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Note from the Director

Recent attack of Typhoon Haiyan in Philippines has raised a fundamental question again of whether the global community has adequately worked together to prevent serious environmental problems such as climate change. Although there have been serious efforts in building global, regional and national institutions to cope with these challenges, they apparently are not sufficient, if not useless. Here, another question arises: how to enhance the effectiveness of international efforts to address the issues of climate change and sustainable development. One of the possible answers to this question will be to securitize the issues including climate change so that we can better mobilize global recourses to fight against those environmental challenges.

Furthermore, it is time for the global society to develop effective global governance in areas such as climate change and other environmental issues in order to better address those challenges. In case of climate change, past discussions at the global level have focused mainly on issues related to United Nations Convention on Climate Change. However, considering the limited results of the efforts made during the past two decades of UNFCCC regime as well as creations of new global organizations such as Global Green Growth Institute and Green Climate Fund, more attention should be given to enhance coordination among the relevant organizations and institutions.

In particular, those which emphasize the role of markets and technologies, such as the Major Economies Forum, will need to be better incorporated into the framework of global climate change governance since market-based approaches has become increasingly important as a way of tackling global climate change and other environmental matters. Moreover, the addressing of other issues such as climate-induced migration in dealing with climate change and sustainable development should be integrated into the process of building an effective climate change regime.

In the context of building strong governance regarding issues of climate

change and sustainable development, a so-called bottom-up approach is gaining more and more importance. As the global society is still fragmented, there are limitations in implementing policies at the local level as well as securing resources to deal with new challenges. In this sense, it is worth noting that how to engage various stakeholders during the process of addressing global warming and other environmental issues have become inevitable.

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The Complementary Role of the Major Economies Forum (MEF) in Addressing Climate Change

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Abstract

In the fragmented nature of global climate governance architecture, UN climate regime, namely UNFCCC and Kyoto Protocol, is currently the most strong and legitimate institution. However, existing policy architecture of the UN climate regime has primary weaknesses to secure meaningful participations, and its effectiveness has been seriously questioned. Faced with political and institutional limits of the UN regime, Major Economies Forum (MEF), which is based on a small-membership and bottom-up approach, is considered as a possible alternative option to move forward in addressing climate change problem. However, shifting the venue simply cannot be a panacea to solve the problem with each state's unchanged interests, and institutional experiences and expertise in the UN regime also cannot be ignored. Therefore, this paper mainly proposes that MEF can be a complementary venue in accordance with UN efforts. More specifically, this paper attempts to identify a complementary role of the MEF in accelerating post-2012 regime building process. Based on the review of governance characteristics of these two separate institutions, this paper finally concludes that MEF is able to positively influence UN mechanism mainly by 1) providing important knowledge inputs regarding technology development and transfer and 2) serving as an additional discussion venue among not many but influential countries to build greater trust and to expedite UN negotiations on mitigation.

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Keywords:
Global Climate Governance, UN Climate Regime, Post-2012 Regime Building, Major Economies Forum (MEF), Institutional Interaction

Introduction

The problem of climate change is a significant and major challenge to the global community, but an effective and timely response is not yet apparent. For decades, countries have struggled to establish a strong regulatory mechanism to control emissions under the UN system, namely the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, but there is still no effective global commitment accepted by major emitting countries such as US and China.

Although no one denies that building strong and effective post-2012 mechanism is an urgent and important task to the global community, overcoming disagreements between developed and developing parties seem to be nearly impossible based on the current architecture of Kyoto Protocol. Accordingly, many scholars expressed skepticisms for bringing a comprehensive and meaningful results for several reasons: 1) climate change is a global common problem which implies strong incentives for countries to free ride on the action; 2) climate change is a long-term problem for which negative consequences do not appear in current generation; 3) any domestic measures to regulate GHG emissions impose economic costs; and 4) common but differentiated responsibilities (CBDR) hinder developing counties' participation in the mitigation commitment[1].

Despite its meaningful attempt to regulate emissions by fixed target in an international context, recent UN climate process has remained many open questions for the future climate governance. UN climate talks have been indeed polarized and gridlocked, and in turn, many scholars turned their attention to other smaller *fora* such as G8, G20 and the Asia-Pacific Partnership on Clean Development and Climate (APP) to move forward. The Major Economies Forum on Energy and Climate Change (hereafter, MEF) is also one of such venues to discuss climate issues based on bottom-up approach and with technology focus. MEF was initially launched by the Bush administration, and then re-emerged as a more favorable institution to the UN regime during the Obama administration. Considering less than 20 countries are responsible

1) The Harvard Project on Climate Agreements. 2010. Institutions for International Climate Governance. Policy Brief 2010-1, Cambridge, Mass.: Harvard Project on Climate Agreements, November 22.

for more than 80 per cent of global emissions, the establishment of such a small negotiating forum can be much effective and significant. However, this paper assumes that the MEF, one of the small-membership *fora*, cannot become a simple replacement to the UN regime considering its institutional maturity and legitimacy. This paper rather tries to prove this forum in a way to become a useful "complementary" venue in building post-2012 regime by identifying its role in a way of creating synergies.

The Governance Architecture of the UN Climate Regime

Existing Policy Architecture

When the global climate regime initially emerged in the late 1980s, international environmental law had little to be referred[2]. The Vienna Convention of 1985 and its Montreal Protocol in 1987, which was one of the most successful cases in international environmental agreements, inspired UNFCCC negotiations and thus current policy architecture of the UN climate regime is much alike with the Ozone regime[3]. Therefore, when negotiating the Kyoto Protocol, main debate has been focused on how to share the burden of reducing GHG emissions quantitatively in a treaty form[4].

