Understanding Climate Change Negotiations: Contributions from International Negotiation and Conflict Management

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Abstract

Climate change is the largest and most complicated interdependent issue the world has confronted. Yet there is little negotiation and conflict management knowledge within the climate change context. To address this gap, this theoretical article reviews the sparse extant literature and provides a brief overview of the science of climate change public policy. This review establishes a foundation for examining negotiation and conflict management research questions that emanate from current and future climate change negotiations. Such questions are considered for climate change mitigation negotiations and climate change adaptation negotiations. This article demonstrates how the negotiation and conflict management field can make important contributions to the study of interdependency in a context of climate change.

Keywords

Negotiation and conflict management scholarship has a long history of analyzing multiparty negotiations (Susskind & Crump 2008). Fundamental to this perspective is the pursuit of goals in an interdependent situation where planning and analysis, strategy and tactics, and power and morality combine to create outcomes. It is surprising, then – and concerning, given the implications – that research in this tradition has largely overlooked international climate change negotiations. After all, the causes and consequences of a changing climate represent the largest and most complicated interdependent situation ever confronted on planet earth. That is not to say that climate change negotiations should only be the subject of negotiation and conflict management scholarship; rather, further research from this perspective could produce new insights, making significant contribution to existing interdisciplinary knowledge on climate change negotiations that exists in international relations, political science and sociology, among others.

Within the field of climate change negotiations there are multiple primary parties, each often representing a complex set of governmental agencies, as well as multiple stakeholders operating in an environment with influential external actors, including non-governmental organizations, international organizations, transnational corporate associations and other actors. In fact, the primary mitigation negotiations – the UN negotiations – involve 194 parties engaged in talks to mitigate global greenhouse gas emissions.

This article seeks to identify the types of research questions that have long been the terrain of negotiation and conflict management scholarship in other areas of negotiation, such as trade, but that have largely been passed over in the case of climate change. This theoretical discussion begins by reviewing existing climate change research within the negotiation and conflict management literature. This is followed by a brief overview of the science of climate change public policy, including the causes, consequences and required adaptations. This science and policy review establishes a foundation for examining current and future climate change negotiations. It is presented in two sections, dealing with both mitigation negotiations and adaptation negotiations.

International climate outcomes, including the Durban Platform (2011), Cancún Agreements (2010) and the Copenhagen Accord (2009), receive consideration as these negotiations were useful in forcing key parties to disclose their interests. Establishing the interests of key parties clarifies the range of possible outcomes. The section on adaptation negotiations examines climate change and increasing extreme weather events, food insecurity, rising seas, and the negotiation research issues emerging from such analysis.

Negotiation and conflict management scholars will be prepared to (1) engage in research in a climate change context, looking at what theoretical questions require data and answers; and (2) educate a cohort of specialists able to negotiate within this evolving milieu.

Background

International climate change politics have received increasing policy attention in recent decades, and much of this has focused on the activities of the three bodies that dominate the science and the negotiations: the Intergovernmental Panel on Climate Change (IPCC);[3] the United Nations Framework Convention on Climate Change (UNFCCC); and the annual Conference of the Parties (COP)

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3 The Intergovernmental Panel on Climate Change (IPCC) was created by the World Meteorological Organization and the United Nations Environment Program with a mandate to provide governments with clear scientific understanding about what is happening to the world's climate (UN General Assembly Resolution 43/53 1988). In response, the IPCC regularly examines climate change science and prepares a comprehensive review with recommendations. The first, second, third and fourth Assessment Reports were published in 1990, 1995, 2001 and 2007 respectively. The Physical Science Basis of the IPCC Fifth Assessment Report was published in 2013 (IPCC 2013). Impacts, Adaptation, and Vulnerability (IPCC 2014a) and Mitigation of Climate Change (IPCC 2014b), each a part of the IPCC Fifth Assessment Report, was published in 2014.

to the UNFCCC (see for example, Depledge 2005; Sjostedt 1993, 2009; Sjostedt & Penetrante 2013).[4]

With the emergence of universal participation as a norm in international environmental negotiations (Hoffmann 2005), much scholarly attention has considered the asymmetrical relations between parties, for example, the negotiation goals and strategy of the Alliance of Small Island States (AOSIS). This party experienced some success in achieving their goals in UNFCCC negotiations (Ashe, van Lierop & Cherian 2009) through alliance formation, collaborative approaches to knowledge building and cooperative institutional mechanisms (Larson 2003). 'Middle powers' such as the Netherlands are also examined. Two causal factors supported the Netherlands in demonstrating leadership at the 1997 COP negotiations in Kyoto: actively building a multi-sector domestic policy consensus before negotiations, and then linking with like-minded non-governmental organizations (NGOs) to develop an international climate change policy network (Kanie 2003). Middle powers may maximize opportunity in a multilateral conference by building internal and external strategies, and weaker parties may gain influence through coalition building and collaborative and cooperative approaches.

