

Chapter 1

Introduction

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1. Challenges for the international climate regime

More than two decades have passed since the Rio Earth Summit in 1992 when the international community officially acknowledged climate change as one of the most serious global problems. Since then, a certain level of effort has been made to tackle this problem and there has been increasing realisation that not much time is left for us to prevent serious negative climate impacts which could be potentially irreversible and catastrophic (Chen et al. 2011; Solomon et al. 2009). Still there is a sense of frustration that international climate efforts have failed to effectively address the problem (Andresen 2014).

Difficulties in addressing climate change stem from several unique features of the problem. Carbon dioxide (CO₂) emissions, the main driver of anthropogenic global warming, are an almost inevitable consequence of fossil fuel combustion and there is no established end-of-pipe solution to control this. It is a well-known fact that the mass consumption of fossil fuels enabled modern rapid economic growth, and consequently it is difficult to strongly decouple economic growth from CO₂ emissions (Burke et al. 2015; Wiedmann et al. 2015).¹ This is why many stakeholders including decision makers assume that climate mitigation will hamper economic growth. Another unique feature of climate change is its global externality aspect (Nordhaus 1991). No matter where greenhouse gases (GHG) are emitted, they contribute to global warming in the same way, and global warming affects everyone in the world. This global externality feature and the above mentioned difficulty in achieving strong decoupling of economic growth from GHG emissions raise the issue of burden-sharing across countries, particularly between developed and developing countries. In addition the climate change issue entails a high degree of uncertainty in terms of both scale of damage, which could be potentially catastrophic and irreversible, as well as probability of very severe climate events (Pindyck 2012). The international climate regime has been gradually developed to address these challenges.

1.1 Initial development of the climate regime: the Kyoto Protocol

With the ultimate goal of preventing “dangerous anthropogenic interference with the climate system,” the United Nations Framework Convention on Climate Change (UNFCCC) was signed in 1992. The UNFCCC provides an overarching legal framework for international efforts to address climate change, and requires very modest obligations with

differentiation between Annex I Parties and non-Annex I Parties. For example, all Parties are requested to formulate and implement national policies to mitigate climate change, while Annex I countries were requested to return their emissions to earlier levels by 2000 without any specification of “earlier levels.” By the first Conference of the Parties (COP1) in 1995, however, national communications and emission inventories submitted by Annex I Parties showed that there was little prospect to “return their emissions to earlier levels by 2000” in many of them. Against this background, a Berlin Mandate (Decision 1/CP.1) was adopted at COP1 to launch a new negotiation process towards a new protocol or another legal instrument by COP3 in Kyoto in 1997. The Berlin Mandate also clarified that Annex I Parties would take on numerical emissions reduction targets, while there would be no new commitments by non-Annex I Parties. This determined the basic structure of the Kyoto Protocol.

The Kyoto Protocol was adopted at COP3 in 1997 and set legally-binding emissions reduction targets for Annex I Parties. During the first commitment period (2005-2012), Annex I Parties including 37 developed countries and the European Community as a whole committed to reduce GHG emissions to an average of 5% against 1990 levels. Individual Parties’ emissions reduction targets differed, and reflected the result of international negotiation. During the second commitment period (2013-2020), Annex I Parties including 28 European Union (EU) member countries committed to reduce GHG emissions by at least 18% below 1990 levels.² However, the composition of Parties in the second commitment period is different from the first (UNFCCC 2014)

1.2 Post Kyoto climate regime: the Copenhagen Accord and the Cancun Agreements

The Kyoto Protocol is a path-breaking regime where a group of countries agreed to set and implement legally-binding environmental targets in order not to exceed the carrying capacity of the Earth, based on the best available scientific evidence which still entails a high degree of uncertainty. Many developed countries with internationally legally-binding targets began to establish domestic legal frameworks to explicitly address climate change mitigation. During the first commitment period GHG emissions of the developed countries with legally-binding commitments as a whole (excluding economies in transition) saw a 7.6% reduction from the 1990 emission levels (without the Kyoto mechanism credits nor land use, land use change and forestry (LULUCF)), which well exceeded the Kyoto reduction target of 4.1%.³ This was a major achievement of the Kyoto Protocol. At the same time, the limitations of the Kyoto Protocol become clear as explained below.

One such limitation is the participation of developing countries. On several occasions, developed countries sought further commitments from developing countries under the Kyoto Protocol. Such occasions included negotiations over the Marrakesh Accords (Decision 2/CP.7)⁴ —the detailed rules of the Kyoto Protocol, Article 9 Review of the Protocol and the second commitment period based upon Article 3.9. However, their attempts failed because there was opposition from developing countries who made reference to the Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC) principle and the Berlin Mandate.