Consequently, UNFCCC has so far developed four main elements defining the current international climate policy architecture: 1) setting the long-term goal to stabilize GHG emissions "at a level that would prevent dangerous anthropogenic interference with the climate system (UNFCCC Article 2)," 2) setting the near-term goal for industrialized countries, 3) differentiation of required efforts among developed and developing countries based on CBDR principle and 4) preference for cost-effective

2) Bodansky, Daniel. 2001. The History of the Global Climate Change Regime. In International Relations and Global Climate Change, eds. Urs Luterbacher and Detlef F. Sprinz, 23-40. Cambridge: The MIT Press.
3) Ibid.
4) Chung, Suh-Yong. 2011. *Post 2012 Climate Change Regime Building: an Advanced Developing Country's Perspective.* Paper presented at GGGI International Expert Series, Nov. 23, in Seoul, Korea.

implementation[5].

Particularly, the Convention in 1992 divided countries into developed and developing parties based on OECD membership rather than applying clear criteria (Chung 2011; Gupta 2010)[6]. This is just vaguely implying countries' economic development status without any clear definition. This division, now deeply rooted in the UN governance, proves to be a major stumbling block in post-2012 negotiation[7]. In addition, UNFCCC lacks the system and justification to reflect new OECD membership such as South Korea, Mexico, and Chile. Based on the division in the Convention, the Kyoto Protocol specified obligations only for Annex I countries (so called, developed countries) in 1997, and a series of negotiations have so far detailed implementation process on that basis.

Kyoto Protocol seemed lost its momentum for a while as US President Bush declared it "fatally flawed" and withdrew from the Kyoto Protocol in March 2001. However, Kyoto protocol finally entered into force in February 2005 with the ratification of Russia, remaining its effectiveness in doubt in absence of major emitters.

Strength of the UN Climate Regime

UNFCCC and Kyoto Protocol, as "the venue for negotiating the only binding international agreement for reducing emissions," can have several advantages as a framework for climate negotiation[8]. On the premise that global target and timetable is achievable among about 190 countries, legally binding approach can be the first best

5) Aldy, Joseph and Robert Stavins. 2008. Climate Policy Architectures for the Post-Kyoto World. *Environment* 50(3): 8-17.

6) Chung, Suh-Yong. 2011. *Post 2012 Climate Change Regime Building: an Advanced Developing Country's Perspective.* Paper presented at GGGI International Expert Series, Nov. 23, in Seoul, Korea;

Gupta, Joyeeta. 2010. A History of International Climate Change Policy. Wiley Interdisciplinary Reviews: Climate Change. 1: 636–653. doi: 10.1002/wcc.67

7) Chung, Suh-Yong. 2011. *Post 2012 Climate Change Regime Building: an Advanced Developing Country's Perspective*. Paper presented at GGGI International Expert Series, Nov. 23, in Seoul, Korea.

8) The Harvard Project on Climate Agreements. 2010. Institutions for International Climate Governance. Policy Brief 2010-1, Cambridge, Mass.: Harvard Project on Climate Agreements, November 22.

approach providing "predictability, stability and consistency"[9]. In this regard, Kyoto Protocol can be evaluated as taking the first meaningful step in establishing a legally binding regime.

Fist of all, UN framework has international legitimacy and a sense of fairness by securing almost universal participation[10]. As an UN affiliation, it is also based on consensus rule with one vote for each country[11]. Although it is true that procedural fairness can stagnate the whole process, this factor can contribute to the ambitiousness of the regime[12]. For example, the Association of Small Island States (AOSIS) helped to push the level of ambition during the negotiation of the Protocol[13].

Second, decades of experiences and institutional resources in the UNFCCC are essential for any climate negotiation[14]. Currently, UN climate regime, as the only formal institution in global climate regime, has secured resources and expertise to deal with the complex nature of climate change[15]. In particular, Clean Development Mechanism (CDM) and annual national reporting functions are likely work through the UNFCCC regardless of its legal form[16]. Therefore, its institutional experiences, resources and technical expertise cannot be neglected.

Weakness of the UN Climate Regime

Nevertheless, existing climate architecture of the UN regime has two primary

9) Hare et al. 2010. The Architecture of the Global Climate Regime: a Top-down Perspective. *Climate Policy* 10: 600-614; Yvo de Boer. 2012. *Is an International Climate Treaty Worth Fighting For?* Paper presented at GGGI International Expert Series, Jan 11, in Seoul, Korea.

10) The Harvard Project on Climate Agreements. 2010. Institutions for International Climate Governance. Policy Brief 2010-1, Cambridge, Mass.: Harvard Project on Climate Agreements, November 22; Hare et al. 2010. The Architecture of the Global Climate Regime: a Top-down Perspective. *Climate Policy* 10: 600-614;

11) Hare et al. 2010. The Architecture of the Global Climate Regime: a Top-down Perspective. *Climate Policy* 10: 600-614;

12) Ibid.

13) Ibid.

14) The Harvard Project on Climate Agreements. 2010. Institutions for International Climate Governance. Policy Brief 2010-1, Cambridge, Mass.: Harvard Project on Climate Agreements, November 22.

15) Bausch, C. and M. Mehling. 2011. *Addressing the Challenge of Global Climate Mitigation: an Assessment of Existing Venues and Institutions*. Berlin, Germany: Friedrich Ebert Stiftung, August.

16) Stavins, Robert. 2010a. Another Copenhagen Outcome: Serious Questions about the Best Institutional Path Forward. *The Energy Collective*, January 5

weaknesses; 1) limited participation, and 2) poor policy incentives for target compliance[17].

As earlier mentioned, existing climate regime divides Parties into two categories: 41 developed countries listed in Annex I and approximately 150 developing countries in non-Annex I list. The regime's annex structure is initially based on the OECD membership in 1992, but the Convention itself could not explicitly state the criteria for the division[18]. Kyoto Protocol succeeded this structure, and moving between Annexes became nearly impossible without making any precedent[19]. This has been a fundamental barrier to include developing countries' participation.

In the climate governance, 4 major economies, which are US, China, India, and Russia, just represent almost 50% of the global emissions as of 2005 and their share is continuously expected to grow[20]. However, US already withdrew its ratification and major emitters such as China and India do not face any binding targets according to the principle of its "historical responsibility," which remains very strong argument to avoid mitigation commitment. In addition, even in the Annex I structure, Russia's commitment is very lax with a concept of "degree of flexibility" for countries with economies in transition. Such a limited participation significantly undermines its effectiveness of the regime.