The fundamental nature of internal party dynamics or intra-national dynamics also receives attention in the extant literature. The Japanese government, as host of the 1997 Kyoto Conference, played a critical role in securing agreement by confronting a two-dimensional challenge: concurrently negotiating for its own interests and mediating prior to and during the conference negotiation process (Hattori 1999). Similar attention has focused on the role of the Danish government in hosting the much anticipated climate negotiations in Copenhagen in 2009 (Meilstrup 2010). Related studies examine how national governments and NGOs interact in the formulation and implementation of climate policy. Differences in inter-organizational network structures in Switzerland (policy communities as compared to issue networks) are found to contribute to the degree of cooperation or competition in policy negotiations (Boyer & Cremieux 1999). At a more micro-level, research examines the patterns of bias that can interfere in climate change negotiations, including egocentrism, inappropriately discounting the value of future benefits and the mythical 'fixed pie' (Bazerman, Buisseret & Wade-Benzoni 1998).

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4 The United Nations Framework Convention on Climate Change (UNFCCC 1992) was opened for signature at the Earth Summit (the UN Conference on Environment and Development) in Rio de Janeiro in 1992 and entered into force in 1994. The Conference of the Parties (COP) to the UNFCCC has met annually ever since (Wagner 2013).

Once climate change agreements are achieved, they must be signed and ratified by national governments. Burden distribution among states is identified as a critical issue within the European Union (Vogler 2009), with differentiated environmental agreements based on fairness and quantitative indicators of specific national circumstances being helpful in defining a realistic bargaining space (Ringius 1999). Treaty ratification has also been found to be dependent on a balance between a state's ability to comply with treaty requirements and the flexibility provisions contained within that treaty. For example, flexibility provisions in UNFCCC and the Kyoto Protocol increased state propensity to ratify these two treaties (von Stein 2008). Specific state or party characteristics also appear to contribute to treaty ratification, with democracies more likely to sign and ratify multilateral environmental agreements compared with non-democracies (Neumayer 2002; Harrison & Sundstrom, 2007).

A review of the extant literature focused on climate change demonstrates some strengths and weaknesses. We have achieved some understanding about gaining and managing power, asymmetrical power relations and managing multiple roles in a multilateral context. We also have knowledge of the type of agreements that will be ratified once negotiated. These are important accomplishments; however, the most apparent concern is the amount of literature actually available. For benchmarking purposes, other social sciences such as economics (see Stern 2006) and trade (see Tamiotti et al. 2009) devote substantial attention to climate change. Negotiation and conflict management scholars are invited to conduct research in a climate change context, as many research problems require expertise in managing interdependence.

Furthermore, climate change research grounded in the negotiation and conflict management literature is primarily focused on mitigation or negotiations that seek to establish targets and timetables for the reduction of greenhouse gas emissions. This research is certainly important, but it may be useful to also think about the type of negotiations that will emerge as the world becomes warmer. Some attention should be devoted to adaptation negotiations. A brief review of the science and policy of climate change will assist in understanding the fundamental nature of these challenges.

Unless otherwise cited, all climate change knowledge in this article is derived from a comprehensive review of climate change science conducted by the Working Groups to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC 2007a; IPCC 2007b; IPCC 2007c; IPCC 2008) including more recent reports as well (IPCC 2013; IPCC 2014a; IPCC 2014b).

The Science of Climate Change Public Policy

No one argues that the climate has not changed drastically over the past 20,000 years (the peak of the last Ice Age), but is the climate changing now? Based on 75 studies that demonstrate significant changes in physical and biological systems, more than 89 percent of the results indicate an increase in atmospheric warming.[5] Globally, the temperature is 5°C (9°F) warmer on average than during the last Ice Age (Stern 2006), with 0.74° C (1.3°F) of that warming occurring in the last century.[6]

Furthermore, the bulk of data supports the theory that the earth's atmospheric temperature is increasing because of human-induced climate change. World leaders accept climate change as a reality (e.g. G8 Leaders Declaration 2008; UN Climate Change Conference 2009). Global climate policy will be built on the evolving belief that it is safer to assume that climate change is occurring than to assume it is not.

Climate change is interdisciplinary, with knowledge organized primarily in four areas: causes, impacts, mitigation and adaptation. Each is considered briefly below.

Causes of Climate Change

Data supports the theory that increasing emissions of greenhouse gases are the primary cause of global warming. Carbon dioxide (CO_2) is by far the most important greenhouse gas that is directly tied to human activity, largely due to the amount emitted in the atmosphere and because it has a long life once emitted. Methane (CH_4) and nitrous oxide (N_2O) also contribute to the greenhouse effect. Pre-industrial CO_2 levels were about 280 parts per million (280 ppm) of air molecules in the atmosphere, while by 2005 CO_2 levels had increased to 379 ppm. Often, 450 ppm of atmospheric CO_2 is identified as a threshold or global target below which it is important to remain.

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5 These 75 studies included 29,000 observational data series and were selected from a pool of 577 studies that met three criteria: ending in 1990 or later; spanning a period of at least 20 years; and showing a significant change in either direction (increased or decreased warming) (IPCC 2008).

6 Climate change science always presents temperature in Centigrade. Fahrenheit is calculated to accommodate readers that have not yet had an opportunity to convert to a more rational system for measuring temperature.

Greenhouse gases increase atmospheric warming by altering the balance between incoming solar radiation emitted by the sun and outgoing thermal radiation emitted by land and ocean in such a way that thermal radiation is absorbed by the atmosphere and re-radiated back to earth. This is how the greenhouse effect increases average atmospheric temperature over time (IPCC 2013).

Climate Change Impacts

Climate change affects different regions in different ways, depending on whether they are lower-latitude (near the equator), mid-latitude or high latitude (closer to the poles). Physical geography is also a factor in determining the impact of climate change, including mountain and coastal areas, flood plains, polar and desert region, and island.