Meanwhile, the coverage of the Kyoto Protocol’s legally-binding commitments on the world’s total emissions declined, currently covering 15% of total global emissions. First, the number of developed countries with legally-binding commitments has been declining. The US signed the Protocol, but did not ratify it. Canada withdrew from it in 2010. Japan, Russia and New Zealand decided not to participate in the second commitment period.

This means that these three countries are still Parties to the Kyoto Protocol, but are not taking on legally-binding commitments. Second, emissions from developing countries have been increasing rapidly. By 2007, the emissions from non-Annex I Parties became larger than those from Annex I Parties.

Given concerns over the effectiveness of the Kyoto Protocol on global emissions, the Bali Action Plan (Decision 1/CP.13)⁵ was agreed at COP13 in 2007, launching a new negotiation process—the Ad Hoc Working Group on Long-term Cooperative Actions (AWG-LCA)—under the UNFCCC. The AWG-LCA aimed to reach an agreed outcome on a comprehensive new framework (including not only mitigation but also adaptation, finance and technology) by 2009. One of the significant features of this process was that developing countries first agreed to discuss mitigation actions. This was a departure from a “no new commitments” stand by developing countries and indeed was a turning point in climate change negotiations.

In 2009, heads of 119 countries gathered in Copenhagen. The Copenhagen Accord (Decision 2/CP.15)⁶ was drafted but was not formally adopted at COP15 because several developing countries raised concerns about the transparency of the negotiation process and strongly opposed the adoption. However, 114 Parties expressed their agreement with the Copenhagen Accord. Furthermore, this Accord included many key ideas which laid the foundations for the Cancun Agreements (Decision 1/CP.16)⁷ which were formally adopted at COP16 the following year in 2010.

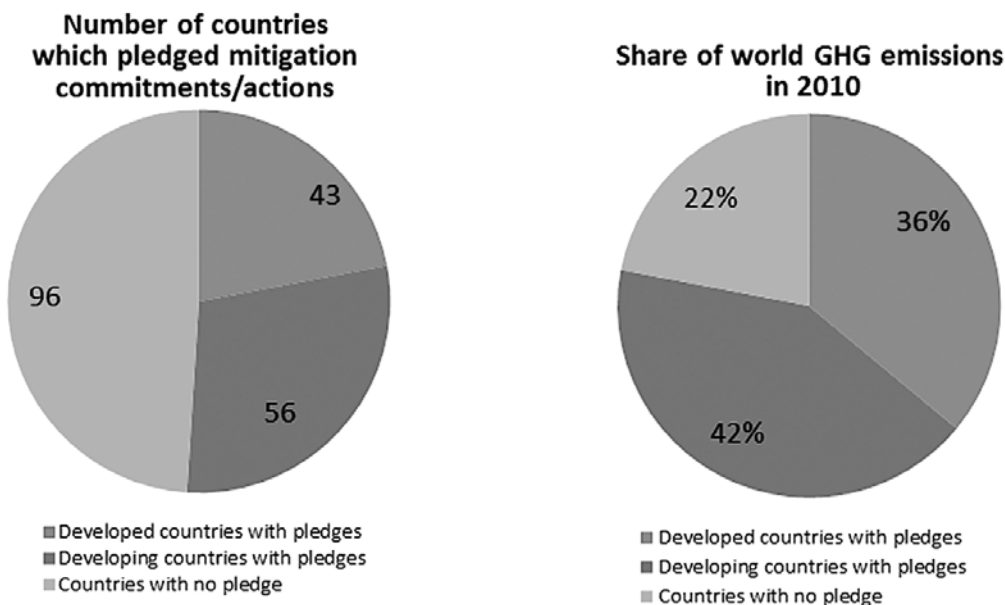
One of the key ideas incorporated into the Copenhagen Accord/Cancun Agreements is a so-called 2 degrees Celsius (2°C) target—holding global average temperature rise at less than 2°C from pre-industrial levels. As mentioned above, the ultimate objective of the UNFCCC is to prevent dangerous human interference with the climate system, but the UNFCCC itself does not provide a clear definition of what is dangerous. Parties agreed that the 2°C target is the temperature ceiling that would offer a reasonable chance of avoiding the worst impacts of climate change. In this sense, the 2°C target is a political interpretation of the ultimate objective of the UNFCCC.

Another key feature of the Copenhagen Accord and the Cancun Agreements is that distinction between developed and developing countries in terms of mitigation efforts began to be vague (Rajamani 2012). Under the Copenhagen Accord, developed countries made voluntary pledges for economy-wide mitigation commitments/targets; and developing countries made voluntary pledges for mitigations actions, so-called NAMAs—Nationally Appropriate Mitigation Actions. Many developing countries including China and India pledged economy-wide targets, although these are emission intensity targets rather than absolute reduction targets. Furthermore, developed country pledges are subject to international assessment and review (IAR), while developing country pledges are subject to international consultation and analysis (ICA). The difference between IAR and ICA is that the former aims to review progress towards the achievement of emissions reduction targets as well as the provision of support to developing countries, and the latter aims to increase the transparency of mitigation actions and their effects. Differentiation between developed and developing countries still exists, but has begun to blur.

