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Operationalising MRV of Support

Analysis of Finance, Technology and Capacity Building Support

November 2011
Institute of Global Environmental Strategies (IGES)

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Climate Change Group
Institute for Global Environmental Strategies (IGES)
2108-11 Kamiyamaguchi, Hayama
Kanagawa 240-0115, Japan
Phone: +81-46-855-3860 Fax: +81-46-855-3809
E-mail:cc-info@iges.or.jp
URL: http://www.iges.or.jp

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Contents

Introduction

In the negotiations for the future climate change regime, the establishment of a measurement, reporting, and verification (MRV) structure aiming to secure transparency of the Parties' reduction goals and reduction activities for greenhouse gas emissions is positioned as one of the major negotiation agendas. There is a common recognition that MRV should be applied not only to mitigation by the Parties, but also to support provided to developing country Parties. MRV of support is also described in the Cancun Agreement.

Development in negotiations for the establishment of a MRV structure has been seen mainly in the area of mitigation and modalities for MRV of support have not been established as of yet. However, in pursuing steady implementation of the Cancun Agreement by the Parties, it is expected that detailed designs for MRV of support will be considered. Therefore, this paper focuses on MRV of support and looks at the elements of funding support, capacity building, and technology development/ transfer, which compose support for developing countries, gives a broad overview of the development of the negotiations while sorting out similar structures from the viewpoint of MRV, and analyzes how the modalities should be.

Chapter 1 reviews MRV for the element of funding support. In this chapter, we look at the process of funds provision from developed countries to developing countries and indicate that it can be assumed that there will be different configurations and options for MRV depending on the target range where transparency should be secured, identify the merits and demerits of each option, and review the reporting entities and available existing tools.

Chapter 2 organizes the conceptual framework and configuration of efforts for the element of capacity building and describes the cross-sectoral characteristic of capacity building. Then, we review how the modalities of MRV should be based on past activities and discussions in negotiation for monitoring and evaluation for capacity building.

Chapter 3 gives an overview of the development of negotiations and technology cycles for the element of technology development/ transfer, while discussing, in particular, performance evaluation indices to measure the effective implementation of the technology transfer framework, and reviews how the modalities for MRV should be, as is done for the elements of funding and capacity building.

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Abbreviations

AWG-LCA	Ad hoc Working Group on Long-term Cooperative Action
BAP	Bali Action Plan
CDM	Clean Development Mechanism
CGE	Consultative Group of Experts
COP	Conference of the Parties
CTCN	Climate Technology Centre and Network
EGTT	Expert Group on Technology Transfer
EST	Environmentally Sound Technologies
GCF	Green Climate Fund
GEF	Global Environmental Facility
IAR	International Assessment and Review
ICA	International Consultation and Analysis
LEDS	Low Emission Development Strategy
LEG	Least Developed Countries Experts Group
MEA	Multilateral Environmental Agreements
MRV	Measurement, Reporting and Verification
NAMAs	Nationally Appropriate Mitigation Actions
NCSA	National Capacity Self-Assessment
ODA	Official Development Assistance
OECD-CCXG	Organization for Economic Co-operation and Development -Climate Change Expert Group
OECD-DAC	Organization for Economic Co-operation and Development -Development Assistance Committee
SBI	Subsidiary Body for Implementation
TEC	Technology Executive Committee
TNA	Technology Needs Assessment
UNFCCC	United Nations Framework Convention for Climate Change

Chapter 1

An Institutional Analysis of the Measurement, Reporting, and Verification (MRV) System for Support in the Future Climate Regime

Chapter 1

An Institutional Analysis of the Measurement, Reporting, and Verification (MRV) System for Support in the Future Climate Regime

Koji Fukuda[1]
Makoto Kato[2]

Summary Points:

- This paper discusses the MRV for support, particularly financial support. It aims to fill the gaps by 1)clarifying the definitive stages of the financial support provided to developing countries, 2)classifying potential institutional design options depending on which aspect of support should be MRVed, and 3) analyzing MRV of financial support along a set of evaluation criteria that will help compare operationability of the design options.
- Based on the systematic analysis, authors argue that the scope of transparency that the MRV ensures should be as broad and comprehensive as possible, and suggests phased approach has the most potential to move the negotiations forward: MRV architecture could start with the design option 1 utilizing existing MRV-related infrastructure, and gradually expand capture other stages of financial support to the developing countries. The phased approach also helps address technical barriers surrounding each design option.

[1] Policy Researcher, Climate Change Group, Institute for Global Environmental Strategies, Japan
[2] Principal Researcher, Overseas Environmental Cooperation Center, Japan

1.1. Introduction

A **M**easurement, **R**eporting and **V**erification (MRV) system that enhances the transparency and effectiveness of mitigation commitments and actions of Parties to the United Nations Framework Convention on Climate Change (UNFCCC) will be critical to the performance of a future climate regime. The Cancun Agreements adopted at the COP16 clarified that MRV will apply to both actions countries take and the support for those actions. However, there still remains considerable debate between developed and developing country Parties over how MRV will be operationalized. This is particularly likely to be a point of contention when it comes to the least discussed element of MRV: the MRV of "financial, technology and capacity building support."

This paper aims to fill an important gap in existing literature and negotiation positions by analyzing how the MRV o support can be operationalized, particularly the MRV of financial support[3]. The analysis is based on a schematic that divides the MRV of support into four definitive stages, running from the pledge and disbursement of funds in the donor country to the allocation of budget and its impacts in host countries. The schematic helps to show there is a clear link between the institutional designs of MRV support mechanisms and the degree of transparency that MRV aims to achieve. The paper also argues that in light of this link a phased approach—beginning with the first design option and gradually moving to the fourth option—has the most potential to move negotiations forward and achieve the ultimate goal of delivering support to developing country NAMAs.

The paper is divided into four sections. It the next section, it provides an overview of the background and current status of the post-2012 climate change negotiation over the MRV of support, revisiting previous studies and evaluating differing views of the Parties. The paper then analyzes four different institutional design options for MRV of support with attendant differences in the desired degree of transparency. The paper underlines that there are several stages involved in the delivery of support, and explores the possibility and practicality of utilizing existing tools and frameworks for the implementation of MRV of support as well as the relative advantages and disadvantages of different institutional design options based on consistent evaluation criteria.

1.2. Progress over the Negotiation: MRV of Support

1.2.1. Status of Negotiation

The concept of MRV first emerged in I(b)ii in the Bali Action Plan (BAP) adopted at COP13 2007. In the process of the post-2012 climate negotiation at COP13, the concept of MRV was initially discussed only in the context of the mitigation commitments/actions of the Parties. Nevertheless, due to the presence of ambiguity over the overall achievement status of financial pledges made by developed country Parties and the uncertainty and technical barrier on the accounting of the amount disbursed against such pledges, developing country Parties, especially India, claimed the MRV applied to the international support provided to developed countries on their mitigation actions. This led to the description of BAP which we see today, [deliberately] leaving ambiguity in the expression that enables readers to dual interpretation of MRV to apply to both mitigation actions and support provided to developing countries. Because the description of the BAP does not specify the nature of responsibility regarding commitment, action, and support, nor does it clearly define the coverage of the MRV, various interpretations of this clause have been proposed (Fransen 2009). At present, however, there is a general consensus among Parties that MRV indeed applies to both mitigation actions of Parties and support provided to developing countries.

[3] Support consists of finance, technology development and transfer, and capacity building.

Table 1. Descriptions of MRV in the COP Decisions

Bali Action Plan (1/CP.13)	Copenhagen Accord (1/CP.15)	Cancun Agreements (1/CP.16)
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**;	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.	112. Decides to establish a Standing Committee under the Conference of the Parties to assist the Conference of the Parties in exercising its functions with respect to the financial mechanism of the Convention in terms of improving coherence and coordination in the delivery of climate change financing, rationalization of the financial mechanism, mobilization of financial resources and **measurement, reporting and verification of support provided to developing country Parties**; Parties agree to further define the roles and functions of this Standing Committee;

With concerns raised by some developing countries Parties that operationalization of MRV would be a step toward increasing stringency over their mitigation actions and consequently results in the international interference on their domestic activities beyond national sovereignty, the concept of MRV itself has become contentious element of the UNFCCC negotiation. In the context of financial provision, the MRV of support has also been discussed along the line of the financial pledges of the fast-start financing of collectively providing $30 billion during 2010 and 2012, and long-term financing of collectively mobilizing $100 billion annually by 2020 by developed country Parties.

Up until today, the discussion on MRV in the process of post-2012 climate negotiation is centered around the MRV of mitigation actions of the Parties, and so far various design/infrastructure and tools have been built, including the establishment of different MRV modality for both internationally supported mitigation actions and domestically supported mitigation actions, International Consultation and Analysis(ICA), Biennial Reports(BR) and related guidance. On the contrary, little progress has been made thus far for the MRV of support.

While the Copenhagen Accord at COP 15 refers to only in the financial dimension of the MRV of support, the Cancun Agreements at COP16 moved the MRV of support into discussions over the financial mechanism of the Convention. Adding further clarity over its concept, such as the scope and coverage, operational modality, and entity for exercising MRV, serve as the remaining issues to be addressed in the subsequent stages of the negotiation. In order to establish flexible, operationable MRV architecture to allow maximum participation of Parties with different national circumstances, it is crucial to focus on how to achieve the enhanced transparency that was the primary objective of MRV—in other words, which aspect of support provided should be captured through the anticipated MRV architecture.

1.3. Previous Studies and Outstanding Issues

As the concept of MRV itself emerged with the BAP in 2007, MRV is relatively a new field of research where there is little in the way of accumulated knowledge and theories. One of the distinct features of this research field is that the progress is directly linked with the progress of the UNFCCC negotiations. Paralleling those negotiations, most of the MRV-related research and analysis focus on the MRV of mitigation actions. Research analyses on the support aspect of MRV are still few in number and limited in scope.

Most previous studies on the MRV of support have been authored by international organization specializing in development assistance such as the OECD and think tanks/research institutions based in the Western economies. This literature[4] reviews the existing MRV-related reporting architecture related to climate finance (i.e. National Communication and its review process under the climate regime, and OECD-DAC Creditors Reporting System(CRS) outside the climate regime), identifies barriers (in view of their applicability to the MRV of support), and analyzes how to build MRV process based so as to strengthen existing reporting architecture (Buchner et al., 2011; Ellis et al., 2011; Tirpak et al., 2010; Fransen 2009). Many of the previous studies also discuss the MRV of support in the context of ensuring transparency over the achievement of the long-term financing commitment by developed country Parties. These previous studies point out that the lack of consensus of what constitutes climate finance, the lack of clarity over the concept of "new and additional", technical barriers to the monitoring and accounting infrastructure for capturing financial flows, the lack of common reporting format and the presence of data gap run counter to the transparency, completeness and comparability needed to build trust between developed and developing countries.

Putting emphasis on how to best utilize existing MRV-related infrastructure and tools to construct the MRV of support is practical in view of accelerating its operationalization, and setting the scope of transparency over the achievement status of developed countries' financial commitments is useful for addressing concerns of the developing country Parties. However, the lack of previous studies focusing on the MRV of support may create a bottleneck on financial flows from developed countries to developing countries. This may also lead to an MRV modality that is unable to capture other aspects of the support, such as the resource allocated on the recipient sides or the overall cost-effectiveness of the supported mitigation actions. At the same time, in the absence of clear burden sharing mechanism among developed country Parties under the collective long-term financing goals, fixing the focus of MRV only on what it can and should achieve is not necessarily conducive to advancing negotiations.

Instead, a broader perspective that captures climate finance as a whole, above and beyond the financial commitments and including resource allocations as well as overall effectiveness, is necessary for the design of the MRV of support. In this regard, this research aims to fill a gap with previous studies by recognizing that there are several stages involved in the delivery of support. Moreover, these stages correspond with the desired degree of transparency that MRV intends to achieve.