The climate change literature considers observed impacts and projected future impacts; the former is considered first. Increases in global temperature have multiple impacts. For example, IPCC established high confidence that existing glacial lakes are expanding in size.[7] Globally, sea levels rose at an average rate of 1.8 mm per year over 1961–2003 and at 3.4 mm per year between 1993 and 2008 (Copenhagen Diagnosis 2009). Oceans absorb more than 80 percent of the added heat to the climate system, which causes seawater to expand and contributes to sea level rise.

Initially, negative climate change impacts (costs greater than benefits) will be felt in the lower-latitudes and Polar Regions, as these areas will first experience significant change due to increased warming. Some regions, especially mid and high-latitude regions, will gain net benefits initially with small increases in global warming, although it is very likely that all regions of the world will experience either declines in net benefits or increases in net costs

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7   The IPCC developed a system for managing and communicating degrees of uncertainty when examining climate change research outcomes by providing a ranking of scientific confidence and likelihood. Scientific confidence is defined as follows: Very High Confidence (at least 9 out of 10 chance of being correct), High Confidence (about 8 out of 10 chance), Medium Confidence (about 5 out of 10 chance), Low Confidence (about 2 out of 10 chance), and Very Low Confidence (less than a 1 out of 10 chance of being correct). Likelihood is defined as follows: Virtually Certain (>99 percent probability of occurrence), Very Likely (90–99 percent probability), Likely (66–90 percent probability), About as Likely as Not (33–66 percent probability), Unlikely (10–33 percent probability), Very Unlikely (1–10 percent probability), Exceptionally Unlikely (< 1 percent probability of occurrence).

when temperatures increase 2 and 3°C (3.6–5.4°F) beyond 1980–99 levels.[8] Studies indicate that the world should prepare to adapt to average temperature increases of at least 4°C (7.2°F) above average temperatures in 2000 (Parry, Lowe & Hanson 2009).

By mid-century, annual average water availability is projected to increase by 10–40 percent in high latitudes but decrease by 10–30 percent in some dry regions at mid-latitudes (high confidence). By 2100, sea-level rise may exceed 1 meter, with the upper limit estimated at a 2-meter rise (Copenhagen Diagnosis 2009).

Global crop productivity is projected to increase with average temperature increases over a range of 1–3°C (1.8–5.4°F) as CO_2 has a beneficial effect on plant growth (Parry, Rosenzweig, & Livermore 2005), but productivity is projected to decline if temperatures move above this range as plants experience stress in a world that is too warm (medium confidence).

Generally, increasing temperatures increase the frequency, magnitude and severity of extreme weather events such as heavy precipitation, floods, cyclones, droughts and heat waves. The most vulnerable settlements and industries are located in coastal and river flood plains.

Mitigating Climate Change

To stabilize global warming, industrialized countries as a group must reduce greenhouse gas emissions by 25–40 percent below 1990 levels in 2020 to achieve 450 ppm, and by 10–30 percent to achieve 550 ppm (Den Elzen & Hohne 2008). If global warming is to be limited to 2°C (3.6°F) above pre-industrial levels, then global emissions will need to peak between 2015 and 2020 and then decline rapidly so that by 2050 developed nations will have reduced their emissions by 80–95 percent below 2000 levels (Copenhagen Diagnosis 2009). These are highly ambitious goals.

Reducing greenhouse gas emissions is achievable through mitigation activities grounded in scientific, technological, environmental, economic and social approaches, including short-term (to 2030) and long-term (beyond 2030) approaches. The primary sectors releasing greenhouse gases include agriculture, buildings, energy, industry, forestry, transport, and waste management. Key mitigation technologies and practices currently available are well known

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8 All temperature changes are expressed as the difference from the 1980–99 period unless noted otherwise.

for each of these seven sectors. For example, for mitigation in industry, the focus is on more efficient end-use electrical equipment, heat and power recovery, material recycling and substitution, control of non-CO_2 gas emissions, and a wide array of process-specific technologies – depending on the industry. Key mitigation technologies expected by 2030 are also identified in the climate change literature. For example, for mitigation in transport the focus is on second-generation biofuels (from non-food), higher aircraft efficiency, and advanced electric and hybrid vehicles. No sector or technology can address the entire challenge.

Changes in lifestyle, behavior patterns and management practices can play an important role in contributing to climate change mitigation by focusing on consumption patterns that emphasize resource conservation, as well as education and training aimed at market acceptance of energy efficient products and practices.

Over the long term (after 2030), a portfolio of technologies should be developed and/or deployed. One key class of technologies is low-carbon energy, such as renewable energy and nuclear power. Land-use and forestry options that minimize the release of CO_2 should be developed. Barriers to development, acquisition, deployment, and diffusion of such technologies and practices will need to be examined.

A range of governmental policies and instruments are available to create mitigation incentives. Four main criteria are used to evaluate such policies: environmental effectiveness; cost-effectiveness; distributional effects including equity; and institutional feasibility. Current examples of such policies and instruments include informational campaigns, integrating climate policies in broader development policies and programs, regulations and standards about emission levels when information prevents producers and consumers from responding to price signals, taxes and charges for CO_2 emissions such as tradable permits to establish a price for carbon emissions, financial incentives (subsidies and tax credits) to stimulate development and/or diffusion of climate change technologies, and voluntary agreement between government and industry on a range of climate change issues (IPCC 2007c).