Not only the absence of the binding duty for major emitters, the state of compliance for the most of Annex I countries is not also evaluated as effective[21]. Canada already announced their plan not to comply, and formally withdrew the Protocol in 2011. Japan is likely to comply, but only by buying credits on the carbon market. In addition, many countries such as Norway, New Zealand and Switzerland are already not on pace to

17) Aldy, Joseph and Robert Stavins. 2008. Climate Policy Architectures for the Post-Kyoto World. *Environment* 50(3): 8-17;
Thompson, Alexander. 2011. Efficiency, Distribution and the Soft Law Future of the Climate Regime. Paper presented at International Policymaking and Agreements Conference, April 8-9, Yale University, USA.

18) Depledge, Joanna. 2009. The Road Less Travelled: Difficulties in Moving between Annexes in the Climate Change Regime. Climate Policy 9(3): 273-287.

19) Ibid.

20) Aldy, Joseph and Robert Stavins. 2008. Climate Policy Architectures for the Post-Kyoto World. Environment 50(3): 8-17.

21) Thompson, Alexander. 2011. Efficiency, Distribution and the Soft Law Future of the Climate Regime. Paper presented at International Policymaking and Agreements Conference, April 8-9, Yale University, USA.

comply the target[22]. Therefore, initial governance setting of annex classification and CBDR principle is not only limiting countries' participation, non-compliance rates are also very high without any enforcement mechanism causing additional risks on the credibility of the regime[23].

Furthermore, this binding structure of UNFCCC can create perverse incentives in tackling climate change problem. Thompson pointed out that possible perverse incentives can be considered in two respects: 1) short-time period target (2008~2012) with little incentives to pursue long-term mitigation strategies at the national level, and 2) governments' tendency to focus on actions that can be only counted as a credit[24].

Main Characteristics of the Major Economies Forum

Background of the MEF Establishment

In order to understand initial motivations for the establishment of the MEF, US climate policies should be understood first, not only just because MEF is a US-initiated institution but because US domestic and global climate strategies are strongly linked. US basically maintained two elements in their position of international climate policy[25]. First, all major emitters, who are not obligatory to reduce GHG emissions under the Kyoto regime, should participate in international mitigation effort. Particularly, the US highlights the importance of China and India's participation, which has a large potential of emission growth and economic power. Second, mitigation policy measures should not hamper US domestic economic growth. These two basic principles, deeply rooted in US climate policy, have been significantly functioned as a political gridlock to pass climate legislation.

22) Ibid.
23) Ibid.
24) Ibid.
25) Skodvin, Tora and Steinar Andresen. 2009. An Agenda for Change in US Climate Policies? Presidential Ambitions and Congressional Powers. *International Environmental Agreements* 9: 263-280.

For example, when the Clinton administration signed the Kyoto Protocol in 1997, it never gained domestic support from the Senate adopting Byrd-Hagel resolution.[26] This resolution was adopted unanimously with a vote of 95-0 on 25 July 1997 and firmly implied that the US would not accept any binding targets unless key developing countries meaningfully participate in[27]. This resolution became an important foundation for the withdrawal of the Kyoto Protocol and substitutive participation of other partnerships including MEF by President Bush.

US Climate Policies during the Bush Administration

Although Clinton signed Kyoto Protocol in 1997, Bush finally withdrew its decision in March 2002. Instead, in the same year, the Bush administration started its main alternative to the Protocol, namely 'Climate Change Initiative' which sets a goal of reducing 'greenhouse gas intensity' by 18 per cent between 2002 and 2012[28]. Domestically, US pursued a independent strategy to engage with industries through voluntary agreements to promote technology development and reduce 'greenhouse gas intensity'[29].

Internationally, while remaining in the UN climate negotiation, the Bush administration focused on participating in non-committing partnerships[30]. He clearly intended to develop "a new post-2012 framework" including both developed and developing countries in a way to enhance energy security and promote economic growth.[31] For instance, US joined mainly four international climate change partnerships; The Carbon Sequestration Leadership Forum established in 2003, The

26) S. Res 98 of 25 July 1997; "Expressing the sense of the Senate regarding the conditions for the United States becoming a signatory to any international agreement on greenhouse gas emissions under the United Nations Framework Convention on Climate Change," retrieved from http://www.nationalcenter.org/KyotoSenate.html
27) Gupta, Joyeeta. 2010. A History of International Climate Change Policy. Wiley Interdisciplinary Reviews: Climate Change. 1: 636–653. doi: 10.1002/wcc.67
28) Skodvin, Tora and Steinar Andresen. 2009. An Agenda for Change in US Climate Policies? Presidential Ambitions and Congressional Powers. *International Environmental Agreements* 9: 263-280.
29) Ibid.
30) Ibid.
31) For details, see http://georgewbush-whitehouse.archives.gov/news/releases/2007/05/20070531-13.html

International Partnership for the Hydrogen Economy established in 2003, The Methane to Markets Partnership established in 2004, and the Asia-Pacific Partnership established in 2005[32]. All these partnerships have key common focus on voluntary measures and technology development. During the Bush administration, US strategically signaled taking different approach to the global community.

Especially, participations in non-binding partnership were possible because it does not require congressional approval[33]. Although congressional approval will be needed to secure funds for the collaboration with partnerships, this was basically easier way to show its willingness to take some actions in climate change problem.

Overall, climate change issue was not a main agenda during the bush administration, and the ambition of the proposed policy target in 'Bush Initiative' was largely evaluated as modest at best[34]. According to Vuuren et al., the Initiative was likely to result in 30% increase in US emissions in 2012 compared to the 1990 levels, and this effort clearly falls short of that of other countries' commitment under the Kyoto Protocol[35]. 'The Bush Initiative' can be politically significant, just by recognizing the climate change problem, but overall it was largely criticized that the policy target is far less ambitious and adopting different approaches are "cynical diversion from progress made on the Protocol"[36].