1.4. Parties' Perspectives on the MRV of Support

At this point, views on the MRV of support provided for developing countries have been tabled by some Parties. Although a similar trend is observed with the previous studies that Parties have not given to the MRV of support as much attention as MRV of NAMAs, the below table summarizes the views of Parties expressed on the support aspect of MRV in the MISC document regarding the work programme for the guidelines of MRV to be developed in accordance with the paragraph 46 and 66 of the Cancun Agreements.

Based on the Table 2, it is observed that developed country Parties generally prefer the MRV process to be built upon the existing MRV-related infrastructure such as the National Communications and the

[4] Among the various support forms, most of the existing literatures so far have focused on the financial form of support, and limited analysis have been conducted on application of MRV to capacity building and technology form of the support.

biennial reports in conjunction with the improvements of reporting guidelines. With respect to the scope of support to be captured by the MRV process, however, some divergence is observed between developed country Parties; while Australia refers to the MRV of support by limiting its scope to the support provided by developed countries to developing countries, the US views the MRV of support in a broader sense by including the impacts generated as a result of the support as well as information beyond developed countries contribution, such as support provided from south-south cooperation.

As far as the views of developing country Parties are concerned, while point of convergence is observed on how the operational details relate to the classification of support, as some operational rules are more conducive to counting specific types of finance, their focus on the MRV of support focuses chiefly on how to ensure the transparency over the achievement status of financial pledge by the developed country Parties. The MISC documents also suggests concerns of developing country Parties over the potential increase in reporting burdens with respect to the expanding scope and depth of information on the support received as well as the frequency of such reporting, emphasizing the provision of additional support to address such expansion of the MRV process. At the same time, South Korea refers to the other aspect of MRV of support, which is the functional relationship between the registry to match NAMAs of developing country Parties and support, and financial mechanism under the Convention.

Overall these views remain conceptual in nature without touching on the operational details along with the stages in delivery of support. In this regard, the next section of this paper clarifies that the provision of support is carried out in a process with definitive stages. A more systematic analysis of MRV is possible by carefully looking at the different stages of the support provision along with a consistent evaluation criteria.

1.5. Institutional Analysis of MRV of Support

1.5.1. Research Approach and Stages of Support Provided

In analyzing MRV process for the support provided to the developing country Parties, different institutional design options can be considered depending on desired levels of transparency. This section focuses on the stages of the support provided to the developing countries, and identifies relevant institutional design options. For each design option, relevant data, including the contents of information required, the reporting entity, existing tools and frameworks that can be used, and potential advantages/disadvantages are presented. Based on this preliminary assessment, expert/stakeholder interviews are used to evaluate each design option.

As far as the general flow of support to developing country Parties is concerned, although such support can take various forms, the most common form is public finance through a government-to-government channel. The key stages in the provision of government-to government finance are when the financial resources are mobilized and disbursed to the recipient country governments (usually through the Ministry of Finance in the recipient countries) and are placed into their national budget accounts. The recipient countries then allocate the financial resources to the target actions (i.e. projects, programmes/sectoral measures, plans) via responsible line ministries. The performance of the supported actions is then monitored, evaluated and reported by the recipient governments. The evaluation of supported actions, including the quantitative and qualitative assessment of outcomes, is typically conducted ex-post.

Although there are also other forms of support, including the sectoral support where financial resources directly go to the actions undertaken by specific ministries in the recipient countries, and non-monetary forms of support such as capacity building (training and dispatch of sectoral/thematic experts), and procurement and provision of equipment to operationalize the action, the above form of support through national budget accounts is used for conducting systematic analysis of MRV in this research.

Table 2. Summary of Views of Parties on the MRV of Support

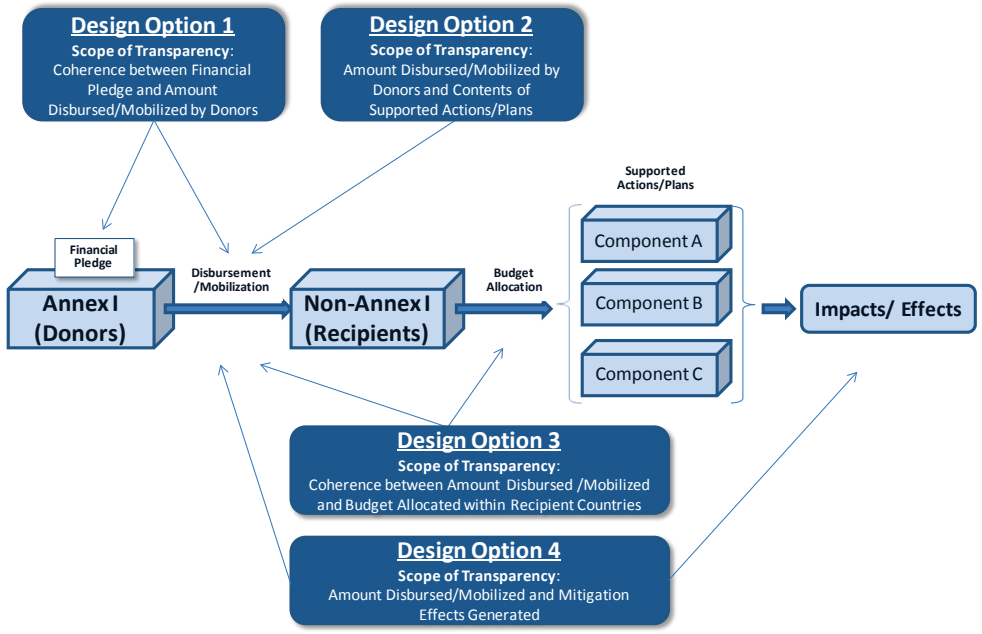
Country	Contents of Views
Developed Countries	
Australia	● National Communication guidelines for Annex II Parties' support as useful foundations for reporting on support ● Opportunities to enhance the national communication guidelines and tailor them for use in biennial reports ● Provision of transparency through assisting Parties producing accuracy and comparable data helps improve the understanding of financial flows/outcomes and consideration of future climate change priorities ● MRV of support for support provided by developed countries to developing countries as part of the priorities for progressing MRV work
EU	● Progress on MRV as essential part of a balanced Durban package ● Development of MRV modalities and guidelines for support should be seen as a longer term process linked with the NAMAs (para49 of the Cancun Agreements).
US	● Credibility of the climate finance system depends on the provision of finance and the transparent accounting of what is done with it and the results achieved. ● Limited information on the impact of support received from recipient countries due to infrequency of developing country national communications and the lack of clear reporting guidelines. Revised reporting guidelines needed to attain more detailed and frequent information on how international support led to enhanced mitigation and adaptation outcomes
Norway	● Information on support needs and support received to be included in the biennial reports
Japan	● Information on the needs of support and support received (including support provided to other Parties) to be included in the biennial reports
Developing Countries	
China	● Provision of support in terms of technology transfer, financing and capacity building by developed country Parties to developing countries shall be MRVable in a proper manner. ● Challenges facing the enhancement of national communications from non-Annex I Parties: lack of national capacity to enhance their reporting, inadequate level of funding, and time-consuming procedures. ● Provision of adequate and necessary financial, technological and capacity building support to enhancing their national system of reporting as a necessary basis for enhancement of reporting activities. ● Reform to simplify the process, improve the efficiency and increase funding scale
South Korea	● Priority placed on the functional relationship between the registry and the financial mechanism ● Consideration on which aspect of the support for NAMAs would go under the MRV (i.e. scale of actual support, efforts to comply with the proposed schedule, etc)

Sources: FCCC/AWGLCA/2011/MISC.7、FCCC/AWGLCA/2011/MISC.6

1.5.2. Identification/Description of Institutional Design Options

Four different design options are identified and summarized in the following figure 1 and table 3

Figure 1. Potential Design Options for MRV of Support



Design Option 1 defines the anticipated scope of transparency to be achieved through the MRV process to be the international financial pledge made by developed country Parties, as well as the actual amount of finance mobilized and/or disbursed and to compare the two. The current focus of the negotiation and also the focal areas of the previous studies fit nicely into this category of the design option. Such previous studies include discussions under the OECD Climate Change Experts Group (CCXG) over the scope of MRV in the context of long-term financing goal and the actual amount to be disbursed. This design option can be further subdivided into aggregate financial pledge made by developed country Parties (i.e. long-term financing) and financial pledge made by individual developed country Party under the collective financial commitment. As the MRV process compares the financial pledge and the disbursed/mobilized amount of financial resources, the donors, developed countries, serve as the reporting entity.

Design Option 2 sets its scope of transparency beyond the pledge aspect of the financial support, and aims to secure its transparency over the contents of supported activities at the individual activity level, including the details of support channels, targeted sectors, types of activities, and volume of finance provided for each supported activity. Similar to the Design Option 1, developed country Parties also serve as the reporting entity of this MRV process.

Design Option 3 aims to set its scope of transparency over the disbursed/mobilized amount of financial resources and also the domestic allocation of received resources within the recipient countries to explore the coherence between the two. To a certain degree, this design option allows for the broader view of the MRV process articulated by the US in the MISC documents. Unlike the design option 1 and 2, the reporting entities of this design option include both developed and developing countries.

Design Option 4 aims to ensure transparency over the actual amount of support disbursed and/or mobilized by developed countries and the mitigation impacts generated out of the supported actions, thereby capturing transparency over the input and output of the international support. This design option also merges elements currently discussed separately as mitigation and finance component under the UNFCCC negotiation, and both the developed and developing countries serve as the reporting entity of this design.

Table 3. Examples of International Support for Different Categories of NAMAs

Scope of Transparency	Tiers/ Types of NAMA to be supported	Info Required for MRV	Reporting Constituency(ies)	Existing System
【Design Option 1】 Grasping Coherence between Financial Pledge and Amount Disbursed/Mobilized by Donors **(Comparison of Financial Volume)**	**Tier1**: Collective Progress towards Long-term Financing Pledge	Total Pledged Amount ($100billion) Amount Disbursed / Mobilized (Aggregate)	Annex I	**Public Finance (Bilateral)** NC, BR, OECD/CSR **Public Finance (Multilateral)** Annual reports, phase reports(tranche), **Private Finance：** UNCTAD Report, etc
	Tier2: Progress towards Individual Financing Pledge	Pledged Amount Amount Disbursed / Mobilized (Individual)	Annex I	
【Design Option 2】 Grasping the Amount Disbursed/Mobilized by Donors and the Contents of Supported Actions/Plans **(Disclosure of Contents of Support)**	Supported Actions/Plans (projects, programs, sectoral supports, LEDS, etc)	Amount Disbursed / Mobilized Contents of Supported Actions and/or plans	**Reporting by each financial channel** 1)GCF 2)Annex I 3)Multilateral IFIs 4)Private Sector	**Public Finance (Bilateral)** NC, BR, OECD/CSR, individual PD・sectoral support documents **Public Finance (Multilateral)** individual PD・sectoral support documents, annual reports **Private Finance：** UNCTAD Report, etc
【Design Option 3】 Grasping Coherence between the Amount Disbursed/Mobilized and the Budget Allocation within Recipient Countries **(Comparison of Financial Volume)**	Supported Actions/Plans (projects, programs, sectoral supports, LEDS, etc)	Amount Disbursed / Mobilized (Amount sent to the Treasury of Recipient s) Budget allocated domestically to the Target Actions / Plans by the Recipients	1)GCF 2)Annex I 3)Multilateral IFIs 4)Private Sector 5)non-Annex I	**【Information from Annex I】** **Public Finance (Bilateral)** Annex I NC, BR, OECD/CSR, individual PD・sectoral support documents **Public Finance (Multilateral)** individual PD・sectoral support documents, annual reports **Private Finance：** UNCTAD Report, etc **【Information from non-Annex I(recipient)】** Budget request・budget allocation
【Design Option 4】 Grasping the Amount Disbursed/Mobilized and the Mitigation Effects Generated **(MRVing the Impact of Support)**	Project-based Support	Amount Disbursed / Mobilized Calculated Mitigation Effects (quantitative)	Annex I Non-Annex I	**Public Finance (Bilateral)** NC, BR, OECD/CSR, individual PD・sectoral support documents **Public Finance (Multilateral)** individual PD・sectoral support documents, annual reports **Private Finance：** UNCTAD Report, etc
	Program-based Support Sector-bases Support	Amount Disbursed / Mobilized Calculated Mitigation Effects (quantitative, qualitative)	Annex I Non-Annex I	**Public Finance (Bilateral)** NC, BR, OECD/CSR, individual PD・sectoral support documents **Public Finance (Multilateral)** individual PD・sectoral support documents, annual reports **Private Finance：** UNCTAD Report, etc
	Supporting Low Carbon Development Plans and Strategies(LEDS)	Amount Disbursed / Mobilized Calculated Mitigation Effects (qualitative)	Annex I Non-Annex I	**Public Finance (Bilateral)** NC, BR, OECD/CSR, individual PD・sectoral support documents **Public Finance (Multilateral)** individual PD・sectoral support documents, annual reports **Private Finance：** UNCTAD Report, etc

1.5.3. Elements to be Considered for Analyzing MRV Design Options

1) MRV of Support and Different Types of Finance

In assessing the design options for the MRV of support, the coverage of the financial support to be included in the reporting process needs be treated carefully. For instance, while the Design Option 1 sets

its objective of the MRV process to compare the financial pledges of developed country Parties and the actual amount disbursed and/or mobilized, the Cancun Agreements suggests that a wide variety of sources will constitute the financial support to be provided to developing country Parties (UNFCCC 2011). From the perspective of institutional design and technical feasibility, issues remain over to what extent the financial flow should be captured, how to treat different quality/nature of support information among different types of financial flows, and how to avoid double-counting. At the same time, with regard to long-term financing, issues over to what extent private finance could practically be captured and what additional measures needs warrant further consideration. Likewise, the Design Option 2, 3, and 4 are all present the same problem of how to best deal with the information of relevant private investments.