Mitigation activities are probably most robust when linked to market mechanisms and/or when governments adopt emission targets and timetables for the reduction of greenhouse gases. National governments can establish emission targets and timetables through independent action, although many national leaders may believe that such action should only be conducted in a multilateral setting, as the first targets (which expired in 2012) were established at the 1997 Kyoto Conference (COP3). Mitigation becomes less effective and

climate change adaptation becomes more essential without a significant post-Kyoto multilateral emissions agreement.

Adapting to a Warmer World

Climate change adaptation is the least developed of the four areas of climate change knowledge. Adaptation to climate change is highly context-specific and depends on geographic, economic and social vulnerability, including biophysical, financial and institutional constraints. Successful adaptation requires an evolving mix of technological, management, behavioral and fiscal interventions. Two concepts are useful in this regard. (a) 'Vulnerability' is the degree to which a system is susceptible to, and unable to cope with, the adverse effects of climate change. Vulnerability is a function of the character, magnitude and rate of climate change and variation to which a system is exposed, its sensitivity and its adaptive capacity. (b) 'Adaptive capacity' is the ability of a system to adjust to climate change in order to moderate potential damages, to take advantage of opportunities or to cope with the consequences.

Many early climate change impacts can effectively be addressed through adaptation, although successful adaption diminishes and costs increase as climate change progresses. As impacts increase in magnitude, adaptation will be less effective or more difficult. Vulnerability to climate change can be exacerbated by other stresses including poverty, lack of basic resources such as water, food insecurity or disease. Climate change mitigation can reduce or delay the need to adapt. Unmitigated climate change will eventually exceed the capacity of natural, managed and human systems to adapt. Grounded in science, this latter point is significant to society and humanity.

A rise in average temperature to 2.5–3°C (4.5–5.4°F) could eventually place billions of people at risk of water shortage and millions more at risk of coastal flooding. To avoid such damage will require massive investment in water supply and storage improvements, and to protect low-lying settlements from rising seas (Parry, Lowe, & Hanson 2009). Ultimately, a mix of strategies or a portfolio of adaption measures may be the most effective plan for managing climate change at the community and national levels. For example, climate change impacts should be considered in community and national development planning (IPCC 2007b).

The causes and impacts of climate change have been briefly examined and the science of mitigation and adaptation reviewed. This foundation provides a basis for examining interdependent climate change problems that could be

considered through negotiation and conflict management research. Which theoretical questions require answers?

Mitigation and Negotiation

Since the Rio Earth Summit in 1992 and the entry into force of the United Nations Framework Convention on Climate Change (UNFCCC) in 1994, states have been engaged in international negotiations to mitigate climate change.[9] The UN negotiations scheduled for Paris in 2015 represent the latest round in more than two decades of negotiations, which have included some remarkable successes, such as the Kyoto Protocol in 1997, and some remarkable failures, such as the Copenhagen negotiations in 2009.

Following the UNFCCC, negotiations have worked toward establishing a legally binding protocol to reduce emissions. The end result was the landmark Kyoto Protocol, which was finalized in December 1997. It introduced binding emission targets for all developed countries and a series of flexibility mechanisms to assist countries to meet their targets, such as emissions trading (Oberthur & Ott 1999). However, the negotiations in Kyoto in 1997 did not finalize the rules of the Protocol and negotiations floundered until 2001 when the Marrakesh Accords were signed. The period preceding these Accords had been particularly acrimonious. Negotiations collapsed in November 2000 after a bitter dispute broke out between the Americans and the Europeans over flexibility mechanisms. They were further disrupted by the inauguration of Republican George W. Bush as President in January 2001, who shocked the international negotiations in March that year by repudiating the Kyoto Protocol. Despite this setback, which many believed would kill the Protocol, furious lobbying in the intervening years by the Europeans, among others, led to the ultimate decision by the Russian Government to ratify the Kyoto Protocol in September 2004 securing its' entry into force in Montreal in 2005 (Downie 2014).

Since 2005, negotiations have attempted to reach agreement on what should replace the Protocol when the commitments expire in 2012 (the so-called post-Kyoto phase). This period has seen a shift in the dynamics from negotiations centered around the U.S. and the EU to negotiations centered around developed and developing countries (Bodansky 2010). This reflects the more prominent role that developing countries, such as Brazil, South Africa, India and China, now have on the international stage. In December 2007,

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9   Chasek & Wagner (2012) provide an insightful review of the evolution of multilateral environmental negotiation process including identification of the actors and the issues.

negotiations in Bali set out the so-called "Bali roadmap", which envisaged a path toward a legally binding agreement in Copenhagen in 2009 (Clemencon 2008). Despite the expectations that the negotiations in Copenhagen, which had more than 100 heads of state present, would produce a breakthrough and seal a new legal instrument, the negotiations stumbled. In the end, several key states managed to put together the text for the Copenhagen Accord, which was accepted as a political document with voluntary pledges to reduce emissions rather than legally binding obligations (Bodansky 2010). In response, at the negotiations in Durban in 2011, countries agreed to the "Durban Platform", which commits to establishing a new binding international climate agreement scheduled to be completed in 2015 at the Paris negotiations. The platform also agreed to a negotiating process focused on the long-term participation of all parties, which is a further step in eliminating the historical distinction between developed and developing countries that has characterized past negotiations (Aldy & Stavins 2012).