Major Economies Meeting (MEM)

Bush's voluntary and non-committing 'soft-law' approach eventually motivated initiation of the Major Economies Meeting (MEM), which is the matrix of the MEF. Based on Bush's policy line on the matter of climate change, Bush announced the

32) Ibid.
33) Ibid.
34) Vuuren et al. 2002. An Evaluation of the Level of Ambition and Implications of the Bush Climate Change Initiative. Climate Policy 2(4): 293-301.
35) Ibid; Škodvin, Tora and Steinar Andresen. 2009. An Agenda for Change in US Climate Policies? Presidential Ambitions and Congressional Powers. *International Environmental Agreements* 9: 263-280.
36) Friends of the Earth. 2006. Asia-Pacific Partnership Will Fail to Tackle Climate Change. http://www.naturalmatters.net/news-view.asp?print=1&news=959

launch of the MEM in G8 summit meeting on May 2007[37]. MEM brought 17 major emitting countries, and held a meeting three times during Bush's presidency[38]. At the First meeting of the MEM, Bush urged to finalize a long-term goal for reducing GHG emissions, and to set national plans to achieve the long-term goal[39]. Also, Bush emphasized the role of technology; by 1) investing on the R&D of clean energy technologies, 2) eliminating tariff and non-tariff barriers on clean energy goods and services, and 3) creating new international clean technology fund[40].

Along with the criticisms on US withdrawal from Kyoto Protocol, initiation of the MEM also received mostly negative responses from the international society. Since the Bush initiative was considered as an intentional attempt to divert political attention from the negotiations of post-2012 regime, most of criticisms came from its intentional disruption[41]. For example, in the final session of 2007 Vienna inter-sessional climate talks, US mentioned that post 2012 negotiation process is "an interesting idea, but there are other workforces going on as well" which explicitly implied MEM as an alternative vision compared to the UN process[42]. In response to this, EU delegation boycotted to participate in the second session of MEM expressing frustration for the US position[43].

Furthermore, many environmental NGOs condemned MEM meetings. For example, Greenpeace described MEM as a "dead end diversion," and WWF even

37) White House Archives: President George W. Bush. Fact Sheet: Major Economies Meeting on Energy Security and Climate Change. http://georgewbushwhitehouse.archives.gov/news/releases/2007/09/20070928-1.html
38) Michonski, K. and Michael Levi. 2010. Harnessing International Institutions to Address Climate Change. Council on Foreign Relations (CFR) Working Paper, March.
39) Skodvin, Tora and Steinar Andresen. 2009. An Agenda for Change in US Climate Policies? Presidential Ambitions and Congressional Powers. *International Environmental Agreements* 9: 263-280.
40) White House Archives: President George W. Bush. Fact Sheet: Major Economies Meeting on Energy Security and Climate Change. http://georgewbushwhitehouse.archives.gov/news/releases/2007/09/20070928-1.html
41) Bausch, C. and M. Mehling. 2011. Addressing the Challenge of Global Climate Mitigation: an Assessment of Existing Venues and Institutions. Berlin, Germany: Friedrich Ebert Stiftung, August.
42) Vihma, Antto. 2009. Friendly Neighbor or Trojan Horse? Assessing the Interaction of Soft Law Initiatives and the UN Climate Regime. Int Environ Agreements 9:239-262.
43) Zelli, Fariborz. 2011. The Fragmentation of the Global Climate Governance Architecture. Wiley Interdisciplinary Reviews: Climate Change 2(2): 255-270.

called "Major Embarrassment Meeting"[44]. NGOs particularly referred unsuccessful APP taking as an example for no achievement in voluntary approach. They also explained that these voluntary measures fell short in regards to tangible results as opposed to mandatory caps on emissions. MEM was also criticized for initiating a political instrument to draw major developing countries out of G77 voting bloc in the UN regime[45].

US Climate Policies during the Obama Administration

As Obama took office in 2009, he demonstrated seriousness of climate change problem as a top policy priority and actively expressed his intention of making the US to lead in global climate change efforts[46]. Domestically, Obama announced to stabilize GHG emissions at their 1990 levels by 2020 and to reduce 80 per cent from 1990 levels by 2050. In addition, Obama emphasized investment in green jobs and development of renewable energy sources not only as the way of tackling climate change but also as boosting its economy. As part of his climate agenda, Obama also promised to increase the portion of renewable energy to 10% by 2012 and 25% by 2025[47].

Internationally, Obama also clearly expressed his willingness to re-engage in the UNFCCC process while still maintaining in multiple *fora* considering diversity and complexity of the problem. In addition, the Obama administration recognized MEF as a still promising approach and continued the process[48]. Consequently, MEF re-emerged in favor of the UN process, and international community also showed positive

44) Greenpeace. 2007. Bush Meeting: Wrong Way on Climate Change. Greenpeace Briefing September 2007.http://www.greenpeace.org/international/en/publications/reports/bush-mem/;
World Wildlife Fund Global. 2008. Major Economies Meeting Turns Into Major Embarrassment Meeting for G8. http://wwf.panda.org/?uNewsID=140301

45) Bausch, C. and M. Mehling. 2011. Addressing the Challenge of Global Climate Mitigation: an Assessment of Existing Venues and Institutions. Berlin, Germany: Friedrich Ebert Stiftung, August.

46) Skodvin, Tora and Steinar Andresen. 2009. An Agenda for Change in US Climate Policies? Presidential Ambitions and Congressional Powers. *International Environmental Agreements* 9: 263-280.

47) Roman Mikael and Marcus Carson. 2009. Sea Change: US Climate Policy Prospects Under the Obama Administration. Report by the Swedish Commission on Sustainable Development, March 2009.

48) Stavins, Robert. 2010b. Options for the Institutional Venue for International Climate Negotiations. The Harvard Project on International Climate Agreements, Issue Brief 10-03, May.

response compared to the Bush's MEM, mainly due to Obama's preference to climate change policy and clear identification of the MEF as a supplementary forum.