2) Assessment of Institutional Design Options of MRV

While the design option 4 aims to ensure transparency over the mitigation impacts of support provided, in reality the impacts generated out of the supported actions may not always be expressed in the GHG(CO2-t eq) terms. In this regard, creating reporting format to capture related supports such as supporting enabling conditions for the future implementation of NAMAs and assisting establishment of low carbon development plans of recipient countries might be necessary to supplement the overall reporting and assessment of the support provided.

1.6. The State of International Negotiations on MRV

The above schematic for the potential design options demonstrates that multiple design options for MRV are possible for support and these options depending on how the scope of transparency is defined. In order to analyze each design option, it is crucial to assess the feasibility and practicality for operationalizing each design option. This section evaluates each potential design options for the MRV of support, along with the identification of advantages and disadvantages.

1.6.1. Identification of Evaluation Criteria

In conducting the evaluation of each design option for the MRV of support, the scope of transparency, predictability, consistency, collectability, accuracy, completeness, and comparability are selected as the evaluation criteria. These criteria are selected because they relate to the operationalization of the support. To focus on and emphasize this practical aspect of the design analysis, this paper deliberately excludes political elements from the evaluation criteria such as political acceptability.

Table 4. Evaluation Criteria

Evaluation Criteria	Definition
Scope	Scope of transparency to be given by introducing options
Predictability	Predictability of financial support that are subject to MRV
Consistency	Consistency with time frames of the current and future reporting under UNFCCC
Collectability	Collectability of data that are subject to MRV
Accuracy	Accuracy of the level of collected information on support
Completeness	Completeness of areas and kinds of information
Comparability	Comparability to coordinate and adjust different kinds of data, for comparison and aggregation (and avoiding double counting)

1.6.2. Evaluation of Design Options for MRV of Support

Using the above criteria, both the advantages and disadvantages of each of the design option are extracted and summarized in the table 5.

Table 5. Evaluation of the Design Options for MRV of Support

【Design Option 1】 Grasping Coherence between Financial Pledge and Amount Disbursed/Mobilized by Donors (Comparison of Financial Volume)		
【Tiers/ Types of NAMA to be supported】	Tier1: Collective Progress towards Long-term Financing Pledge Tier2: Progress towards Individual Financing Pledge	
	Advantage	Disadvantage
Scope	Ensures transparency of actual pledged and disbursed/mobilized amount	Does not cover distribution in recipient countries and impacts/effectiveness
Predictability	Predicts overall amount from pledge	Disbursed and mobilized amount may change in case of unexpected events(eg financial crisis, natural disasters, etc)
Consistency	Timeframes can be easily adjusted to existing systems	—
Collectability	Most information on public finance is readily available in existing and future reporting system (NC, BR, CRS)	Information on private finance flow may not be sufficiently captured by existing systems.
Accuracy	Existing systems (NC, CRS) supports accuracy to some extent.	— See “Completeness”
Completeness	Captures public finance by developed countries	Does not capture financial flow other than public finance by developed countries
Comparability	Already established methods for avoiding double counting for reporting ODA	—
Other Matters	● Early introduction may be possible by relying on existing systems. ● Some technical challenge may exist in comparability of donor information. ● The option does not capture impact of support. ● Focus only on MRV of financial commitment. ● It does not lead to technical discussion on improvement of ● NAMA support or the process as a whole.	

Table 5. Evaluation of the Design Options for MRV of Support (continued)

【Design Option 2】 Grasping the Amount Disbursed/Mobilized by Donors and the Contents of Supported Actions/Plans (Disclosure of Contents of Support)		
【Tiers/ Types of NAMA to be supported】	Supported Actions/Plans (projects, programs, sectoral supports, LEDS, etc)	
	Advantage	Disadvantage
Scope	Ensures transparency of actual disbursed/mobilized amount(public finance) and the contents of supported actions/plans)	Does not cover distribution in recipient countries and impacts/effectiveness
Predictability	Predicts information on disbursed and mobilized amount as they are decided a priori	—
Consistency	Timeframes can be easily adjusted to existing systems	—
Collectability	Some information on public finance may be captured in existing and future reporting system (NC, CRS)	Information on private finance flow may not be sufficiently captured by existing systems.
Accuracy	Existing systems (NC, CRS) supports accuracy to some extent.	Requires newly introducing methods of measurements for information not captured existing systems
Completeness	May capture not only public finance by developed countries, but also other voluntary channels	Highly accurate information is limited to public finance by developed countries +α. Information on private finance rely on voluntary information provision
Comparability	Already established procedures for reporting and methods for avoiding double counting	Requires newly introducing methods of measurements for information not captured existing systems
Other Matters	● Early introduction may be possible by relying on some existing systems. ● New reporting modality is necessary for information not captured existing systems.	

Table 5. Evaluation of the Design Options for MRV of Support (continued)

【Design Option 3】 Grasping Coherence between the Amount Disbursed/Mobilized and the Budget Allocation within Recipient Countries (Comparison of Financial Volume)		
【Tiers/ Types of NAMA to be supported】	Supported Actions/Plans (projects, programs, sectoral supports, LEDS, etc)	
	Advantage	Disadvantage
Scope	Captures transparency on both disbursed amount and contents, and financial distribution in recipient countries	Challenge may exist in acceptability of disclosing recipient countries decisions on domestic distribution and capacity of information collection
Predictability	Disbursed/mobilize amount is connected with contents	Predictability on actual domestic distribution (amount and timeframe) relies on actions by recipient treasury
Consistency	Timeframes can be easily adjusted to existing systems	—
Collectability	Some information on public finance may be captured in existing and future reporting system (NC, CRS)	May require additional reporting by recipient countries (some are readily available, e.g. in existing operation in ODA and multilateral finance)
Accuracy	Existing systems (NC, CRS) supports accuracy to some extent.	Requires newly introducing methods of measurements for information not captured existing systems Additional measures may be required for improving accuracy of information provided by recipient countries
Completeness	Disclose both inputs from developed countries and outputs in developed countries including total received amount and domestic distribution	—
Comparability	Already existing system are available (NC, CRS) for part of developed countries'support	Methods are not readily available on domestic distribution (requires new guidance)
Other Matters	● Information on impact at macro level(mitigation impact, result of technology and capacity building support) may be supplemented with a separate report. ● The option may require introducing methods to verify appropriateness of domestic distribution, and actors to verify it. ● Fungibility of finance provided may be an issue	

Table 5. Evaluation of the Design Options for MRV of Support (continued)

【Design Option 4】 Grasping the Amount Disbursed/Mobilized and the Mitigation Effects Generated (MRVing the Impact of Support)						
【Tiers/ Types of NAMA to be supported】	Project-based Support		Program-based Support Sector-bases Support		Supporting Low Carbon Development Plans and Strategies(LEDS)	
	Advantage	Disadvantage	Advantage	Disadvantage	Advantage	Disadvantage
Scope	Captures both financial amount and impact on project-based support	—	Captures both financial amount and impact on program-based support/sector-bases Support	—	Captures both financial amount and contents of plans and strategies	Support to plans and strategies may not be directly linked with quantified mitigation effect (quantification of impact may not be relevant)
Predictability	High predictability as support budget amount is decided a priori	Low predictability on budget for post project period	High predictability as support budget amount is decided a priori	—	High predictability as support budget amount is decided a priori	—
Consistency	Timeframes can be easily adjusted to existing systems	—	Timeframes can be easily adjusted to existing systems	—	Timeframes can be easily adjusted to existing systems	—
Collectability	Relatively easier by utilizing existing systems (NC, CRS)	—	Relatively easier by utilizing existing systems (NC, CRS)	Information may not be sufficiently captures if support involves private finance	Relatively easier by utilizing existing systems (NC, CRS)	—
Accuracy	Accurate and quantified information may be available as budget and reduction amount per project are easily identified	Requires to establish a common methods or framework according to supported sector and activity types	Accurate and quantified information per programme and sector is available	Accuracy level of quantification of mitigation effect may vary	Accurate information is available for budget supporting plans and strategies to some extent	Support to plans and strategies may not be directly linked with quantified mitigation effect (quantification of impact may not be relevant)
Completeness	Public finance budget and mitigation effect per project are easily disclosed	Private finance budget may not be disclosed due to confidenciality	Captures budget per programme or sector	Low completeness if support involves private finance	Captures budge to support plans and strategies	Captures only budget for supporting plans and strategies (and not subordinated programmes or projects)
Comparability	Already existing system are available (NC, CRS) for part of developed countries'support	Technical challenges may exist in aggregating mitigation effect , in different sectors and activity types.	—	Aggregation of impact may be not be appropriate due to variety of support contents	—	May not be appropriate to compare only budget, due to various needs of different countries
Other Matters	—		● Technical challenge may exist when more than one donor support the same programme or sector		Evaluation method should be established for non quantified impacts Technical challenge may exist when more than one donor support the same plan or strategy	

1.6.3. Results and Interpretations of Evaluation

The evaluation of each design option for the MRV of support using the selected evaluation criteria reveals that each option carries both advantages and disadvantages from an operational point of view. At the same time, it becomes clear as a common element among the design options that the physical size of the MRV architecture depends on the level of details and the volume of support information required to ensure transparency. In this regard, minimizing the procedural complexity and reducing operational cost of the MRV process are critical elements for the smooth operationalization of the process.

As far as the individual MRV design option is considered, as the Design Option 1 aims for ensuring transparency over the financial pledge and the actual amount disbursed and / or mobilized, the primary focus is on the actions of the developed country Parties. As the coverage of the information required for MRV is limited, this design option performs well in terms of consistency, collectability, accuracy and comparability. These advantages are supported by the applicability of experiences drawn from the exiting reporting infrastructure (such as the OECD-DAC Creditor Reporting System (CRS)[5]) incorporating thematic classification of resource allocations and measures of preventing double counting. On the other hand, because the scope of MRV is limited to the financial commitment and its achievement status by developed country Parties, the design option excludes impacts/effectiveness of the support provided. Because of its limited scope, the design option is unlikely to capture the overall improvement of the support process such as addressing the technical issues surrounding supporting NAMAs and its operationalization. From the perspective of collectability and comparability, capturing financial flows other than public finance and flows that cannot be currently captured by the existing reporting infrastructure requires additional measures. These barriers can be partially addressed by reinforcing the reporting guidance of the National Communications of Annex I Parties.