    States are the principal parties to the UN negotiations and their positions have been based not only on their real or perceived interests, but also the state of the science (see below). For example, dependence on the production and consumption of fossil fuels varies greatly, as does their vulnerability to the impacts of climate change and their capacity for mitigation and adaptation (Oberthur & Ott 1999). These factors have meant that states have traditionally been divided along North-South lines, with the interests of developed countries up against developing countries (Wagner 2007). One of the principal issues is that developed countries are largely responsible for the high levels of greenhouse gas emissions in the atmosphere since the industrial revolution (referred to in the Kyoto Protocol as the principle of common but differentiated responsibility). While this is now changing, for example, with China having overtaken the U.S. as the highest global emitter, there is still an expectation from developing countries in the South that they, and especially less developed countries, should receive financial assistance, which is additional to development assistance, to help mitigate and adapt to climate change.

    The issue of common but differentiated responsibility is an interesting interdependent situation that should be studied. How does a negotiating party behave when confronted with an interdependent problem that is not of their making, although they expect to experience costly consequences as a result of this problem? What if a party has no history of contributing to the problem, though significant contemporary contributions have recently begun? This analysis identifies three key party types based on problem relationship: (1) parties with historical and contemporary contributions; (2) parties with contemporary contributions only; and (3) parties with no contribution to the problem.

Naming, blaming and claiming (Felstiner, Abel & Sarat 1980–81; Hadfield 2008) may represent one relevant theoretical framework for studies involving these three party types, although power relations must be included in such research if the results are to be relevant to climate change. Asymmetrical power relations would serve as a variable in such studies, as the parties that created the problem (developed countries) are generally powerful, parties that did not contribute to the problem (developing and least developed countries) are not powerful, and parties that have only recently begun to contribute to the problem (emerging economies) are ascending in power. Negotiation studies built around these variables could make an important contribution to the literature on mitigation negotiations by improving, for example, how negotiation structures account for the rising power of emerging economies.

Coalitions have also formed along North-South lines. Developed countries are traditionally in two groupings, the 27 members of the European Union in one, and the Umbrella group, a loose coalition of non-EU developed countries, in the other (Australia, Canada, Japan, New Zealand, Norway, Russia, Ukraine and the U.S.). Developing countries generally operate through the G77, which has over 130 members, but given its diversity other coalitions also exist. Most importantly, perhaps, are the BASIC countries – Brazil, South Africa, India and China – which since 2009 have coordinated their position at negotiations. Others include the group of Least Developed Countries and the Alliance of Small Island States (AOSIS). AOSIS in particular has been a historically important player in the negotiations, having used its moral authority to great effect, despite its limited power and resources. Negotiation research could examine the challenges and strategies for a coalition that exercises moral authority, is unified and focused but lacks other substantial sources of power. It could also consider the role of new formations, such as 'climate clubs' or small groups of countries which some argue could assist in catalyzing greater ambition within the UN negotiations (Weischer et al. 2012). The relationship between goals, strategy, power and outcome is fundamental to the study of negotiation.

Reaching an international agreement to reduce emissions negotiations must bridge the North-South divide. In this regard, the study of burden-sharing may hold promise, as climate change literature exists on equity (Cazorla & Toman 2000), distributive justice (Muller 2001), and fairness (Ringius, Torvanger, & Underdal 2002); the field of negotiation and conflict management also has a strong tradition in examining justice, including procedural justice (Albin 2008) and distributive justice (Druckman & Albin 2008). At the same time, a legally binding treaty that requires developed countries to make substantial reductions in greenhouse gas emissions and allows developing countries to make

voluntary emission reductions may have difficulty being ratified by congressional and parliamentary bodies in developed countries. This is the main reason the U.S. never ratified the Kyoto Protocol (Downie 2014). As a result, negotiation and conflict management researchers should examine the factors that make international voluntary agreements effective. What antecedents within parties, within the interdependent relationship and within the negotiation environment enhance the implementation of voluntary agreements containing substantial costs? What if some parties have legally binding commitments and others only make voluntary pledges – what antecedents enhance agreement implementation? Studies on voluntary agreements can be found in the environmental literature (Benwell 2009; Delmas & Terlaak 2001; Ten Brink 2002), but not the negotiation and conflict management literature. Answers to these questions from this perspective would provide new insights about the strategy and tactics of actors under different types of agreements, such as Canada's decision to walk away from the Kyoto Protocol despite their legally binding commitments. These would also be timely for negotiators who are attempting to complete the outline for a new international climate agreement.

However, states are by no means the only actors and the climate change negotiations are best understood as 'multi-level' negotiations. States are not unitary actors and sub-state and non-state actors pressure states at the domestic, international and transnational level. For example, sub-state actors (i.e. government agencies), such as treasury and energy departments, operate inside and outside national boundaries to influence the positions states take at international negotiations (Downie 2013a). The same is true of business groups and environmental groups, which have been especially conspicuous in the climate change negotiations. For example, many environment NGOs have pressured states not only domestically and internationally, but they have also coordinated their actions across borders at the transnational level to influence negotiation outcomes. For instance, the Climate Action Network, an umbrella group which includes Greenpeace and WWF, coordinate their participation in the negotiations, as do business groups like the International Chamber of Commerce. While there is considerable literature on these players in the field of environmental politics (see for example, Downie 2013b), with few exceptions, many of the questions that are typically the terrain of negotiation and conflict management scholars have not been investigated, such as matching different goal types with different strategies and tactics.