1.3 The bottleneck of the current negotiation: a trade-off between effectiveness and comprehensiveness

The idea of voluntary pledges with international review was in sharp contrast to negotiation-based, legally-binding targets under the Kyoto Protocol. To ensure the

clarity and transparency of the pledges, international processes were agreed under the Cancun Agreements. However these pledges were essentially nationally-determined, and were not subject to international negotiation, let alone a compliance mechanism at the international level. This approach was considered necessary for ensuring wider participation of countries with different national circumstances. Indeed, 89 Parties including 43 developed countries and 56 developing countries have submitted their mitigation pledges, and their GHG emissions amounted to around 80% of the world GHG emissions in 2010 (see Figure 1.1).



Source: Author's own estimation, based upon UNFCCC website

Figure 1.1 *The status of mitigation pledges under the Copenhagen Accord and the Cancun Agreements*

However, the nationally-determined approach led to a concern that the sum total of these emissions reduction pledges would not be adequate enough. Thus there is a gap between a range of emission paths consistent with the 2°C target and emission projections under the current pledges (UNEP 2014). How to fill this gap became a major issue and, as seen below, Parties at COP17 agreed to start a work plan on deepening mitigation efforts, as part of the path they are charting towards a new future climate agreement in Paris.

Unlike the mitigation-centred Kyoto Protocol, the Copenhagen Accord and the Cancun Agreements provide a more comprehensive framework which addresses not only mitigation but also adaptation, finance, technology and capacity-building. In particular, with regard to finance, developed countries agreed to mobilise and provide scaled-up climate finance in the short and long term to enable developing countries to take greater and more effective action. As first-start finance, developed countries collectively pledged to provide USD 30 billion between 2010 and 2012. As long-term finance, they also pledged to mobilise USD 100 billion annually by 2020, through public and private sources. The Green Climate Fund (GCF) was set up as a new financial entity of the UNFCCC. This comprehensive approach is a precondition for deeper engagement by developing countries.

2. What can we expect from the Paris agreement?

Against the situation described in the previous section, the Paris agreement to be concluded at COP21 in December 2015, is set to be a new universal, legal agreement to deal with climate change beyond 2020. This agreement is expected to establish a solid foundation for bridging the gap between the 2°C target and the nationally determined contribution (NDC) process, which employs a bottom-up approach to allow for the sovereignty of individual nations so that they themselves determine the ambition level of their mitigation contributions.

In 2014, we observed a hint of strong decoupling of global CO₂ emissions from economic growth, that is, the global energy-related CO₂ emissions did not increase while the global economy grew from 2013 to 2014. However, further efforts are crucial to make the decoupling of economic growth from CO₂ emissions more robust, and shift the global emissions' pathway towards a range consistent with the 2°C. This is something to which the Paris agreement can actually contribute. It is certainly a challenging task to simultaneously pursue these two conflicting objectives; one, to attract all parties including not only developed nations but also developing nations; and two, to implement sufficiently ambitious collective commitment at the global level corresponding to the 2°C target. Ensuring the effective achievement of mitigation goals generally requires binding commitments from the Parties, but it is very likely that such a binding approach will be rejected by many countries, in particular developing countries.

In order to address this challenge and establish an ambitious and effective post-2020 international climate framework, the following aspects may be worthy of serious consideration. First is to develop a periodical cycle that also motivates and encourages Parties to increase their level of actions towards the 2°C target in the post-2020 period. Second is the departure from the conventional notion that strengthened climate action is synonymous with increased burden and cost. To date, various opportunities and benefits that the actions towards a low-carbon economy could deliver in both the short-term and long-term have been under-represented in the international climate negotiations.

3. The objectives of this report

This report, *The Paris Climate Agreement and Beyond: Linking Short-term Climate Actions to Long-term Goals*, discusses possible ways to enhance the Parties' contributions to climate mitigation and finance, and draws lessons for the international negotiations leading up to the Paris agreement. In particular, this report emphasises the importance of the dynamic nature of the climate regime, looking not only at the Paris climate agreement but also at the follow-up to the agreement (so-called "beyond"). This is of critical importance to make the NDC approach sufficiently effective to achieve the 2°C target.