As for the Design Option 2, because the option aims for ensuring transparency over the actual amount disbursed and/or mobilized and the information over the contents of actions supported, its advantages lies in its consistency, collectability, and accuracy by utilizing the existing reporting infrastructure (CRS, reporting framework of bilateral/multilateral donors). From perspective of the completeness of the support information, this design option could also capture wider coverage of financial flows compared to design option 1, by expanding its coverage to capture financial channels other than public finance including private finance and financial supported provided through the Green Climate Fund and multilateral development assistance agencies. On the other hand, despite the applicability of existing reporting infrastructure, an unsolved issue is how to ensure comparability among different existing reporting infrastructure. At the same time, as the provision of support information from the private finance is voluntary in nature, difficulty remains over to what extent private finance can be captured by the existing reporting infrastructure.

The Design Option 3 ensures transparency over both the finance mobilized and/or disbursed by developed countries and also the domestic allocation of received finance by the recipient side. The broader coverage of this option is achieved through this process compared to the previous design options. In particular, seeking transparency not only over the volume of the financial support provided but also the domestic actions supported by those resources further clarifies whether the financial resources provided by developed countries are adequately utilized for the intended policy target/objective. This perspective is particularly important in view of increasing and diversifying trend of climate finance as a whole. From the operational perspective, the existing reporting infrastructure referred to in the Design Option 1 and 2 could accomplish certain level of consistency, collectability and accuracy, and the reporting practices of recipient countries associated with public finance could also be utilized for supplementing the transparency that this design option aims to capture. For instance, in the case of ODA resources provided to the developing countries, the recipient countries generally report on the financial status and progress of the targeted actions to the donor countries, and these existing operational practices could be harnessed and incorporated into the MRV process. On the other hand, such reporting are usually exercised in accordance with the accounting procedures and reporting methods defined by the individual donor country; in this sense, the comparability

[5] OECD-DAC introduces a reporting system from the member countries on their ODA expenditure over climate change, biodiversity and desertification. Reporting in the climate change area initially focused on the mitigation component, but later the adaptation component was included through development of classification methods. DCD/DAC(2007)39/FINAL/ADD3

of support information among donors could be a barrier. Under the UNFCCC framework, given the reporting architecture and procedures for developing country Parties are not structurally formulated, a considerable amount of time should be spent on the further improvements and reinforcements of this reporting infrastructure to make this design option operational.

The Design Option 4 captures the widest scope of information among the design options considered, as it covers the volume of financial resources disbursed and/or mobilized and the impacts/effects generated out of the implementation of the actions supported. While the advantages and disadvantages resembles option 3, it is different from previous options by expanding its scope of transparency over the output of the supported actions rather than simply focusing on inputs of the financial flow. This intends to capture transparency over the overall process of the financial flow, entailing information from the decision making over financial support and also the consequence of the implementation of the supported actions. This component also resembles the information disclosure process in the context of ODA activities through the bilateral and multilateral supporting channels, and some of the elements of existing reporting practices could be harnessed to operationalize this design option.

From operational perspective, the technical barrier remains over the accounting methodologies for the generated impacts; in this sense, utilizing different baselines/reference levels and methodologies for calibrating mitigation effects will be needed according to the types and nature of the actions, including project level, programme and sectoral level, planning level (low carbon development plan). Likewise, attempts to calibrate the impacts/effects of the supported actions beyond the mitigation effects (GHG reductions/avoided GHGs) by including elements such as technology development and transfer and capacity building component creates added difficulties, as the different approaches for monitoring and evaluation are required depending on the level of support and target sectors. It is also important to note that some of these elements are qualitative in nature, and structural difficulty remains over how to capture the impacts in the quantitative terms unless proxies are identified, agreed, and introduced for such assessment.

Nonetheless, some of the technical issues on calibrating mitigation impacts can be partially addressed by linking the impacts with the macro-level GHG data as utilized in the process of the GHG inventories, and calibrating the impacts other than mitigation aspect of the actions can be further supplemented by the information provided by the recipient countries. Considering the potential deficiency of capacity and experiences over calibrating mitigation impacts and assessing the implementation of supported projects and programs among the recipient countries, the operationalization of this design option might require additional support on the project/programme cycle managements including fund management and subsequent monitoring and evaluation processes.

Likewise, in case the multiple donors are involved in the crosscutting, sectoral-based and programme-based support through co-financing, the precise demarcation of impacts among the donors will not be easy, and measures to deal with such technical difficulty also need to be included into the discussion of its design.

Moreover, since options 3 and 4 anticipate information disclosure from both developed countries and developing countries, operationalization of these options could also contribute to the improved governance for the recipient countries in the long run.

1.7. Stakeholder Interview and Their Views

In assessing the potential design options for the MRV of support, stakeholder interviews were conducted to identify further areas of improvements for individual design option. The stakeholders were mainly policymakers, finance experts and practitioners selected from both developed and developing countries. As the limited number of views have been collected thus far, authors will attempt to expand the pool of interviews at a later stage.

Table 6. Stakeholder Views on the Evaluation Criteria

Evaluation Criteria	Stakeholder Views
Scope	While it is desirable to capture broader scope of transparency, existing infrastructure has limited coverage, and formulation and operationalization of new infrastructure takes time.
Predictability	While predictability is an important concept, it is not clear whether the MRV process reinforces the predictability itself.
Consistency	Synchronizing the reporting of the support-related information with the reporting cycle/requirements under the Convention is essential. Reporting broader coverage of support information might require further efforts and improvements on the infrastructure
Collectability	For the information collected from the developing countries, it is desirable to start with the information that can be collected easily.
Accuracy	It is realistic to utilize existing MRV-related infrastructure that collects information with certain accuracy level. Step-wise quality improvement measures might be necessary for the information with less accuracy level.
Completeness	The information required depends on the definition of climate finance. In order to capture the overall process of the support provided, inclusion of broad types of support is necessary. Physical capacity and political acceptability remains as practical barriers.
Compatibility	Methodologies needs to be designed for support information with high priority but not attained sufficient level of comparability.

1.7.1. Evaluation Criteria

Different views are expressed in the evaluation criteria selected for assessing design options. The following table summarizes those views.

1.7.2. Evaluation Criteria

A wide range of views were also expressed for overall institutional building of MRV of support. As for the issue on what constitutes the climate finance, some claim that the climate finance includes all the financial flows related to the climate change, whereas others view climate finance as only referring to those resources provided to achieve the ultimate objective of the Convention or 2 degree target. Others also view that climate finance is simply a resource provided to fulfill the responsibility of the Annex II countries under the Convention.

As for the institutional design options to carry out the MRV of support, while many stakeholders identified the usefulness of utilizing existing MRV-related infrastructure, the support information that cannot be captured by such existing tools can be addressed by expanding the scope of transparency as well as the infrastructure itself.

1.8. Remaining design Issues for the MRV Modality of Support

1.8.1. Relationship between the Article 4.3 and Voluntary Nature of Financial Disbursement of Individual Developed Country Parties

Considering the case of the fast-start financing of collectively providing $30 billion by developed countries from 2010 to 2012, actual delivery of the resources are not based on the clear burden sharing mechanisms among developed countries. In view of this voluntary nature of the amount to be delivered for individual developed country and commitment under the Article 4.3 of the Convention, how to set the level of stringency to be applied for MRV remains to be the issue.

At the same time, as the Cancun Agreements stipulates the funds flowing to developing countries "may come from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources" (UNFCCC 2011), how to formulate separate MRV process for different funding sources remains to be an issue.

1.8.2. Fungibility Risk of International Support

One of the practical concerns for the Design Option 3 which captures the information of the domestic allocation of the received finance is the fungibility aspect of the support provided. Fungibility generally refers to the circumstance where the international support ear-marked for a specific target category is provided to recipient countries but is substituted with the domestic resources intended to be used for the same target category and instead is transferred to other categories, thereby reducing the support outcome according to the policy purposes of donors (Tamachi 2004). In the context of climate finance, this could be translated as a circumstance where domestic financial resources intended for the preparation and the implementation of specific mitigation actions is substituted with the international support received for the same mitigation actions, and that domestic resources are transferred for other purposes. This could be interpreted as reduction or nonattainment of the objective of the international support due to the absence of additionality of the outcome that the support originally aimed for. However, in case the domestic resources substituted by the international support and is transferred to other purposes are adequately used for other national developmental priority categories defined under the national development plans of the recipient countries, contribution to the sustainable development is said to be achieved, ensuring the additionality in broader context of the international support provided.

As the Convention texts repeatedly emphasize the mitigation actions of the developing countries in the context of sustainable development, the fungibility issue could be regarded and assessed positively. However, as the good governance of recipient countries serves as the pre-requisite for the fungibility to work positively (World Bank 2000, Tamachi 2004), building the reporting architecture to capture transparency over domestic resource allocation including re-allocation owing to the fungibility is necessary for operationalization of the Design Option 3[6].

1.9. Conclusion

1.9.1. Way Forward: Phased Approach for the MRV Modality on Support

Considering the progress in the UNFCCC negotiation, the process defining the scope of the MRV of support provided to developing countries through the MRV process will hinge not only its operational but also its political feasibility. Thus far, the discussions over the MRV of support both in negotiations and research tend to focus on the linkage with the long-term financing pledge of the developed country

[6] More precisely, in order for the Design Option 3 to function as the MRV process, following modality needs to be agreed:
1. Achievement of policy purposes of the international support (climate change measures) is ensured
2. Donors(bilateral, multilateral, GCF) allows the possibility.
3. Recipient Countries ensure that domestic resources to be transferred to other purposes/categories go to domestic developmental priority areas only, and ensure transparency over such transfer of resources. (Promotion of this transfer of resources from the originally intended purposes is at the discretion of the recipient countries in view of country ownership)

Parties as defined by the Design Option 1. This falls under the narrow interpretation of the MRV of support which aims to make the status of support provided to developing countries by developed countries more transparent in line with Article 4.3. Nonetheless, as views expressed by stakeholder interviews, the scope of transparency that the MRV process ensures should be designed as broad and comprehensive as possible. In this sense, the interpretation of the MRV of support could be expanded to cover the overall process of the support provided to developing countries, which requires information from all the actors involved in this support process.

As a way forward, instead of fixing the design discussion with a single design option, a phased approach should be considered for building and operationalizing the MRV of support; more precisely, the MRV architecture could start with the design option 1 utilizing the existing MRV-related infrastructure, and gradually to expand its scope of transparency suggested in other design options along with the reinforcement of additional institutional building and enhancement of the country capacities to capture and report the support information.

In sum, the transparency that the MRV of support should ensure ultimately requires information from both developed and developing countries; the MRV process not only captures the financial pledges and the contents of the support provided by the developed country Parties, but also information regarding the effectiveness of the allocation of resources in the recipient countries and impacts generated out of the support provided. Making this MRV designing process a joint effort by donors and recipients would help build trust among all Parties.

A phased approach for the MRV of support over a predetermined time horizon is also crucial in view of addressing technical difficulty of capturing the various types of finance under ever-diversifying climate finance. As the gradual shift from one design option to another accompanies the gradual expansion in the scope of process, and various adjustments on collecting and accounting the information and additional capacity building for assisting such transition might be necessary. For instance, while the design option 1 could help operationalize the process in the near term (utilizing exiting reporting architecture), a transition to the design option 2 and 3 requires both technical adjustments mentioned above. As for the transition to the design option 4 containing the transparency over the mitigation effects of the supported actions, creating the reporting format to capture qualitative aspect of impacts might be necessary to supplement quantitative information while at the same time addressing the adjustment of accounting methodologies and identification of reporting methods. All in all, the phased approach to gradually address the technical issues surrounding each design option and to develop the MRV modality enables Parties to achieve the intended transparency over the overall financial flow surrounding the climate finance, resource allocations, and effects/impacts of the actions supported.

1.10. Outstanding Issues for Future Research

While the research focuses on the institutional design options of the MRV of support, the following elements needs additional research.