Institutional characteristics of the MEF

Informal Institution

Unlike Bush ambitiously tried to legitimize MEM as a substitution, Obama clearly re-identified forum as a facilitative high-level negotiation arena to influence decision-making process in the UN. From 2009, MEF met 14 times as of 2012 including the Leaders' meeting in 2009 prepared by the US Department of State. The forum is irregularly hosted according to the need and political will. Participants are basically 17 major economies[49] as designed with a small membership, but different countries have also participated as an observer. Participants are high-level ministers and leaders from the world's top emitting states, which account for about 80 percent of the global emissions.

One of the important characteristics of the MEF is that it has not fully institutionalized as an additional place to support the UN negotiation. The Secretariat of the MEF is staffed by the US State Department, and no budget is independently assigned[50]. In addition, formal rules or guidelines do not exist in the process of the MEF[51]. It also produces only informal outcomes such as the Declaration or Technology Action Plans (TAPs) in contrasts to the UN's approach to focus on negotiating treaty text[52].

The MEF, serving as an informal institution, can have its own benefits by providing more flexibility in discussion and decision-making process, especially in regards to

49) These are Australia, Brazil, Canada, China, the European Union, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, South Africa, the United Kingdom, and the United States.
50) Bausch, C. and M. Mehling. 2011. Addressing the Challenge of Global Climate Mitigation: an Assessment of Existing Venues and Institutions. Berlin, Germany: Friedrich Ebert Stiftung, August.
51) Michonski, K. and Michael Levi. 2010. Harnessing International Institutions to Address Climate Change. Council on Foreign Relations (CFR) Working Paper, March.
52) Bausch, C. and M. Mehling. 2011. Addressing the Challenge of Global Climate Mitigation: an Assessment of Existing Venues and Institutions. Berlin, Germany: Friedrich Ebert Stiftung, August.

institutional limits faced to the UN climate regime. On the other hand, this informality might limit the performance of the MEF. Even though the Obama administration has tried to establish MEF as an international forum rather than an US initiative, the US is the single most influential country to shape the MEF profile[53]. This fact implies that the future existence and performance of the MEF can be vulnerable to the US domestic policy, significantly impeding its accountability. While this paper seeks to find complementary roles of the MEF, securing its financial and human resources can be also another prior considerations to guarantee its role.

Flexible Approach

Considering complex and fragmented nature of climate governance, MEF has its significance in having a flexible system. UNFCCC includes almost 195 parties to discuss and negotiate climate deals, and takes traditional top-down approach to focus on negotiate the target and timetable. However, MEF is advantageous to discuss diverse issues not limited to negotiate only mitigation target[54]. MEF has been processed without setting a specific negotiation goal, but rather provided as an opportunity for more open discussion.

Reviewing Chair's summaries from the 1st to the 13th meeting[55], discussion issues covered by MEF was very diverse and tended to be ad hoc (See Table 1). Discussion in the MEF was an extension of UN discussion in a more flexible manner. The MEF extensively covered various climate issues outside the UN, but topics can be largely summarized into 4 issue areas, which are 1) post-2012 strategy, 2) finance, 3) technology, and 4) technical issues such as NAMA, MRV, and ICA/IAR.[56]

53) Ibid.
54) Choe, Wongi. 2009. An Analysis of a New International Regime on Climate Change: The Case of Major Economies Forum. Seoul International Law Academy 16(2): 29-47. (in Korean)
55) Chair's Summaries are available at http://www.majoreconomiesforum.org/resources.html
56) NAMA stands for 'Nationally Appropriate Mitigation Actions' meaning national plan for low-carbon strategy. MRV stands for 'Measurement, Report, and Verification' and ICA/IAR for 'International Consultation and Analysis/ International Assessment and Review.' These technical concepts have been discussed from 2007 Bali Action Plan as part of post-2012 discussion.

<Table 1> Discussion Issues in the MEF [57]

Time		Issues
1st	Apr. 2009	Identity and potential direction of MEF, technology
2nd	May 2009	Mitigation (global target in the mid-term), finance
3rd	June 2009	Mitigation, finance, adaptation, technology
4th	Sep. 2009	Mitigation, adaptation, MRV, technology
5th	Oct. 2009	Mitigation, finance, technology, carbon market
6th	Apr. 2010	Copenhagen Accord, MRV
7th	June 2010	Transparency/MRV/ICA, finance
8th	Sep. 2010	Cancun Agreements (adaptation, mitigation/REDD+, MRV/ICA, finance, technology)
9th	Nov. 2010	Cancun Agreements (finance, technology, MRV/ICA)
10th	Apr. 2011	Mitigation (legal form), finance, technology
11th	Sep. 2011	Mitigation (legal form), finance, MRV/transparency
12th	Nov. 2011	Mitigation (mid-term commitment), finance, transparency/ICA/ IAR
13th	Apr. 2012	Durban outcome, finance

Source: Official Website of the MEF, adapted by author

In the declaration of the leaders of the MEF in 2009,[58] MEF failed to agree the global reduction target of 50% by 2050[59]. However, the MEF also could reach meaningful agreements on 1) recognition of the scientific view that global temperature "ought not to exceed 2 degree C" compared to pre-industrial level, 2) developing countries' taking prompt action to result in "a meaningful deviation from business as usual in the mid-term," 3) global review of mitigation goal through "frequent, comprehensive, and accurate inventories," and 4) a commitment to scale up financial support[60].

Outcome of the MEF is usually Chair's summaries and the Declaration format, not suggesting specific ways of mitigation strategy. This gives more flexibility for participants to discuss mitigation efforts. Although the outcome itself is not a rigorous

57) Discussion issues are sorted by the author. The only available resources for the outcome of the meeting are Chair's summaries which are a page of summary for each meeting, and therefore the depth of discussion is not speculated.
58) The Declaration of the Leaders of the Major Economies Forum on Energy and Climate Change, July 9 2009. Available at http://www.majoreconomiesforum.org/past-meetings/the-first-leaders-meeting.html
59) World Resources Institute (WRI). 2009. A Slow Thaw in Climate Talks: G8 and MEF Outcomes.
60) Ibid.

form, the MEF's discussion can take a positive role in several ways in consistent with the UN negotiation[61]. First, MEF can provide the opportunity for trust building by reaffirming each nation's strong will to tackle the problem[62]. Second, the MEF can create political momentum to advance the climate negotiations. Even if discussion does not come to a compromise on certain issue, it can be an opportunity to build mutual understanding. Lastly, the MEF further can take the role as a mechanism for 'peer pressure'[63]. Relatively passive countries in their commitment can be pressured through discussing the adequacy and effectiveness of countries' climate commitments and efforts in the MEF[64]. Besides, the MEF can be effectively coupled with a potential review mechanism in the post-2012 regime because it ensures high-level political engagement[65].