In this regard, the report makes concrete proposals to establish a cycle for reviewing, revisiting and enhancing NDCs over time by addressing three key questions: (i) how different implementation periods can be addressed; (ii) how legal stringency and flexibility regarding NDCs can be balanced; and (iii) what kind of information and indicators should be used in the cycle. It also examines the role of market-based mechanisms to incentivise mitigation actions in both developed and developing countries.

The report also takes up the issue of the time-scale gap between the long-term nature and the associated high degree of uncertainties of climate change, and examines the

necessity of short-term tangible benefits for policymakers to make decisions. With this situation in mind, the report puts great emphasis on the necessity to provide clear signals to various stakeholders that ambitious climate actions are not only an obligation of the current generation to future generations but will also be rewarding even in the short term.

The remainder of the report is organised as follows:

Chapter 2 reviews the global CO₂ emissions trend and highlights the major factors of structural change in emissions based on the cases of the European Union (EU), the United States (US) and China. Based on the obtained insights, this chapter discusses the importance of the feasibility of the climate regime in both static and dynamic senses, that is, not only that it is feasible under the current political reality but also that it will enable more ambitious and feasible measures in the future.

Chapter 3 proposes a dynamic cycle for reviewing and submitting NDCs in order to enhance climate mitigation and climate finance. This chapter argues the importance of striking a balance between legal stringency and flexibility in order to involve all members of the global community without losing effectiveness to achieve the 2°C target. Further, it is pointed out that the international finance component for post-2020 must be certain in terms of future funding scale and transparent in terms of financial inputs and resulting impacts.

Chapter 4 provides a concrete proposal to fully utilise the scientific community in order to effectively implement the dynamic cycle proposed in the previous chapter. In addition to assessing NDCs from the viewpoint of equity, sufficiency, mitigation potentials and ambition levels, this chapter highlights how important it is for the scientific community to identify and demonstrate opportunities and benefits of mitigation actions in order to address the static and the dynamic political feasibility issues discussed in Chapter 2. In order to ensure effective contributions from the scientific community, it is proposed to establish a consortium of climate policy research institutes with good regional representatives.

Chapter 5 presents an initial assessment of Japan's intended nationally determined contributions (INDCs) as an illustration of the assessment of NDCs *ex-ante* as a part of the proposed dynamic cycle. Among a wide range of approaches proposed to evaluate INDCs, this chapter reports on the results of three analyses: (i) international comparison of economy-wide and sector-specific decarbonisation indicators; (ii) remaining emissions allowances under different effort-sharing principles; and (iii) mitigation potential and policy effort. These analyses are based on large scenarios reported in the literature, taking account of uncertainties entailed in GHG emissions modelling. It is claimed that such a synthesis approach is well accommodated by the research consortium proposed in the previous chapter.

Chapter 6 discusses accounting issues under a framework for various approaches (FVA) including market-based mechanisms for a post-2020 climate regime and argues the necessity to incorporating capacity building as an essential element. With the example of the Joint Crediting Mechanism (JCM), currently being discussed under the FVA, the chapter shows that developing countries are likely to encounter unique challenges in different stages of accounting, namely issuance of credits, transactions of credits and accounting towards a country's INDCs. To overcome these challenges, the chapter proposes options to enhance the role of accounting under the FVA to ensure environmental integrity and incentivise mitigation actions by both developing and developed countries.

Chapter 7 takes up the issue of loss and damage (L&D) associated with climate change. Scientists have long warned about the possibility of residual damages from climate change irrespective of our current level of efforts to mitigate and adapt, but it was at COP16 in Cancun in 2010 that this issue received proper attention in the international climate change regime. Currently there is limited agreement on a common definition of L&D, making it more difficult for stakeholders to effectively tackle this issue. This chapter aims to review the ongoing discussion on L&D, to identify adaptation barriers and limitations of the current L&D approaches, and to suggest a way forward to overcome such limitations, drawing on the findings of ongoing IGES work on stakeholder positions and perceptions on various issues associated with L&D.

Finally, Chapter 8 summarises the major key messages of the main chapters and brings the book to conclusion by highlighting the way forward.

Notes

1. In this report, strong decoupling of economic growth from CO₂ emissions is defined as reduction of the level of CO₂ emissions under economic growth, and weak decoupling is defined as reduction of carbon emission intensity, in terms of CO₂ emissions associated with one unit of GDP, under economic growth (cf. Handrich et al. 2015).
2. Doha Amendment to the Kyoto Protocol. 2012
3. The authors estimated based on the emission database developed by the Greenhouse Gas Inventory Office of Japan (<http://www-gio.nies.go.jp/aboutghg/nir/nir-j.html>).
4. FCCC/CP/2001/13/Add.1
5. FCCC/CP/2007/6/Add.1
6. FCCC/CP/2009/11/Add.1
7. FCCC/CP/2010/7/Add.1

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