The role of science is also essential to understanding climate change negotiations and scientific interests have played an important role in calibrating the interests of states. The most notable example is the UN Intergovernmental

Panel on Climate Change (IPCC). Established in November 1988 around a small core of reputed scientific experts, its scientific assessments are considered to have been the catalyst for much of the diplomatic activity on climate change and, at least in the 1990s, for shifting the consensus among key policy elites. For example, a large study of the role of the U.S. and the EU in the international negotiations found that the IPCC helped to establish a consensus among government leaders and policy elites that human influence was the cause of climate change, which did not exist in the 1980s. This was one of the reasons that the administration of President Clinton agreed to support the Kyoto Protocol in 1997 (Downie 2014). Further work from negotiation and management scholars should look at such epistemic communities, i.e. "networks of professionals with recognized expertise and competences in a particular domain" (Haas 1992) and consider the strategies that they can employ to influence outcomes in multi-level mitigation negotiations. For example, the means by which national scientific bodies inform their national polity, under different conditions, can influence a state's negotiating goals.

Adaptation and Negotiation

Geographic, economic and social vulnerabilities create the constraints that dictate the fundamental nature of adaptive negotiations, as climate change adaptation is highly context specific. An initial review of climate change knowledge presents a limitless supply of interdependent situations involving a wide array of parties at international, regional, bilateral, national, community and local levels. This article will only examine a sample of likely adaptation negotiations based on three major challenges: increasing extreme weather events; food security; and rising seas.

Extreme Weather Events

The prolonged drought in Australia during the last decade, the exceptionally hot summer in Europe in 2003, the intense North Atlantic hurricane season in 2004–05, and the extreme rainfall and flooding in Pakistan in July 2010 and in Tabasco, Mexico in November 2007 are examples of the kinds of events that will become more frequent and more severe in a warmer climate.

Sudden events such as a firestorm linked to a prolonged drought or destruction caused by a cyclone often result in loss of human life and property. Society responds to disasters through emergency service systems. We examine what can be done and what is currently being done to respond to these challenges at a regional level and at the local level.

Regional associations are not blind to the fact that no single nation can have enough helicopters or food or drinking water or medicine or medical professionals during an emergency. Regionalizing emergency response has been undertaken in various settings. The Asia Pacific Economic Cooperation (APEC), for example, has a Task Force on Emergency Preparedness (TFEP) that meets regularly (APEC Emergency Preparedness 2014). The Association of Southeast Asian Nations (ASEAN) also conducts emergency management planning on a regional basis. ASEAN established the Agreement on Disaster Management and Emergency Response in July 2005 after the devastating 2004 earthquake and tsunami, which killed over 200,000 people. This initial effort has evolved into the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre 2014). The Caribbean Community (CARICOM) has also responded to multiple natural disasters by creating the Caribbean Disaster Emergency Response Agency (CDERA), which is charged with coordinating emergency response and relief efforts to participating states since 1991 (Kirton 2013). Such regional activity is encouraged and supported by the International Search and Rescue Advisory Group (INSARAG) – a network of 80 countries and disaster response organizations that operate under the United Nations umbrella since 1991 (INSARAG 2014).

The study of regional organizations provides an opportunity and "green field" for future study, given that, with the exception of regional economic organizations (see next section on Food Security), it is not yet a major focus within the field of negotiation and conflict management (Crump 2013). Indeed, many negotiation researchers focus on human interaction and/or organizational interaction. This is a good starting point.

At the local level, police, fire and ambulance agencies must coordinate, cooperate and negotiate in the delivery of services that contain special challenges in an institutional setting (McConnell & Drennan 2006). At a minimum, inter-agency cooperation involves agreement on a command system and decision making processes; effective communication and negotiation both horizontally and vertically; and effective inter-agency and interpersonal conflict management (Rosenthal and Kouzmin 1997). Inter-agency cooperation may be a determining factor in overall effectiveness (Smith & Dowell 2000).

This formal bureaucratic approach to emergency management can be supported by an informal emergent response group that applies resources and activities to non-regular tasks in new organizational forms (Dynes 1970). Membership in an emergent response group is based on urgent personal need and volition, although group membership can also be fleeting and unclear. Group members can be diverse, unfamiliar to each other and geographically distributed. Multiple, unstable and conflicting tasks may be adopted by an

emergent response group with changing purpose and perspectives as events quickly unfold (Drabek and McEntire 2003).

The emergent response group is not well understood, although recent research has identified scholarly questions that require answers. Rather than assignment based on expertise, any knowledge and a willingness to act may serve as the basis for specialized task assignment (how domain-specific knowledge can be converted into actionable knowledge). Keeping volunteers engaged once their initial needs are met is also an important issue. Evolution of group trust, group dynamics, expertise and creditability each requires understanding. Overcoming communication and coordination difficulties in a crisis that has multiple conflicting action scenarios is a special concern (Majchrazak, Jarvenpaa & Hollingshead 2007).