1) Relationship with the institutional arrangements for climate finance under the Convention

One of the key developments of the Cancun Agreements with respect to the finance component is the establishment of the Green Climate Fund (GCF). As of September 2011, three Transitional Committee meetings have been so far convened to consolidate operational design of the GCF. Regardless of its operational modality, considering the support provided through the GCF to developing country Parties is likely to be subject to MRV, clarity must be given on the aspect of sources of GCF resources, execution and allocation of resources, and impact generated out of the support. Thematic windows to be created in the GCF might also offer potential to develop sector specific MRV of support.

As far as the negotiation goes, the role and function of the Standing Committee is currently being discussed, and in this regard, adequate attention should be paid to establishing clarity to the MRV modality in view of the paragraph 112 of the Cancun Agreements.

2) Other Support Areas and MRV

The Bali Action Plan stipulates support comprising finance, technology development and transfer, and capacity building. As compared to finance aspect of the support which is more relevant to quantitative assessment of limited assessment of MRV for technology transfer and capacity development have been conducted thus far at different stages/levels including projects/sectoral level, national planning and global level. MRV design of these support components should be assessed/analyzed in conjunction with relevant institutional arrangements developed under the Convention, including technology mechanisms and thematic windows under the GCF.

3) MRV and the Thematic Issues

As far as the description of the Bali Action Plan goes, MRV is meant for mitigation action/commitments of the Parties and the support provided to developing country Parties in this context. From the perspective of support and balanced allocation among thematic issues, however, substantial amount of resources will also flow to the adaptation component. If Parties anticipate the design of MRV to capture the transparency over the impact and effect of the support provided, it would be rational to consider the expansion of the scope of MRV to adaptation component in longer term direction.

This possibility of expanding the scope of MRV of support to adaptation arena has been indeed pointed out in the course of AWG-LCA discussion held in Bonn June 2011 (IISD 2011) along with the relationship with GCF, the role and functions of Standing Committee and design issue of registry to match support and actions.

How to best incorporate these practical design issues into actual MRV architecture will be central to this design process. As far as the capturing the information on financial support to adaptation is concerned, the technical issue that has been identified on its structural difficulty to distinguish from conventional developmental activities. In this regard, OECD-DAC for instance adopted the guideline (2009, DAC) in an attempt to address this classification issue to guide donors to report their support on new classification from the 2010 activities[7]. While the assessment for the effectiveness of such classification and reinforced reporting is needed, these existing measures provide important practical lessons for future design of MRV of support over adaptation.

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[7] More details on the Rio Marker for adaptation based on this decision should refer to the following document; Reporting Directives on Creditors Reporting System and Addendum on Climate Change Adaptation Markers, 10 February, 2010 (DCD/DAC(2007)39/FINAL/ADD3

Chapter 2

Views on Measurement, Reporting, and Verification (MRV) of the Development and Transfer of Technology for Developing Countries under the Climate Change Regime

Chapter 2

Views on Measurement, Reporting, and Verification (MRV) of the Development and Transfer of Technology for Developing Countries under the Climate Change Regime

Yoshihiro Mizutani[8]
Koji Fukuda[9]

Summary

As stipulated in the Bali Action Plan (BAP), technological support will be a critical to the performance of the future climate regime. While current climate negotiations have focused on the design and governance structure of a Technology Mechanism, there has been comparatively little discussion on the MRV of technology. Against this backdrop, this paper provides an overview of the Parties' perspectives on MRV of technological support, discusses performance indicators that could potentially be used to MRV technological support, and highlights a number of unresolved issues that could undermine the operationalization of MRV.

[8] Director, Project Division, Global Environment Centre Foundation
[9] Policy Researcher, Climate Change Group, Institute for Global Environmental Strategies

2.1. Introduction

In the Bali Action Plan (BAP) adopted at the 13th session of the Conference of the Parties (COP13) to the United Nations Framework Convention on Climate Change (UNFCCC), the COP decided to subject support for the development and transfer of technology from developed country Parties to developing country Parties for nationally appropriate mitigation actions (NAMAs) to Measurement, Reporting and Verification (MRV) (UNFCCC 2007). Following the BAP, the Cancun Agreements adopted at COP16 decided to establish a Technology Mechanism to promote the development and transfer of technology. The two institutional bodies to be established under the Technology Mechanism, namely the Technology Executive Committee (TEC) and the Climate Technology Centre & Network (CTCN), are required to report their activities and results through the subsidiary bodies under the Convention, and therefore, throughout this reporting and review arrangements, the Technology Mechanism as a whole is said to be subject to MRV.

However, negotiations over technology in 2011 centered chiefly around the terms of reference that define the activities of the CTCN, governance structure, and organizational aspects of the evaluation and selection criteria of the hosting entity. In consequence, there has not been much discussion related to the MRV of technological support. However, from the viewpoint of assessing the progress of the operationalization of the Technology Mechanism, expected to start operations from 2013, there is a strong possibility that discussions will develop on the specific contents of MRV of technology from 2012 onward.

Support for technology will therefore be a critical to the performance of a future climate regime. While there has been some discussion of a Technology Mechanism and its governance structure, there has been little discussion of how to MRV technological support. This is in part attributable to the fact that technology development and transfer is a process that will require the development of indicators that track changes in key variables at distinct stages. The development of key performance indicators that could help fill these need for MRV provided there is more discussion on which of these indicators can be used for which stage of technology development and transfer. In climate negotiations, there is a general tendency to begin with issues which are relatively easier to resolve and move to those that are more difficult. Picked the lower hanging fruit for technology (i.e. institutional setup for the Technology Mechanism) makes sense, but it is also good to begin thinking about less tractable issues before they undermine progress to an effective and efficient MRV system.

With this goal in mind, this paper provides an overview of Parties' perspectives on MRV in recently released reports related to the development and transfer of technology, as well as on the key developments in international negotiations. It also summarizes issues surrounding the MRV of support for the development and transfer of technology to developing countries. Based on the overview and summary, the paper puts forward proposals in reviewing how MRV of technology transfer could be conducted under the Convention.

2.2. Discussions on MRV of Technology in Recent International Negotiations

2.2.1. Discussions at International Negotiations related to the Future Framework (Since the COP13 Bali Conference)

In the context of the post-2012 climate negotiation, the Bali Action Plan (BAP) clarified that the development and transfer of technology is to be one of the four pillars of a future climate regime, sparking a rise in interest in technology (Sterk 2010). Institutional arrangements for a Technology Mechanism to promote technology transfer were discussed at COP15 in Copenhagen in 2009 and adopted in the COP16 Cancun Agreements in 2010.

2.2.2. Discussions in International Negotiations in 2011

Negotiations under the AWG-LCA track of the UNFCCC in 2011 centered on items raised in paragraph 128 of the Cancun Agreements. Following paragraph 128, discussions have focused on terms of reference and governance structure of the CTCN to make the Technology Mechanism fully operational from 2012. At present, MRV for technology is not treated as an agenda tem in the negotiations.

However, prior to the AWG-LCA session held in Bangkok from April 4 to 5, 2011, an experts workshop on the Technology Mechanism was held. The objective of the workshop was to assess the potential for the Technology Mechanism to support the implementation of the Cancun Agreements and to explore options to ensure that the Technology Mechanism is fully operational by 2012. In session 3, Day 2 of the workshop, several Parties outlined additional functions for the CTCN and TEC. The report of the workshop (FCCC/AWGLCA/2011/INF.2) includes the following two proposed additional functions:

- Evaluating the performance of the Technology Mechanism in the development and transfer of environmentally sound technologies in terms of speed, range and size of the technological flow (paragraph 46 (a))
- Supporting the Convention processes to measure, report on and verify the technology support for the actions of developing countries on mitigation and adaptation (paragraph 46 (b))

Additionally, in the presentations made by the Parties, South Africa stated that the speed and effectiveness of the development and transfer of technology should be subject to MRV and that the results of the survey research by the Expert Group on Technology Transfer (EGTT)[10] should be used for the future advancement of technology transfer.[11] China also called for MRV of support for technology transfer to developing countries as an additional function of the Technology Mechanism. These presentations suggest there is growing interest in MRV of technology among developing country Parties.[12]

In the following AWG-LCA14 meetings held in June and October, discussions centered on the terms of reference and governance structure for the CTCN, evaluation and selection criteria for the CTCN hosting entity, and requests for proposals. In these discussions, MRV of the development and transfer of technology have not yet risen to the level to be treated as major issue on the agenda. Negotiations are expected to continue to focus on the terms of reference, etc., at COP17 in Durban and there is not much of a possibility that the MRV of technology will feature prominently in international discussions in 2011. In order to realize the full operationalization of the Technology Mechanism in 2012, however, discussions on over design for MRV modality should be started.

2.2.3. Research Results, etc., related to MRV of the Development and Transfer of Technology

1) Performance Indicators for the Support of the Development and Transfer of Technology

At moment, there are several relevant reports published which includes elements that could potentially shape the basis of the future MRV modality for technology support. The first element is the performance indicator. Based on Decision 3/CP.13 of the UNFCCC, the EGTT compiled a report on research conducted on performance indicators for the support of the development and transfer of technology to the 30th session of the SBI (FCCC/SB/2009/4). This report proposes a total of forty performance indicators in five areas: the five elements of the technology transfer framework, 1) technology needs and needs assessment, 2) technology information, 3) enabling environment, 4) capacity building, 5) mechanisms for

[10] The Cancun Agreements stipulate that the work of the EGTT will conclude with the establishment of the Technology Mechanism.
[11] South Africa's presentation material:
http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/linkages_within_the_technology_mechanism_and_with_other_institutional_arrangements.sa.pdf
[12] China's presentation material:
http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/governance_and_financing_of_the_technology_mechanism.pdf

technology transfer. In addition to these 5 areas, the performance indicator is also extended to 6) indicators for financial flow for technology development (Table 1).

As can be seen from these six areas, it is worth mentioning that capacity building and financing, which are considered other areas of support, are included for the evaluation of technology transfer performance.[13]

Moreover, this report indicates that once the outcomes of the discussions under the AWG-LCA on the concept of MRV become known, the EGGT could further explore how the experiences and knowledge acquired through the development of performance indicators could contribute or relate to the discussions on MRV (paragraph 30).

As such, the performance indicators proposed by the EGTT are a good starting point for discussing MRV of technology. Additionally, because the performance indicators are related to other areas involving support for developing countries (i.e. capacity building and financing), the indicators may prove helpful in considering MRV for these other types of support.

Data for each indicator is necessary for implementing evaluation for technology transfer based on these performance indicators; however, some of the data is not available, making data collection necessary. Furthermore, coordination between the UNFCCC secretariat and relevant intergovernmental and international organizations is necessary to collect data (paragraph 20). Additionally, because the updating timelines for necessary data varies between one to three years or even longer (paragraph 22), the report suggests reducing the number of performance indicators to include only those that can be easily determined with the available data.

Table 1. Performance Indicators for the Technology Transfer Framework

1) Technology Needs and Assessments

1. Amount of financial resources provided for the (technology needs assessment) TNA process
2. Number of programmes/projects for capacity-building on TNAs in non-Annex I Parties (including percentage of least developed countries)
3. Number of targeted non-Annex I Parties to build capacity on TNAs (including percentage of least developed countries)
4. Number of published TNAs completed or updated by non-Annex I Parties
5. Synthesis report on technology needs made available by the secretariat and considered by the subsidiary bodies
6. Number of technology programmes/projects from TNAs implemented by non-Annex I Parties

2) Technology Information

1. Number of training programmes and workshops for building capacity in technology information
2. Number of national communications with information on technology transfer activities
3. Synthesis report with information on maintaining, updating and developing TT:CLEAR, addressing gaps and user needs made available by the secretariat and considered by the subsidiary bodies
4. Number of technology information centres and networks connected to TT:CLEAR
5. Number of users of TT:CLEAR from developing countries

3) Enabling Environments

1. Performance against each of the six World Bank governance indicators
2. Total volume of joint R&D opportunities for ESTs provided by (primarily developed country) governments
3. Presence of clear policy guidelines for the recipients of public funding on how to move from the research stage to the commercialization stage of the technology transfer process
4. Number of bilateral and multilateral programmes that have helped developing countries in developing and implementing regulations that promote the use and transfer of and access to ESTs
5. Presence of tax preferences and incentives for imports/exports of ESTs
6. Volume of export credits to encourage the transfer of ESTs

[13] The development and transfer of technology, capacity building, and financing are all elements of support for developing countries, but are treated as different agendas in international negotiations under the Convention.

