance Committee). The Compliance Committee is endowed with a “soft” function related to various types of counsel, recommendations and provision of information (Kamigawara 2002).

Other Notable items

Differentiated obligations: There is no differentiation among the Party countries. The compliance procedures shall pay special attention to the needs of developing countries and economies in transition. Assistance shall be provided in the form of technology transfer and funding in regards with performance of obligations.

Non-compliance: There is no provision within the Convention regarding non-compliance, but an agreement was reached at the COP6 in 2002 on the establishment of a compliance mechanism and the Compliance Committee (BC decision VI/12, see above sections on verification for details).

Reservations: No reservation or exception may be made to this Convention (Paragraph 1, Article 26).

Revision of Convention: The general rule is consensus; however, if no decision can be reached after all efforts have been exhausted, revisions can be adopted when three-fourths vote in favour.

Basel Protocol on Liability and Compensation: Pursuant to Article 12 of the Convention, the Protocol was adopted at the COP5 in 1999. The objective of the Protocol is, “to provide for a comprehensive regime for liability and for adequate and prompt compensation for damage resulting from the transboundary movement of hazardous wastes and other wastes and their disposal including illegal traffic in those wastes”. To be put into effect, ratification by 20 countries is necessary; however, this ratification has not been achieved, and the Protocol is not yet effective. BAN revision: This revision was adopted by the COP3 in 1995, and sets forth an across-the-board prohibition of transboundary transport of hazardous waste from developed countries to developing countries, but it is not yet effective (Secretariat of the Basel Convention).

6.4. Lessons Learnt from Existing International Institutions and Conventions

In summary, detailed analysis of MRV-related systems of existing international organizations and conventions provide various insights as to how MRV should be structured in the UNFCCC regime.

First, balance between frequency of MRV, associated resource burdens incurred to both each member country and to the Secretariat, as well as anticipated outcome of MRV should be well considered. An increase in frequency of the review can increase the accuracy of the data and status of the member countries. It can improve transparency and comparability of efforts by improving the understanding on the state of affairs in each member country, but would require increased resources. As the capacities and national circumstances vary across member countries, differentiation approach introduced by several international organizations may be an option for the climate change regime as well. Taking reporting aspect for instance, more frequent reporting by large emitting countries, similar to WTO, would serve the purpose of grasping both national and global emission trend while ensuring reduced burden for small emitting countries.

It should also be noted that review systems adopted by the aforementioned international organizations are based on the combination of pre-reporting by each target member country and analysis by the expert review team. While the pre-reporting component could be substituted by existing and reinforced NATCOM scheme, expert review needs to be considered in line with the international discussion on MRV. This entails the discussion on verification aspect, where IMF carries out verification by its Board, whereas WTO and OECD conduct verification with participation of larger member countries as in TPRB and WPEP.

From practical point of view, cooperation with other existing monitoring programs and strategic partnership with regional and international organisations to fill in the data gap, as introduced under the Stockholm Convention, may also be helpful to meet the statistical needs for conducting MRV under the UNFCCC regime.

Although the issue remains contentious, the principle with regard to the disclosure of MRV results should also be considered. While many of the disclosure of the result associated with the existing review systems of the international organizations intend for transparency purpose, provision of country ownership via country consent could be the basis of such disclosure. This issue is closely associated with the discussion as to how results are used.

The existing MRV-related systems of other international organizations and conventions also show that many aspects of MRV, including measurement and reporting, can be supplemented by existing tools and systems in UNFCCC. "Under the UNFCCC and the Kyoto Protocol, monitoring, reporting and review is fairly well developed for Annex I countries, in part due to their quantified emission limitations and reduction objectives (QELROs)." (Corfee-Morlot et al. 2009). Under the current regime, Annex I countries also submit annually on GHG inventories, and report their policies and measures for GHG emissions reductions through full National Communications every four years. The cost-effectiveness approach may be taken to maximise the utilization of existing tools to meet MRV requirements, while at the same time, to explore and consider reform options to address irregularities observed in reporting on actions and emissions for non-Annex I countries under the current UNFCCC regime.

All things considered, the success and failure of the review systems of international organisations and conventions should be further explored to be applied to the designing of MRV in a post-2012 climate regime.

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Chapter 7

Remaining Issues and the Way Forward

Remaining Issues and the Way Forward

This report explores modalities for a system of measurement, reporting and verification (MRV) of the mitigation targets and actions to be implemented by parties to the UNFCCC, a key negotiation topic at stake in the context of a post-2012 regime for climate change. Points of discussion were reviewed and analysed from the perspectives of 1) current status of discussion in international negotiations, 2) existing MRV tools in the present framework (national communications and GHG inventories), 3) current status of discussions on MRV for developing country support, 4) MRV and the Clean Development Mechanism, and 5) MRV related system/mechanism adopted in the national organisations and conventions.