Technology-focused Mechanism

Prior to the UN Copenhagen Summit meeting, the MEF held the 1st Leaders meeting in July 2009 and produced the most notable outcome. In this meeting, the Leaders of the MEF recognized the scientific fact that "the increase in global average temperature above pre-industrial levels ought not to exceed 2 degrees C" and more importantly announced a 'Global Partnership for low-carbon and climate-friendly technologies'[66].

The MEF Global Partnership mainly contains two activities: 1) publication of the analysis entitled 'Global Gaps in Clean Energy Research, Development, and Demonstration (GCERD)' supported by the International Energy Agency (IEA) and 2)

61) Choe, Wongi. 2009. An Analysis of a New International Regime on Climate Change: The Case of Major Economies Forum. Seoul International Law Academy 16(2): 29-47. (in Korean)
62) Friedman, Lisa. 2009. U.S. Climate Negotiator Sees 'Impressive' Actions by China, New York Times, May 22.
63) Choe, Wongi. 2009. An Analysis of a New International Regime on Climate Change: The Case of Major Economies Forum. Seoul International Law Academy 16(2): 29-47. (in Korean)
64) Ibid.
65) Levi, Michael A. "Creating a Climate Policy Review Mechanism." Policy Brief, Harvard Project on International Climate Agreements, Belfer Center for Science and International Affairs, Harvard Kennedy School, November 20, 2009.
66) Major Economies Forum on Energy and Climate. 2009. Technology Action Plan: Executive Summary. Available at http://www.majoreconomiesforum.org/images/stories/documents/MEF%20Exec%20Summary%2014Dec2009.pdf

adoption of a suite of ten Technology Action Plans (TAPs).

In searching for the ways to enhance international investment and collaboration on the technology advancement, the GCERD report analyzed 1) estimated current levels of public RD&D spending, 2) future RD&D priorities based on the IEA roadmaps and other efforts, and 3) the gap between current levels of technology ambition and necessary levels by 2050, concluding with some suggestions to advance the technologies[67]. The GCERD report particularly categorized 10 technologies/practices in their assessment, and accordingly the MEF adopted a suite of 10 Technology Action Plan. 10 technologies covered by the GCERD report are same as the categorization of Technology Action Plans (TAPs). While it categorized 10 technologies by its significance, IEA also notified that other energy technologies such as nuclear energy, mass transit, and geothermal and non-energy opportunities such as reforestation can also play an important role in mitigation policy.

<Table 2> Technology Action Plans (TAPs)

Action area	Voluntary Partner
Advanced Vehicles	Canada
Bioenergy	Brazil, Italy
Carbon Capture, Use & Storage	Australia, U.K.
Building Sector Energy Efficiency	U.S.
Industrial Sector Energy Efficiency	U.S.
High-efficiency, Low-emissions Coal	India, Japan
Marine Energy	France
Smart Grids	Italy, Korea
Solar Energy	Germany, Spain
Wind Energy	Germany, Spain, Denmark

Source: MEF 2009, 10

Each action plans are undertaken voluntarily by interested partners (See table 2) and lead countries injected information on roadmaps and recommendations for further progress in each technology area. The contents include 1) description of the technology,

67) International Energy Agency. 2009. Global Gaps in Clean Energy, Research, Development and Demonstration. IEA Publications. http://www.iea.org/publications/freepublications/publication/Global_gaps_in_Clean_Energy.pdf

2) mitigation potential of the technology, 3) barriers and best practice solutions, and 4) a menu of potential actions for government[68].

In particular, the TAPs recognize essential role of the government in leading technology development and deployment, and thus tries to have influences in decision-making process primarily through information sharing[69]. According to the TAP executive summary, it explained that the absence of common information sharing system is one of the main constraints in developing and deploying clean energy technologies[70]. Therefore, proactive information sharing through the MEF can accelerate both innovation (e.g. research partnerships) and deployment (e.g. best practices to overcome market barriers) of clean energy technologies involving both the public and private sector[71].

Furthermore, using the Global Partnership as a starting point, US Secretary of Energy initiated a Clean Energy Ministerial (CEM) with a mandate 1) to prove energy efficiency, 2) to enhance clean energy supply, and 3) to expand access to clean energy[72]. Based on 2009 MEF Technology Action Plans, ministers from 24 countries[73] launched 11 technology-focused initiatives to promote development and deployment of clean technologies, mainly by improving the exchange of lessons learned and best practices and funding pledges from participant countries, and this is one of significant contributions of the MEF[74].

68) Major Economies Forum on Energy and Climate. 2009. Technology Action Plan: Executive Summary. Available at http://www.majoreconomiesforum.org/images/stories/documents/MEF%20Exec%20Summary%2014Dec2009.pdf
69) Ibid.
70) Ibid.
71) Ibid.
72) Website for Clean Energy Ministerial. http://cleanenergyministerial.org
73) These are Australia, Brazil, Canada, China, Denmark, the European Commission, Finland, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Norway, Russia, South Africa, Spain, Sweden, the United Arab Emirates, the United Kingdom, and the United States.
74) Bausch, C. and M. Mehling. 2011. Addressing the Challenge of Global Climate Mitigation: an Assessment of Existing Venues and Institutions. Berlin, Germany: Friedrich Ebert Stiftung, August.

Analysis of the MEF in Interacting with the UN Climate Regime

Alternative or Complementary?