7. Whether mention of transfer of ESTs is made in national sustainable development strategies
8. Rating of investment climate according to World Bank business indicators
9. Proportion of budget for public procurement of EST
10. Degree of disclosure and transparency regarding the approval processes of technology transfer projects
11. Number of technical studies that explore barriers, good practices and recommendations for enhancing enabling environments
12. Percentage of partnerships with thematic foci on climate change and sustainable development with meaningful participation by developing country Parties

4) Capacity Building

1. Amount of financial resources provided for capacity-building in the development and transfer of technology
2. Synthesis report on national capacity needs and priorities for capacity-building for development and transfer of technology in line with the technology transfer framework
3. Number of participants/experts in training programmes on the development and transfer of technology, in particular on EST-related activities
4. Number of new and existing national and regional institutions operating as centres of excellence in the development and transfer of technology

5) Mechanisms for Technology Transfer

1. Number and volume of reported innovative public–private financing mechanisms and instruments
2. Report on possible ways to enhance cooperation between the Convention and other multilateral environmental agreements
3. Report on references made in national communications to objectives of other multilateral environmental agreements
4. Number of reported barriers to, and good experiences in, the development of endogenous technologies
5. Report with guidance for reporting on joint R&D needs

6) Indicators for Financial Flow

1. Total annual global investment and financial flows in climate change mitigation technologies
2. Total annual global investment and financial flows in climate change adaptation technologies
3. Total annual investment and financial flows in climate change technologies – Convention financial mechanism
4. Total annual investment and financial flows in climate change technologies – Kyoto Protocol flexibility mechanisms
5. Total annual investment and financial flows in climate change technologies – bilateral sources
6. Total annual investment and financial flows in climate change technologies – national sources
7. Total annual investment and financial flows in climate change technologies – multilateral sources
8. Total annual investment and financial flows in climate change technologies – private sources

2) EGGT Report

As requested by the Parties, the EGTT released the working paper entitled Preparing for the implementation of the proposed Technology Mechanism (EGTT/2010/13) in November 2011 that drew upon work on possible operational modalities of the proposed Technology Mechanism. This report puts forward several proposals on the role of the Technology Mechanism to support further activities of developing countries, in particular, options related to relationships between the Technology Mechanism, financing arrangements, and other related institutions. Of these proposals, it merits underlining that, "The TEC would also have an important role to play in the evaluation of proposals once they have been implemented as part of the measurement, reporting and verification (MRV) arrangements established within the future regime."

Ultimately, the Cancun Agreements stipulates that the TEC and CTCN will report to the COP, through the subsidiary bodies, on their respective activities and the performance of their respective functions (decision 1/CP.16, paragraph 126). In other words, the results of development and transfer of technology

through the Technology Mechanism will be evaluated based on some set of indicators and be reported to the COP, and while details have not yet been hammered out, a MRV process for the Technology Mechanism has already been incorporated under the Convention through these structures.

However, in regard to the Technology Mechanism, the first meeting of the TEC has already been held and the role of the TEC is being considered through discussions on modalities and procedures (as will be explained in the following chapter). As for the CTCN, discussions on the terms of reference, governance structure, and reporting and verification processes are ongoing; in this sense, details of the MRV design have yet to be decided.

3) Status of the Review by the TEC

The TEC was established as a component of the Technology Mechanism based on paragraph 117 of the Cancun Agreement. The TEC, held its first meeting in Bonn, Germany from September 1 to 3, 2011. Discussions at the meeting focused chiefly on the modalities and procedures of the TEC and the outcomes were compiled into a report (FCCC/CP/2011/8). Below, we look at the relationship between TEC functions and MRV of technology transfer.

The first meeting of the TEC identified six key elements for the modalities of technology transfer: 1) analysis and synthesis, 2) policy recommendations, 3) facilitation and catalyzing, 4) linkage with other institutional arrangements, 5) engagement of stakeholders, and 6) information and knowledge sharing (paragraph 11). Additionally, Annex I of the report elaborates on each element.

Here the report gives, for example, the following for 1) analysis and synthesis, as specific functions for MRV.

- Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer (FCCC/CP/2011/8, Annex I, paragraph 2. (a));
- Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned (FCCC/CP/2011/8, Annex I, paragraph 2. (c)).

The EGTT report also calls for establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned (FCCC/CP/2011/8, Annex I, paragraph 9. (b)) for 3) facilitating and catalyzing.

In this way, the role of the TEC seems to already involve the implementation of MRV as part of its functions, such as analyzing and reporting the effectiveness of technology transfer to the Parties. However, looking at the EGTT report, it is not clear to what extent MRV will be implemented/ applied to technology transfer, and how the performance indicators developed by the EGTT should be utilized (as explained in the following chapter).

2.3. Key Points and Proposals for MRV of Technology Transfer

Below section summarizes the remaining design issues at stake which requires further elaboration, along with the authors' view on how to tackle with the issues.

2.3.1. What Elements of Technology Transfer should be subject to MRV?

The development and transfer of low carbon technologies is normally implemented through a variety of channels, such as bilateral, multilateral, and private channels. Implementing MRV for all technology transfer through these channels is ideal; however, as the EGTT reports points out, considering that the availability or the ease of obtaining relevant data on technology transfer and that the updating timelines for data are different, it is not a realistic or cost effective option. It is important to first focus on technology transfer implemented through the CTCN, with the CTCN hosting entity measuring the various activities related to technology transfer and reporting and verifying the results, to establish a structure that will lead to the operationalization of the Technology Mechanism.

Then how should the MRV results on technology transfer be used? Because the Technology Mechanism was originally established for the purpose of promoting technology transfer and the CTCN itself is a new initiative, the evaluation results should be used not as material to promote a Party's political agenda (such as admonishing developed countries for not being involved in the CTCN) but rather, from a practical perspective, as material to improve the structure of the CTCN itself and promote participation in the CTCN to faciltate technology transfer.

2.3.2. What Stages of Technology Transfer should be Evaluated?

As Diagram 1 shows, technology transfer is composed of many stages, from research, development, demonstration, deployment, diffusion, to transfer. The timeline from research to transfer differs depending on the technology and country. Therefore, the forty performance indicators proposed by the EGTT should be tailored to each stage. However, from the sustainability point of view, in order to capture, ascertain and evaluate to what extent mitigation and adaptation technologies have taken root in recipient developing countries must be further considered and improved as needed. This assessmen should be based upon actual evaluations using the performance indicators.

Moreover, technology transfer should not be treated as a whole, but rather, implemented based on the situation and needs in each country. To this end, the appropriate implementation of technology needs assessment by developing countries is critical. It is also important to explore and promote opportunities for joint technology development and transfer between developed and developing countries based on these results and further advancement of development and transfer of appropriate technologies that fit the situation and needs of the region.

Figure 1. Technology Cycle for Technology Development and Transfer

2.3.3. Boundaries of MRV: Should MRV be considered for Technology Transfer Alone?

In the current negotiations, there is a general consensus that efforts should be made to facilitate mutual cooperation in regard to the financing mechanism and Technology Mechanism. However, discussions on the financial mechanism centers on the Green Climate Fund (GCF), and those on the Technology Mechanism focus on the institutional design of the CTCN. Moreover, to date there have not been any information and opinion exchanges, for example, joint workshops, in negotiations. Going forward, understandings of the relationship between the two mechanisms will likely deepen. But in this context, it is necessary to reach a consensus regarding MRV for each mechanism.

Moreover, because the performance indicators for the development and transfer of technology include indicators for capacity building and financing, opinions will be divided on whether evaluation should be conducted on Technology Transfer alone or for all three elements together. It is likely that in reality, while there may be overlapping issues, support element of finance, capacity building and technology development is evaluated separately at the first stage. Then evaluation will be conducted as a whole for overall support for developing countries. However, in the long term, considering the indivisible aspect of the elements of support for developing countries, it is desirable to organize structures that contribute to MRV for each element and related data collection and analysis, to ultimately establish a unified MRV system for the support of developing countries.

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Chapter 3

Measurement, Reporting, and Verification (MRV) of Capacity-building in Developing Countries under the United Nations Framework Convention on Climate Change

Chapter 3

Measurement, Reporting, and Verification (MRV) of Capacity-building in Developing Countries under the United Nations Framework Convention on Climate Change

Makoto Kato [14]

Koji Fukuda [15]

Summary

There has been a limited amount of negotiation/discussion over the MRV of capacity-building compared to the MRV of NAMAs or other forms of support. However, capacity-building is one of the critical elements of the implementation of a future climate change regime, and its MRV will ensure capacity-building is steadily enhanced. While capacity building often becomes conflated with other forms of "support", it is important to understand that it is a unique and distinct element of support. This paper draws upon other fields with a longer tradition of capacity building (namely development cooperation) to clarify that there are different forms of capacity building and there is a growing emphasis on a programmatic, cross-cutting approach to capacity building. In light of these trends, the paper also highlights some of the key issues that are likely to arise with a greater emphasis on the MRV of capacity building in climate change, such as creating credible baselines that reflect support needs of developing countries and converting qualitative descriptions into quantitative indicators.

[14] Principal Researcher, Overseas Environmental Cooperation Center, Japan
[15] Policy Researcher, Institute for Global Environmental Strategies

3.1. Introduction

In the negotiations over a future climate change regime, capacity-building is positioned as a major component of support for developing countries along with financial and technical support. In particular, it is gaining much interest both from developing and developed countries as a measure to enable the planning and implementation of nationally appropriate mitigating actions (NAMAs) in developing countries; measurement, reporting, and verification (MRV); and efforts through fast start finance (FSF). Additionally, capacity-building has also been taken up as part of negotiations by the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA), and recognized as a high priority issue for the implementation of activities under the future climate agreement.

On the other hand, the MRV of capacity-building has only been clearly mentioned in recent AWG-LCA negotiations. Since the establishment of the AWG-LCA, negotiations by a group of experts under the sub-agenda of "enhancement of capacity-building" has been ongoing and the discussion has focused on the necessary approach for capacity-building in order to implement the future framework, the gathering of information regarding activities being undertaken by the Parties, and evaluation methods. Such discussions at the AWG-LCA have migrated from the Subsidiary Body for Implementation (SBI) for the annual monitoring of activities progress and the comprehensive review which takes place every five years under the agendas of "capacity-building under the Convention" and "capacity-building under the Kyoto Protocol." However, because they are thought to be related to the MRV of capacity-building, we believe it is appropriate to refer to discussions in the SBI as an essential factor in our reviews.

Additionally, as capacity-building is not necessarily evaluated quantitatively as is financial support, this paper draws upon other fields with a longer tradition of measuring the effectiveness of capacity building (namely development cooperation). The paper uses lessons learned from these fields to clarify that there are different forms of capacity building and anticipate a shift to a more programmatic, cross-cutting approach to capacity building. In light of these trends, the paper also highlights some of the key issues that are likely to arise with a greater emphasis on the MRV of capacity building in climate change, such as creating credible baselines that reflect support needs of developing countries and converting qualitative descriptions into quantitative indicators.

3.2. Conceptual Organization of Capacity-building

As a precondition for considering MRV of capacity-building, we must first clarify the concept of capacity-building. Since 1990, bilateral and multilateral development cooperation agencies, facilitated by the Organisation for Economic Co-operation and Development's Development Assistance Committee (OECD/DAC), have been discussing support for developing countries, and as part of those discussions, points of view on capacity-building have been analyzed, leading to the present activities.