The results of this study brought several points to light, including 1) the point that reinforced utilisation of existing tools (national communications and GHG inventories) is important from the perspective of measurement and reporting, 2) the point that development and utilization of a reinforced and thorough version of the existing Rio markers system would be useful for MRV of developing country support, 3) the point that original programmes for MRV of bilateral support have been initiated, such as the J-MRV in Japan, and 4) the point that other international organisations and international conventions have created review systems resembling MRV, which provide a potential reference to the MRV discussion under the UNFCCC. Meanwhile, this report clarified the remaining issues for each element of measurement, reporting and verification in the overall design of an MRV system, as follows.

Current negotiation text (FCCC/AWGLCA/2010/INF.1) states that MRV of the mitigation actions by the Parties to the Convention is to be carried out based on MRV guidelines stipulated by the COP. Regarding this point, in order to improve the effectiveness of MRV, it is critical that the issues below are thoroughly discussed by the Parties in the future negotiations and be incorporated into the said guidelines.

Overall Issues

Trends in international negotiations

- Acceptability of MRV on the mitigation actions of the Parties to the Convention

Definition

- The scope of mitigation actions (NAMAs) to be MRVed (what aspects of mitigation actions shall be MRVed, input or output?)
- The scope of support to be MRVed

Crediting of mitigation actions (NAMAs)

- Acceptability and technical issues of crediting of NAMAs by the Parties to the Convention

Measurement

Methodology for measurement of NAMAs

- At present, NAMAs encompass a wide range of actions and measures, from quantitative elements (e.g. numerical targets) to qualitative elements (e.g. preparation of national communications and GHG inventories, establishing baseline, conducting research, developing database). The ease of measurement varies according to actions and countermeasures. How should qualitative NAMAs and quantitative NAMAs be categorised, and what methodology for measurement should be applied to each?
- When numerical targets for national level GHG emissions reductions are envisaged as NAMAs, how

should the baseline year and BAU be standardised or established?

Methodology for measuring support

- How to identify and measure the private flow component of the Copenhagen financial pledge

Utilisation of existing guidelines (IPCC guidelines) and countermeasures outside the scope of the guideline

- The drafting, approval and implementation of new guidelines for MRV might take time

Reporting

Utilisation and reinforcement of existing tools in the current framework

- Establishment of frequency of national communications and GHG inventories, and differentiation of frequencies

Reporting of support

- What kind of standards should be the basis for reporting financial support, technical support and capacity-building support for developing countries?

Verification

Implementation system for verification

1) Domestic verification

- What type of structures for implementation is ideal for domestic verification of domestically-funded NAMAs, and should unified standards or differentiation by country be applied?
- What type of structures for implementation is ideal for the International Consultation and Analysis (ICA) of the results of domestic verification of domestically-funded NAMAs? How should organisation/composition of expert analysis teams be designed?
- Implementation capacity: Regarding the implementation of domestic verification, the number of verifying institutions that possess the technical ability and expertise, such as the designated national authority (DNA) for CDM, is limited. Is there sufficient capacity for data preparation, collection and management for domestic verification and quantitative NAMAs in place?

2) International verification

- International MRV for internationally supported NAMAs: what implementation system is ideal, and is a new organisation required?
- What is the ideal forum for international verification, the COP, a meeting of all parties, or an MRV Board with restricted participation?

Rigorousness of verification

- How should the rigorousness of verification be established? Should verification be differentiated in favour of developing countries (e.g. LDCs or SIDs with special concerns)?
- How should the rigorousness of verification be established for climate finance, especially for private market-based transactions which are subject to confidentiality restrictions?

The extent of information disclosure

- What sort of provisions should be set up for public disclosure of the results of ICA and international MRV, as well as public release of the state of performance on recommendations?

Recommendations for the establishment of an effective MRV system

Based on the above issues, recommendations for the establishment of an effective system for MRV are summarised below.

- The Copenhagen Accord, entailing the importance of MRV and International Consultation and Analysis (ICA), commands a critical position in the arena of international negotiations. Hence it is crucial for developing countries to reconfirm the significance of approval of the Copenhagen Accord. Meanwhile for the developed country side, reliable execution of commitments to support developing countries will build trust on both sides.
- Regarding the domestic verification of NAMAs implemented by developing countries within their own budgets, standardisation of processes is necessary from the perspective of ensuring the quality of verification. Whereas, for the implementation of ICA for domestic verification, the consultations themselves could be carried out at the SBI or in other forums, with the involvement of an independent third parties essential for international analysis.
- A mechanism is required to promote utilisation of similar existing systems in developing countries for the implementation of domestic verification.
- Compared to ICA, progression of discussion in international negotiations on international MRV for NAMAs receiving international support is slow. Hence, furtherance of the debate surrounding the detailed design of international MRV is advisable.
- From the perspective of MRV for financial support, ideally MRV should be applied both to the pledges of commitment to support developing countries made by developed countries, and also to the outputs of support, including a cost benefit analysis on the connections between support and actual levels of GHG emissions. Toward this purpose, formulation of precise guidelines is necessary.
- Ensuring the quality of credits is important to realise the crediting and circulation of NAMAs, and a rigorous system for MRV is called for in relation to crediting.

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The Institute for Global Environmental Strategies (IGES), established under an initiative of the Japanese government in 1998, is an international research institute conducting practical and innovative research for realising sustainable development in the Asia-Pacific region.

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