As post-2012 regime building has made slow progress, many institutions have scrutinized as a viable alternative option to the Kyoto process, and most notable venues are the G8, the G20, APP and MEF mainly due to their small-membership and flexible institutional characteristics.[75] These are based on the assumption that Kyoto-like 'hard law' approach would not be politically feasible at least in the near future, and if this first and best approach is not achievable, then second option would be utilizing a small-membership forum which might be favorable to reach an agreement. On this premise, various institutions outside the UN are assessed in search for an alternative.

In assessing other institutions outside the UN, G8, consisting of influential economies in terms of economic power as well as the amount of emissions, has also addressed certain climate issues. For example, one of the G8's achievements in the climate issue area is an agreement on the long-term global goal of reducing emissions by at least 50 per cent by 2050. G20 also announced to phase out inefficient fossil fuel subsidies over the medium term at the 2009 Pittsburgh Summit. G20's informal institutional setup and its flexible cooperation tools have facilitated a high level dialogue and addressed several climate-related issues. Its outcome is particularly notable in terms of climate finance issues and phasing out inefficient fossil fuel subsidies. However, in G8 or G20, climate issues have not always been a prominent issue[76].

With the most similar characteristics with MEF, APP is also a US-initiated, and technology and voluntary measures focused institution. Due to Bush's ambitious and intentional launch, scholars once turned special attentions to the APP as a possible

75) For this assessment, see Mcgee and Taplin (2006), Lawrence (2007), and Kellow (2010) for more details. They mostly concluded that the APP bears competitive nature rather than complementary by pointing out several normative inconsistencies between the UN regime and the APP.

76) Bausch, C. and M. Mehling. 2011. Addressing the Challenge of Global Climate Mitigation: an Assessment of Existing Venues and Institutions. Berlin, Germany: Friedrich Ebert Stiftung, August.

alternative venue for further pursuing flexible market-based approach[77]. However, APP is officially dissolved as of April 5, 2011 mainly due to the US domestic constraints.

On the other hand, MEF has largely focused on general mitigation needs and technology cooperation with the increased attention on finance issues (See Table 2). Although MEF has once been criticized for the US-centered approach and lacking transparency, it has largely been assessed as useful for complementarity to the UNFCCC[78]. MEF has performed as an additional useful venue "for sharing views, identifying common interests and addressing potential or existing conflicts"[79].

Unlike set-up for the MEM during the Bush administration, MEF's clear intention to facilitate the UN process and promote technology development and transfer in its objectives has been functioned as a positive signal to the UN regime. Complementarity of the MEF is not only clearly stated in its objective, MEF also currently does not seem to have competitive attributes. For example, these initiatives are not on the same level in terms of obligation, funding or membership as some scholars already warned not to overemphasize the rival character of the MEF[80]. These *fora* including MEF are mostly in the very early stages compared to the UN regime, which does not have a concrete plan for evolving into a comprehensive regime[81]. Many policy papers also have reviewed these institutions as a just one of the "possibility", but most of them concluded that any of institutions is not able to substitute the UN climate regime.[82]

Furthermore, UN climate regime has a significant international legitimacy in dealing with global problems, and its institutional experiences and expertise would be irrelevant in any negotiated climate agreements[83]. Therefore, forum-shifting would not

77) Zelli, Fariborz. 2011. The Fragmentation of the Global Climate Governance Architecture. Wiley Interdisciplinary Reviews: Climate Change 2(2): 255-270.
78) Bausch, C. and M. Mehling. 2011. Addressing the Challenge of Global Climate Mitigation: an Assessment of Existing Venues and Institutions. Berlin, Germany: Friedrich Ebert Stiftung, August.
79) Ibid. p. 25.
80) Zelli, Fariborz. 2011. The Fragmentation of the Global Climate Governance Architecture. Wiley Interdisciplinary Reviews: Climate Change 2(2): 255-270.
81) Ibid.
82) For the assessment of various institutions for global climate governance, see Bausch and Mehling 2011 (Friedrich Ebert Stiftung), Michonski and Levi 2010 (Council on Foreign Relations), Stavins 2010 (Harvard Project), The Harvard Project on Climate Agreements 2010
83) The Harvard Project on Climate Agreements. 2010. Institutions for International Climate Governance. Policy Brief 2010-1, Cambridge, Mass.: Harvard Project on Climate Agreements, November 22.

change their national interests or the outcome[84]. Up to date, no alternative institutions exist to meet all of the criteria to be effective mitigation strategy, and even if there is a viable institutional venue for climate negotiations to possibly substitute the UN climate regime, the UN regime is at least not likely to become an obituary.

Complementary Roles of the MEF to the UN Process

If MEF is not a competitive but a complementary venue for the UNFCCC process, in exactly what ways MEF can exert positive influences in interacting with the UN climate regime? Not much literature can be found on the relationship between the MEF and the UN climate regime, since MEF itself is a very nascent institution. In addition, MEF, as an informal institution, is unable to produce visible and concrete results, so it might be early to assess its influence in this stage. Due to these limitations, this paper rather seeks to find the possible optimal pathways of the MEF on the way forward.

To review existing analysis on the role of the MEM in interaction with UN climate regime by Vihma, he basically argued that MEM has some positive influences in discussing global target and finance issues, but overall disruptive to the UN process[85]. Vihma utilized institutional interaction mechanism as his methodology using participatory observations in the negotiations and document analysis of country and stakeholder positions as a tool[86].

In his analysis, two causal mechanisms are traced: *cognitive interaction* and *interaction through commitment*. Cognitive interaction is a form of inter-institutional learning where "new information" emerges from the output in the source institution, and feeds into the decision making of target institution. While cognitive interaction is based on new information, interaction through commitments work on the level of modified actors' preference. Overall, he identified the global mid- and long-term target as its cognitive influence and financing debate as its commitment influence to the UN process (See Table 3).

84) Hare et al. 2010. The Architecture of the Global Climate Regime: a Top-down Perspective. Climate Policy 10: 600-614.
85) Vihma, Antto. 2009. Friendly Neighbor or Trojan Horse? Assessing the Interaction of Soft Law Initiatives and the UN Climate Regime. Int Environ Agreements 9:239-262.
86) Ibid.