Capacity refers to the "ability of individuals, organizations, and society as a whole to handle issues," and capacity-building (capacity development) is the "process in which the ability to handle issues in developing countries is improved collectively at the individual, organizational, societal, and other levels." [16] Therefore, capacity-building can include the "gathering of various elements that include institutions, policies, and social systems" and focus on strengthening core

[16] "Capacity-building" points only to the formulation stage of abilities, focusing on improving the abilities of organizations and individuals through intervening actions from the outside, while "capacity development" includes institutions, policies and social systems, in addition to organizations and individuals, and refers to endogenous processes, and, expands its scope to include not only ability formulation, but also strengthening and maintenance. For development cooperation in recent years, the latter term is favored. In discussions in capacity-building negotiations at the UNFCCC, the two are not necessarily perceived as separate concepts, but because decisions adopted by the SBI place importance on activities at not only the individual and institutional levels, but also at the systemic level, as well as on the maintenance of established abilities at those levels, it seems that capacity-building is used almost interchangeably with capacity development. Based on this, in this paper, we consider capacity-building to be synonymous with the term capacity development as mentioned above.

activities as supporting the proactive and (endogenous) efforts of developing countries.[17] This is the basic position for capacity-building in many activities led by bilateral and multilateral development cooperation agencies today. These principles are summarized in the Paris Declaration on Aid Effectiveness[18] and the Accra Agenda for Action, which are joint commitments by developing and developed countries, as ownership (by developing countries), alignment (with developing countries' policies), harmonization, managing for results, and mutual accountability. These principles are also emphasized, not only in terms of planning and implementation, but also for the evaluation of activity results, and guidelines have been created for setting indicators to measure outputs and outcomes.

In capacity-building negotiations at the UNFCCC, discussions are taking place without sufficient conceptual clarification. This leads to a situation where sometimes arguments are inconsistent with actual practice and capacity-building becomes merely a synonym for the provision of support. However, because Annex II Parties that provide assistance are OECD/DAC member countries, they are required to take action in line with the Paris declaration. Developing countries that are signatories to the Paris Declaration are expected to respect the principles embodied in the Declaration.[19]

3.3. Configuration of Capacity-building Activities in the Climate Change Area

There are a wide range of capacity-building activities in the climate change area. In general, it is easy to associate activities with workshops, provision of training programs, etc.; however, there activities also include dispatching experts in the related area/ sector for support, support for formulating master plans, strategy papers, and laws, public awareness for stakeholders, feasibility studies, support for implementing pilot projects, and more. Annex of the COP7 decision 2/CP.7, lists 15 priority areas to be addressed in the capacity-building framework under the UNFCCC.

[17] OECD (2006), The Challenges of Capacity Development – Working Towards Good Practice" DAC Guidelines and Reference Series-A DAC Reference Document; Japan International Cooperation Agency (2006), Tojokoku no Shutaisei ni Motozuku Sogoteki Kadai Taishonoryoku no Kojo wo Mezashite—Kyapashiti Deberoppumento (CD)—CD toha Nanika, JICA de CD wo do Torae, JICA Jigyo no Kaizen ni Do Ikasuka (Towards Capacity Development (CD) of Developing Countries Based on their Ownership - Concept of CD, its Definition and its Application in JICA Projects –)

[18] http://www.oecd.org/dataoecd/11/41/34428351.pdf

[19] There are Non-Annex I Parties under the UNFCCC that are positioned as donor countries in the OECD/DAC and provide official development cooperation including in the climate change area. The changes in the roles of such countries in the international community based on the changes in economic and social situations must be kept in mind and this is an extremely important point in the context of providing support to developing countries in the climate change area.

Table 1. Initial Scope of Needs and Areas for Capacity-building in Decision 2/CP.7 Framework for Capacity-building for Developing Countries, C.

(a)	Institutional capacity building, including the strengthening or establishment, as appropriate, of national climate change secretariats or national focal points;
(b)	Enhancement and/or creation of an enabling environment;
(c)	National communications;
(d)	National climate change programmes;
(e)	Greenhouse gas inventories, emission database management, and systems for collecting, managing and utilizing activity data and emission factors;
(f)	Vulnerability and adaptation assessment;
(g)	Capacity building for implementation of adaptation measures;
(h)	Assessment for implementation of mitigation options;
(i)	Research and systematic observation, including meteorological, hydrological and climatological services;
(j)	Development and transfer of technology;
(k)	Improved decision-making, including assistance for participation in international negotiations;
(l)	Clean development mechanism;
(m)	Needs arising out of the implementation of Article 4, paragraphs 8 and 9, of the Convention;
(n)	Education, training and public awareness;
(o)	Information and networking, including the establishment of databases.

In addressing these items, depending on the target area for the activity, the needs of the target individual, organization, or society, and the scheme of the donor providing support, various activities are often combined.

Additionally, donor programs, there are cases in which cooperation has a general form of assistance components, and within thatform, it is common that the number or scale of workshops, whether or not experts will be dispatched, and the type of document to be formulated, are decided respectively for each activity. In such cases, the most important criterion for decision-making is the needs of the developing country receiving support.

In comparison to conventional activities, because current capacity-building aims to target not only individuals or organizations, but also to have a ripple effect on society as a whole, and because it is often positioned as a preparatory measure to strengthen the implementation structure and facilitate action in mitigation projects, capacity-building is referred to as a cross-cutting activity. This cross-cutting characteristic can become an issue in evaluating the effectiveness of capacity-building because “cross-cutting nature” can have different meanings in different contexts; therefore, in this paper we propose the following categorization.

3.3.1. Cross-cutting Capacity-building for Climate Change Measures

Essentially, capacity-building aims to improve and the ability to handle issues that stem from climate change. In this regard, it is implemented as a measure in the preparation stage for activities to combat climate change. For example, from the perspective of implementing mitigation measures for the reduction of greenhouse gas emissions, at the formulation stage for implementing NAMAs and low emission development strategies (LEDS), support is provided for gathering data to create reference and NAMA scenarios, formulating guidelines for choosing individual cases, establishing a structure for MRV, and covering the costs of experts' activities, composing a part of mitigation support for developing countries. In the case of utilizing market mechanisms as part of mitigation measures, procedures are developed and institutions are prepared for the validation of emissions reduction plans and verification of reduction amounts to issue carbon credits. In implementing adaptation measures to combat the adverse effects of climate change, support is provided for training policy-makers to promote the mainstreaming of adaptation into national development plans, as well as support for training and awareness improvement for project cycle management (planning, designing, implementation, and evaluation). These activities are positioned as part of larger efforts, and in this sense, capacity-building can be considered to be cut across climate change measures.

As such, the background paper, "Capacity-building work in institutions and initiatives under the Convention", was prepared at the third part of the fourteenth session of the AWG-LCA. This background paper clarifies that capacity-building is related to almost all climate change measures in developing countries and aims for the effective use of capacity-building.[20] While currently negotiations are still underway, this paper reviews the specific contents and positioning of capacity-building that will be implemented in institutional arrangements being discussed for establishment in the future regime. Additionally, during the same meeting, based on the urging of the joint facilitator of the negotiating group for capacity-building, the secretariat conducted an explanation of this paper and held a workshop to introduce explanations from joint facilitators of other negotiating groups, and capacity-building efforts of existing institutional arrangements such as the GEF, the Consultative Group of Experts (CGE), and the Least Developed Countries Expert Group (LEG). As we can see from the above, the intentions of the Parties to make capacity-building central in activities for climate change measures in each area in the existing and future regimes is clear.

In this way, capacity-building is integrated into projects, programs, and institutional arrangements, and it is expected to make climate change measures advance more smoothly. Within overall climate change measures in which capacity-building is being implemented, the scale and configuration in which capacity-building is implemented differ based on the contents of the activities received as well as the capacity needs of the recipient; therefore, careful consideration is needed in evaluating the results of capacity-building and support.

3.3.2. Cross-cutting Capacity-building for Capacity Strengthening Needed for Governance

Based on the GEF Strategic Approach to Enhance Capacity Development adopted at the 2005 GEF Assembly, the GEF switched to a program formulation method for capacity-building activities based on a needs survey at the country level.[21] Progress on these activities is reported regularly at the GEF Council.[22] In the National Capacity Self-Assessment (NCSA) program implemented under the GEF4 (the period after the fourth replenishment), aside from focal areas such as climate change, biodiversity, and prevention of desertification, five elements are recognized as cross-

[20] UNFCCC, Sept 2011
[21] GEF/C.22/8 , Nov 2003
[22] GEF/C.27/Inf. 12, Oct 2005, GEC/C.33/Inf.5

cutting capacity-building activities necessary for the governance framework in undertaking these activities and they are reflected in the GEF-5 programming document. [23]

Table 2. The GEF's Cross-cutting Elements in Capacity-building

A. To enhance the capacities of stakeholders to engage throughout the consultative process
B. To generate, access and use information and knowledge
C. To strengthen capacities to develop policy and legislative frameworks
D. To strengthen capacities to implement and manage global convention guidelines
E. To enhance capacities to monitor and evaluate environmental impacts and trends

These elements appear to better suited to establishing fundamental abilities for the implementation for various multilateral environment agreements (including the UNFCCC), rather than building capacity for specific UNFCCC themes. In this context, it is not clear whether capacity-building will be a target for MRV in the future regime. However, in implementing capacity-building and fulfilling needs for individual climate change measures, in the case that such abilities are deficient, could become a sizable barrier for activities; therefore, it is expected that these abilities would, at the very least, become elements for evaluating baselines for capacity-building and result in the area of individual climate change measures. Moreover, if capacity-building becomes a target for MRV, it would be technically difficult to quantitatively differentiate these abilities with other forms of capacity-building.

3.4. MRV Methods for Capacity-building—Implications from Existing Monitoring and Evaluation Activities

For cross-cutting capacity-building for the purpose of establishing, strengthening, and maintaining abilities to handle issues at the individual, institutional, and societal levels, implemented within support for activities for these issues and within the continuity of the timelines of these activities, it is important to analyze knowledge gained from existing activities in order to determine the possible and desirable forms of MRV. Because there have been previous studies on monitoring and evaluation (M&E) of the effects of capacity-building and there is a certain degree of experience gained, we can reference these similar efforts in considering the modalities of MRV, and in particular, of verification.

3.4.1. Monitoring and Evaluation of Capacity-building in Development Cooperation

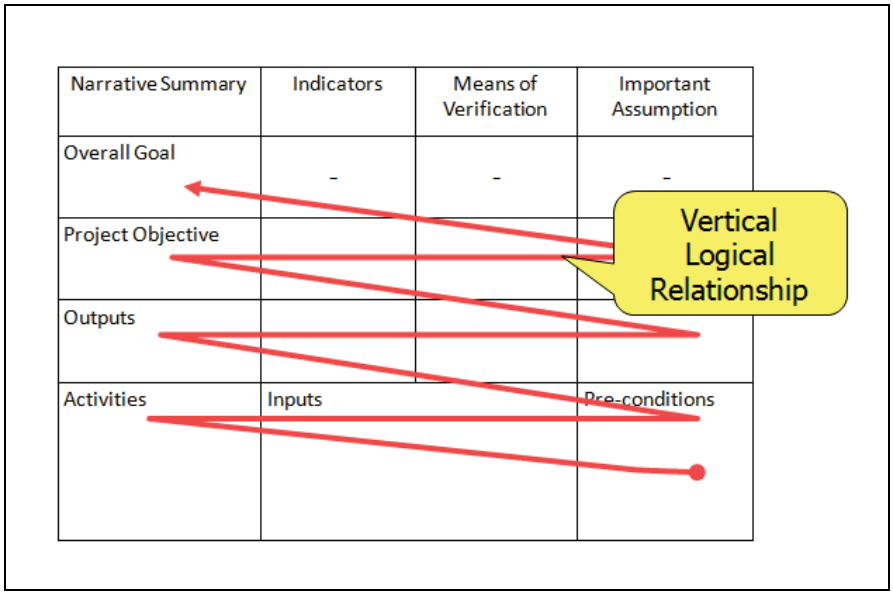
1) Micro Level (Project/ Program Level) Monitoring and Evaluation

In the area of development cooperation, monitoring and evaluation methods aiming to contribute to the evaluation of the effectiveness of support and improvement of activities have been researched and developed, and have been adapted at the practical level. The goal-oriented project planning (Zopp) approach developed by the Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation, GTZ) in the 1980s is the archetype of such methods. Later this approach was adopted by development cooperation agencies that conduct technical cooperation such as the United Nations Development Programme (UNDP) and the Japan International Cooperation Agency (JICA). This approach is now called by names such as log-frame and project cycle management (PCM). While there are a number of variations to this log-frame

[23] GEF/R.5/31/CRP.1, May 2010

approach, there have been many technical cooperation efforts utilizing this method to date, and normally, in technical cooperation project documents, there are sections that organize relationships between the social context or overall goals, project objective (translated from expected outputs), and measures and activities to be implemented (input), in a project design matrix (PDM).