Questions related to trust, communication and coordination are also relevant to the formal bureaucratic approach to emergency management, as multiple agencies seek to cooperate during a disaster. The field of negotiation and conflict management is grounded in the study of groups, organizations and inter-organizational relations. There is too much high-quality literature to specifically cite, as much research can be found in the Academy of Management journals, Administrative Science Quarterly, Group Processes and Intergroup Relations, Management Science, Negotiation and Conflict Management Research, Organizational Behavior and Human Decision Processes, Organizational Science, and Organizational Studies, among other journals. There are many negotiation and conflict management specialists with sufficient interpersonal and organizational expertise to venture into emergency management either locally or regionally.

Group and organizational scholars and researchers could make a valuable contribution to climate change knowledge by focusing their efforts on formal emergency management systems and the informal or emergent response group. Negotiations between departments within a single organization and negotiations between multiple agencies or organizations (police, fire, ambulance, etc.) engaged in an emergency require further study. Communication processes, decision-making processes and group dynamics, with a focus on effectiveness, are some of the most apparent areas of study. The emergent response group is not well understood and so exploratory work needs to establish a framework to understand group formation, stability and performance.

Food Security

In the short term, the news is not all bad for agriculture and climate change. As noted previously, crop productivity is projected to increase with temperature increases of 1–3°C (1.8–5.4°F), as CO_2 has a beneficial effect on plant growth

by improving crop water-use efficiency through net photosynthesis (Parry, Rosenzweig, & Livermore 2005). However, when temperatures move beyond this range – perhaps by the end of this century (Parry, Lowe & Hanson 2009) – crop productivity is projected to decline, as plants experience stress when it is too warm. Furthermore, increases in the frequency of droughts and floods are projected to affect crop production negatively. An increase in extreme weather events could possibly have serious implications for the international agricultural marketplace, as this market could be destabilized if national governments respond by restricting agricultural exports (Crump 2010) – as many did during the 2007–08 global food panic. The sudden reduction in agricultural exports resulted in dramatic price increases, food panics and riots in 2007–08 (FAO 2008; Mitra & Josling 2009). National governments may want to examine their food security policies, as global markets could be disrupted periodically in a warmer world. The potential consequences are catastrophic if agricultural net-importing countries, especially developing and least developed countries, are unable to source food (Crump 2015).

Negotiation is commonly used to share costs and distribute risk. In developing strategies to respond to possible periodic food shortages, it may be useful if national governments reach agreement to share national food reserves in a regional arrangement. Regional economic organizations ideally suited to this task include the European Union, Mercosur (South America), the North American Free Trade Agreement (NAFTA), The Southern African Development Community (SADC) and the Association of South East Asian Nations (ASEAN), among other regional bodies.

ASEAN, for example, established a regional approach to food security through the Agreement on the ASEAN Food Security Reserve (ASEAN 1979). More recently ASEAN+3 (including China, Japan and Korea) established the East Asia Emergency Rice Reserve (EAERR 2003), with a secretariat in Bangkok. Unfortunately, EAERR rice reserves were too small to offer support during the 2007–08 global food panic. One of the challenges is that ASEAN membership has agricultural exporting and importing nations (Brahmbhatt & Christiaensen 2008). This membership difference creates differing interests and goals within a regional organization, which results in interdependent challenges in negotiating a food security agreement that actually works.

Managing differing interests is central to the study of negotiation, but in this case it must be understood in the context of negotiations conducted within a regional organization. Insufficient work has been conducted on regional economic associations within a negotiation context (Crump 2013), although international negotiation researchers and scholars have focused on a couple of regional organizations. For example, the European Union has been studied

extensively (Delreux, 2009; Meerts & Cede 2004), while NAFTA (Odell 2006; Winham, & Finn 2000) and Mercosur (Beltramino 2005; Crump 2011) also receive some attention in the international negotiation literature.

International negotiation scholars and researchers could make an important contribution to climate change knowledge by developing a theoretical framework that manages differing negotiation interests between agricultural exporting and importing countries that are members of the same regional organization, including opposing economic interests in food reserve distribution. It may be difficult to develop effective regionally-based food reserve programs until this theoretical framework is disseminated and understood within the global community of regional organizations.

Rising Seas

Our world will change when "high tide hits the carpet." Insurance companies will likely exclude this event long before it occurs.[10] Property prices will drop significantly in low-lying coastal areas and this will disrupt the economy, the local tax base and coastal communities. Some families will negotiate to sell their homes for whatever they can get and others will abandon the ground floor but continue to reside in the upper-levels of properties in this peculiar built environment.

The many and varied negotiations that encompass this interdependent situation are substantial. Perhaps the most complex will involve the use of public resources to protect private property. Dykes that hold back the sea (as in the Netherlands) are expensive to build and maintain. Some communities will be less complicated to protect than others due to geographic factors (e.g. a community built in a cove surrounded by hills) or financial reasons (e.g. a major coastal city). But funds will not be available to protect every low-lying coastal town and village. Such interdependent situations are public disputes, which are effectively resolved through consensus (Susskind & Crump 2008; Susskind, McKearnan, & Thomas-Larmer 1999). Too much is still unknown to provide further research guidance but this will become an important area of study within climate change negotiation someday.