<Table 3> Interaction between the Source Institution (APP and MEM) and the Target Institution (UNFCCC and KP)

	APP	MEM
Cognitive influence	Sectoral approach	[Global target]
Commitment influence	Technology transfer	Financing, global target
Overall influence	Disruptive for developing "hard law"	Disruptive for developing "hard law"

Source: Vihma 2009, 258

Vihma further explained that USA's proposal to produce the global mid-term and long-term target during the MEM process could possibly feed into the post-2012 negotiation at the Bali Conference in 2007[87]. In addition, the link between post-2012 financing mechanism in the UN climate regime and financing debate in the G8 and the MEM has cooperatively assisted to create the Climate Investment Funds (CIF) of the World Bank. In his assessment, positive cognitive and commitment interaction were detected.

However, Vihma finally concluded that the overall influence of the institutional interaction seemed to have been disruptive for developing "hard law" within the UN climate regime[88]. He explained that MEM has disruptive influences simply because MEM and APP are cooperatively utilized to create a cognitive influence aimed at promoting a softer institution for the post-2012. His analysis is based on the premise that the post-2012 climate regime should promote another target followed by the Kyoto Protocol based on legally binding approach, and on that premise he considered MEM's promotion of voluntary measures are impeding such target development.

However, those conclusions can be achieved only based on the assumption that post-2012 regime should achieve the legally binding target and timetable. As several open questions remained in post-2012 regime building, post-2012 regime would be evolved into a more complex form than a treaty like Kyoto Protocol. In addition, while MEM and APP was strategic set-up as a competitive institution under the Bush's

87) Vihma, Antto. 2009. Friendly Neighbor or Trojan Horse? Assessing the Interaction of Soft Law Initiatives and the UN Climate Regime. Int Environ Agreements 9:239-262.
88) Ibid.

climate policy, MEF showed its normative consistency with the UN climate regime. Thus, unlike Vihma's supposition, this paper argues that the overall potential influence of the MEF can be evolved in a way of supporting the UN process, not impeding the post-2012 regime development.

Based on the review of recent activities and institutional characteristics of the MEF, Current output could possibly influence through two pathways, cognitive and commitment interaction. In the cognitive pathways, MEF was able to produce an important cognitive input regarding the technology development and transfer issue area. The issue of technology transfer and cooperation has not been established rigorous mechanism within the UN climate regime, while the need and importance have been recognized for a long time. The Copenhagen Accord in 2010 also intended to establish a "technology mechanism" to "be guided by a country-driven approach and be based on national circumstances and priorities."[89]. In these efforts, MEF is already providing a certain information-sharing framework by taking Technology action Plans (TAPs) continued by the Clean Energy Ministerial (CEM). 10 leading countries' information on technology roadmaps and recommendations for further progress in each technology area can be an important knowledge input in establishing technology mechanism in the UN climate regime. In addition, existing information sharing format also can be utilized as a policy model in establishing technology mechanism in the UN climate regime.

In addition, small-membership MEF clearly has some advantages in flexible discussion and decision-making process. MEF as a venue for informal discussion has been successfully facilitated dialogue between developed and developing countries so far dealing with ad hoc issues such as global targets and finance issues unhampered by institutional rigidities. MEF has successfully provided an additional discussion place to reaffirm each country's national will to tackle climate problem and also created political momentum to advance UN negotiations in 2009. As an additional means, MEF could further influence the post-2012 negotiation especially in the context of (possibly long-term) global target and financing by activating additional governance instrument. As we are already facing time gap between the Kyoto and post-2012 Kyoto mechanism, MEF

89) Paragraph 11 of the Copenhagen Accord.

is able to effectively utilized as an additional negotiation forum for more commitments and trust-building.

Conclusion

In the systemically fragmented global climate governance architectures, many environmental and even non-environmental, formal and informal institutions co-govern the climate change issue area. Accordingly, understanding of interaction (or influences) among institutions became very essential to enhance the ultimate effectiveness of the global climate governance.

Currently, the most strong and legitimate institution in global climate governance is the UN climate regime. The Kyoto Protocol first established global target and timetable based on legally binding approach, and this can be meaningful in securing almost universal participation in the negotiation process. However, this structure also became a main stumbling block to move forward in climate negotiations, and in fact, post-2012 negotiation has not yet succeeded in establishing a comprehensive regime to include all major emitters. Faced with political complexities and institutional challenges, many scholars have thus started to question whether the UN climate regime is the best or the only institutional venue for action on global climate change problem. Accordingly, other institutions such as G8, G20, APP, and MEF are assessed as possible alternatives to the UN process. These analyses are largely motivated by recognizing two primary institutional limits of the UN climate regime, which are limited participations in mitigation obligation and narrow policy incentives for compliance.

In review of existing policy architecture of the UN climate regime, major concerns come from political gridlock in securing developing countries' participation based on the current Annex structure. In this regard, the role of informal institution can be more significant to supplement the UN process. MEF is one of such distinct institutions to discuss climate issues in an informal and flexible manner, and also perceived as a possible alternative to the UN climate regime. According to the current activities of the MEF, its role was especially substantial in facilitating a flexible negotiation and

discussing technology and finance issues.

However, in identifying the relationship between the UN climate regime and the MEF, this paper demonstrates that the MEF would not and should not be a competitor to the UN process. While recognizing institutional challenges in the UN climate regime, MEF does not seem to have a competitive attributes or motivation. In addition, changing a negotiation venue from one to another does not change each party's dispersed interests or the outcome. Furthermore, MEF is currently not on the same level in terms of obligation or finance with that of the UN regime. Decades of institutional experiences and expertise in UN regime also would not be simply substituted. Therefore, MEF should not be perceived as a competitor to the UN process, but could be identified as a useful complementary.

MEF is also specifically able to exert its influence mainly through two pathways: one by the transfer of knowledge on technology issues, and the other through the commitments and trust-building process. In a nutshell, the role of the MEF could be strengthened 1) by providing knowledge inputs or a policy model regarding technology transfer and cooperation issue area based on existing information sharing format, and 2) by continuing to serve as an additional discussion venue for further commitments and trust-building.

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