Figure 1. A General Relationship between the Goal, Objective, Outputs, etc., of a Measure in a Project Design Matrix (PDM) Prepared by the Authors



PDM is often utilized as well in capacity-building activities, which are often implemented as technical cooperation projects, and when designing a project, indicators are set for the implementation of activities within a project in order to measure the effects of intended outputs of activities. Because indicators to evaluate the progress of capacity-building are set individually depending on the target entity or item (target organizations or sectors for activity) for the project, the results are also evaluated to determine whether they fulfill existing needs. In other words, progress made with capacity-building at the project level differ depending on the targeted individual, organization, or society of activities; therefore, it is difficult to make simple comparisons or quantitatively accumulate results of multiple, unrelated capacity-building projects.

Moreover, because the effects of capacity-building implemented as individual activities are limited, a programmatic approach to capacity-building has begun to gain recognition and capacity-building activities now tend to be implemented in conjunction with other activities under a broader goal or as part of a program that aims for synergistic effects.[24] The aforementioned cross-cutting character of capacity-building is most likely affected by this growing recognition.

[24] Training and workshops can be held individually, however, even in such cases, in order to improve the capacity of the target individuals, activities aiming to improve the capacities of the organizations or societies to which the targeted individuals belong are increasing.

2) Macro level (Assisting Entity/ Recipient Country) Monitoring and Evaluation

In comparison to monitoring and evaluation for micro-level activities such as projects and programs, methods for macro-level monitoring and evaluation have not developed as much, as it is considered to be a high degree of technical challenges. However, in some contexts, it is important to grasp the trends of macro-level capacity-building; therefore there have been various efforts to develop a methodology of capacity-building by cooperation agency or recipient countries as a whole.

For example, the Fourth Overall Performance Study of the GEF, which evaluates the performance of GEF activities in the GEF fourth replenishment—while not focused solely on capacity-building—provides an evaluation of overall GEF activities and of individual focal areas (including climate change, biodiversity, and protection of the ozone layer). Reference information for the evaluation includes quantitative information such as on the appropriate amount of financial assistance and number of projects implemented,[25] but the contents of the evaluation are more of a narrative description.[26] Similarly, for macro-level evaluation, the same can be said for the GEF report to the COP, and it seems that the trends of overall GEF activities related to capacity-building are customarily described in narrative form.

Other important macro-level activities include the National Capacity Self-Assessment (NCSA) program of the GEF. The NCSA is a process in which developing countries evaluate their own capacity to implement multilateral environmental agreements (MEAs), and the NCSA program itself is positioned as a capacity-building activity by the GEF. Since an NCSA evaluates specific capacities of a country as a whole, rather than provides information on activities such as individual projects in a certain country, it is an extremely ambitious effort in evaluating capacity-building at the macro- level.[27] By evaluating capacities in the areas listed in Table II, NCSAs clarify what the fundamental needs are in a certain country. Moreover, by identifying the baseline capacity of each country as a whole, it allows each recipient country to clearly acknowledge the capacity-building policy in the following GEF fifth replenishment, and creates the advantage that they can be more easily reflected in activities at the country level.

3.4.2. Discussions at the Subsidiary Body for Implementation

At the Subsidiary Body for Implementation (SBI), discussions for monitoring and evaluation activities for the implementation of capacity-building is being conducted under the agendas of "capacity-building under the Convention" and "capacity-building under the Kyoto Protocol." One is an activity for regular monitoring of the progress situation for the implementation of the capacity-building framework in decision 2/CP.7 of the Marrakesh Accords. This is discussed at the SBI at every session based on information gathered from national communications of Annex I and non-Annex I Parties, submissions from Parties, submissions from multilateral development cooperation agencies, reports from the GEF, reports from the CDM Executive Board, etc. In addition to the aforementioned regular monitoring, the SBI conducts a comprehensive review once every five years. The information that forms the basis of this comprehensive review is written into a consolidated report by the secretariat along with the aforementioned documents to

[25] In consideration of the cross-cutting characteristic of capacity-building, it is necessary to note that for both inputs and results as well, evaluation is not done individually for capacity-building alone.
[26] On the other hand, activities to measure capacity-building projects using a joint scoring system by the GEF, UNDP, and UNEP is being considered, but compared to the aforementioned log-frame that has been in use in a variety of configurations for the past twenty years, this scoring system has only a short history; therefore, it is natural to consider it an experimental approach venturing to quantify capacity-building, which is difficult to quantify.
GEF, UNDP, UNEP (September 2010), Monitoring Guidelines of Capacity Development in Global Environmental Facility Projects
[27] Strictly speaking, the target of evaluation here is not capacity-building, but rather capacity itself. However, this is an extremely important effort from the viewpoint of measuring in MRV.

become reference material for review. The first comprehensive review took place in 2004 and a decision was made to continue to apply the framework for capacity-building mentioned above. [28]

In capacity-building negotiations at the AWG-LCA, discussions take place in the form of a review to confirm to progress of capacity-building activities that are a target for the future regime, and several issues have been raised based on the discussions at the SBI. For the capacity-building review, the biggest issue is a lack of information from the Parties, which is the most important source of information. In particular, there are a small number of submissions from non-Annex I Parties, which should provide unambiguous information regarding the progress in capacity-building, and as for information that is submitted, there are cases in which they consist mostly of proposals for the negotiations, rather than progress in capacity-building. As can be seen from the above, for capacity-building, the capacity baseline must be made clear and effective measures must be put in place in to narrow the gap between items for which activities need to be undertaken. However, in the current situation, appropriate responses cannot be made due to a lack of information. Additionally, in many developed countries other than EU countries do not make submissions. One reason is that is difficult to extract and provide information pertaining only to capacity-building as part of other support programs in these countries. On this point in particular, it has been underlined that it is especially difficult to calculate the amount of financial support appropriated for activities.

Table 3. Situation of Submissions from Parties, Multilateral Development cooperation Agencies, etc., based on Decisions 4/CP.12 and 6/CMP.2 (compiled by the authors based on submissions to the UNFCCC)

		2007	2008	2009	2010	2011
Annex I Parties	Convention	3(29)	1 (27)	1 (27)	1 (27)	1 (27)
	KP	0	1 (27)	1 (27)	1 (27)	1 (27)
Non-Annex I Parties	Convention	2	4	1	1	3
	KP	0	2	1	1	3
Others	Convention	2	1	0	0	0
	KP	0	1	0	0	2

*The EU is counted as one country. (The figures in parentheses indicate where the EU is counted as 27 countries.)

At the third part of the fourteenth session of the AWG-LCA held in Panama in October 2011, a negotiation document which treats activities similar to those mentioned above as MRV activities for capacity-building was created, and this document forms the basis for negotiations at the fourth part of the AWG-LCA14. It is assumed that activities for capacity-building, which has been pointed out as being a cross-cutting activity, will extend over all institutional arrangements to be established in the future regime as given in Chapter 3(1), and it is important that information be gathered for reference for these activities from each organization as well as from Annex I and non-Annex I Parties.

[28] Currently, negotiations for the second comprehensive review are underway. They were scheduled to complete in 2009; however, agreements are not reached yet at the negotiations. .

3.5. Possible MRV Modality for Capacity-building

Based on negotiations thus far, it is assumed that through discussion on MRV of capacity-building at the AWG-LCA, a system utilizing the analogies of monitoring and evaluation and comprehensive reviews at the SBI will be established. In doing so, however, issues that have been pointed out at the SBI reviews must be overcome.

The lack of information pointed out in Chapter 4 is a major issue; however, this can be alleviated to a certain degree by the biennial update reports taken up in the negotiations on mitigation. To date, there is an emerging discussion on including information on capacity-building to be submitted through biannual updated report by developed and developing countries, and various views have been expressed. [29]

Table 4. Information on Capacity-building that should be submitted in Biennial Update Reports

Parties	Information that should be Submitted	Proposing Parties
Developed Countries	• Capacity-building programs provided • Items that became issues during the implementation of capacity-building • Best practices in capacity building	Japan/ United States
Non-Annex I Parties	• Capacity-building needs • Measures taken in receiving capacity-building activities • Items that became issues during the implementation of capacity-building • Best practices in capacity-building	United States/ Japan

*Compiled by the authors based on submissions submitted prior to the fourth part of the AWG-LCA14.

One merit of including capacity-building information in biennial updated reports both by developed and developing country parties is that if information is submitted once every two years, it would be similar to the timelines of activities related to capacity-building (which are, in many cases, one to three years); therefore, in comparison to national communications which are submitted once every four years, it would be possible to obtain relatively updated information from developing countries which are receiving support and on activities of developed countries providing support. Moreover, the guidelines for creating biennial update reports would make it possible to scrutinize the types of information to be included so they would be more in line with issues to be resolved through international consideration. Quantitative evaluation made based on the amount of financial support or the number of workshops held cannot accurately indicate whether capacity-building is progressing or whether the gap between capacity and activities that should be implemented has closed. Rather, it is important to provide a narrative summary on how activities are progressing based on the capacity baselines of developing countries. Additionally, it is important to share lessons learned from issues overcome by developing countries in various situations and it is possible to utilize these lessons to further advance capacity-building.

[29] Views were expressed through submissions on the Draft guidelines for biennial reports of developed country Parties, as part of agenda item 3.2.1 nationally appropriate mitigation actions by developed country parties. Parties which specifically mentioned amendment regarding capacity-building include African Group, Brazil, Canada, EU, Japan, Singapore, and U,S. Also, for Draft guidelines for biennial update reports from Parties not included in Annex I to the Convention (as part of agenda item 3.2.2), submissions were made by Brazil, Canada, China, EU, and US. < http://unfccc.int/bodies/awg-lca/items/6223.php> downloaded on 22 November, 2011.

3.6. Conclusion

As mentioned above, capacity-building is an activity that is implemented in a variety of forms and currently it is an activity with a cross-cutting character, implemented as part of other technical and financial support. This characteristic has resulted in a major issue in the evaluation of capacity and capacity-building. In particular, as evaluation moves from the micro to the macro-level, evaluation tends to take a narrative rather than a quantitative character.

An extremely important point in the above considerations is that the most important viewpoint in evaluating the establishment or strengthening of capacity in developing countries is to clarify the capacity baselines of those countries as even measures taken in the same field can differ greatly. Additionally, indicators to measure progress differ as well depending on the capacity baseline. In order to take appropriate action, capacity-building must be implemented through the provision of sufficient support from the international community and simultaneously, through efforts driven by developing countries themselves.

In analyzing MRV of capacity-building, this paper paid particular attention to "measurement" (the M of MRV), taking into consideration discussions by experts on monitoring and evaluation such as at the SBI of the UNFCCC. If MRV for capacity-building is to be considered a constructive cycle of activities to improve capacity, gathering information to clarify baselines will be extremely important. In the current negotiations for the future climate regime, discussion has started to develop on the relevant information included in annual communications to resolve the existing issue of information shortage at the SBI. We believe that if procedures such as International Consultation and Analysis (ICA) and International Assessment and Review (IAR) for MRV function proactively and provide feedback for further activities based on issues and lessons learned from both developing and developed countries, they will play an important role in creating more effective capacity-building activities.

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Institute for Global Environmental Strategies (IGES)
2108-11 Kamiyamaguchi, Hayama, Kanagawa 240-0115, Japan
TEL: +81-46-855-3700 Fax: +81-46-855-3709 E-mail: cc-info@iges.or.jp URL: http://www.iges.or.jp