On the other hand, more specific guidance can be offered about negotiations involving those inhabitants living on low-lying islands – communities

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10   When a flood or rising sea water enters a home or business it not only destroys the carpet but the wall will be damaged as well although only inches of water may have entered. This will be such a common and costly problem that insurance companies may write policies that exclude this event.

and nations that will disappear. Framing this concern is the initial scholarly challenge, as it could be understood in the context of environmental displacement (Docherty & Giannini 2009; Williams 2008) or human rights (Knox 2009; Limon 2009). Eventually, international treaties will be negotiated to address this problem. The primary concern is legal protection, but the way this problem is framed will impact its resolution.

A human rights approach could shift the focus of the problem from science to human impacts (Limon 2009), while emphasizing that states have an international duty to cooperate to achieve human rights in a changing climate (Knox 2009). A report on climate change and human rights by the Office of the UN High Commissioner for Human Rights concludes that climate change does not necessarily violate human rights but it does threaten their enjoyment. Climate change places obligations on states to engage in international cooperation (OHCHR 2009).

An environmental displacement frame fits most closely within an international refugee regime. The Guiding Principles for Internal Displacement found within the UN High Commissioner for Refugees provides legal protection for environmental refugees that do not cross state borders, but if borders are crossed then there is no legal protection for environmental refugees such as inhabitants of low-lying island states (UNHCR 1998). Furthermore, the UN Convention Relating to the Status of Refugees adopts a narrow definition of refugee and does not mention environmental refugees (Refugee Convention 1951). It is unlikely that nations will wish to expand this definition, given the challenge of re-settling so many war refugees.

Nevertheless, some kind of international arrangement must be negotiated. Some studies call for the establishment of another international organization including a global fund, a coordinating agency and a body of scientific experts (Docherty & Giannini 2009); other studies recommend that a regional approach may be more effective in responding to environmental displacement (Williams 2008).

The impact of rising sea levels will become a major global issue as the world becomes warmer (consider, for example, low-lying Bangladesh and its 150 million citizens). How this issue is framed (environmental displacement or human rights) will have a significant impact on response effectiveness. Negotiation scholars have made an important contribution to our understanding of framing environmental conflict (Davis & Lewicki 2003; Lewicki, Gray, & Elliot 2003). It is possible that negotiation framing expertise could examine these issues to create a theoretical framework that offers guidance toward a solution. In so doing, negotiation and conflict management knowledge would contribute to our ability to adapt to a changing climate.

Conclusion

Managing climate change represents the largest and most complicated interdependent situation ever confronted on planet earth. As a concept, interdependency is owned by the community of scholars concerned with negotiation and conflict management, so it is disquieting that this community conducts so little research within the context of climate change. This article has reviewed the sparse extant literature, offered a brief overview to the science of climate change public policy and examined how this community of scholars might conduct research relevant to climate change mitigation and adaptation.

Mitigation negotiations are multilateral in nature, with the clear aim of reducing greenhouse gas emissions. Party interests and goals were considered for developed and developing countries. Small island states need help in building a negotiation strategy from a position of weakness, although they are unified and focused. The relationship between goals, strategy, power and outcome is fundamental to the study of negotiation. Many negotiation researchers could examine such questions in a climate change context.

While developing countries did not cause this problem, they must bear ample costs. Application of the naming, blaming and claiming theoretical framework is relevant in this setting, although such research must consider asymmetrical power relations. Burden-sharing also presents opportunity for theory enhancement and testing, as developed countries are responsible for climate change and emerging economies (e.g. China and India) are not, though they have begun to make substantial contributions to this problem. Negotiation and conflict management researchers who examine justice may find this situation ripe for study.

Agreement structure and implementation also present research questions worthy of study. Negotiation and conflict management researchers should examine the factors that make international voluntary agreements effective. What antecedents within parties, within the interdependent relationship and within the negotiation environment enhance successful implementation of voluntary international agreements that contain substantial costs? This question could determine the fate of human civilization, as it is currently understood, if climate science is correct.

Beyond the question of establishing effective voluntary agreements, it would also be useful to investigate the factors that constitute an effective agreement within a climate change context. For example, specific state or party characteristics appear to contribute to treaty ratification, with democracies more likely to sign and ratify multilateral environmental agreements compared with

non-democracies (Neumayer 2002; Harrison & Sundstrom 2007). Treaty rati-fication has also been found to be dependent on a balance between a state's ability to comply with treaty requirements and the flexibility provisions con-tained within that treaty. For example, flexibility provisions in UNFCCC and the Kyoto Protocol increased state propensity to ratify these two treaties (von Stein 2008). Burden distribution among states is also identified as a critical issue within some regions (Vogler 2009), with differentiated environmental agreements based on fairness and quantitative indicators of specific national circumstances helpful in defining a realistic bargaining space (Ringius 1999). These and other questions relevant to agreement structure and implementa-tion should receive further analytical attention.

Adaptation negotiations will be prominent in community, national and regional settings, as climate is local and regional, while mitigation negotiations will always be multilateral, as climate change is a global problem.

The world is going to become warmer and society will have to adapt, yet adaptation negotiations have not really commenced. It remains to be seen whether the issue of adaptation is "ripe" for negotiation and whether there is a sufficient perception among state and non-state actors that the absence of adaptation negotiations is a problem. Fundamentally, "ripeness" is based on the concept of a hurting stalemate (Zartman 1989, 2000). Motivation to change comes from pain or the observation of pain, while climate change will create a segmented global society of "winners and losers" – community by community.

Generally, environmental change is most likely near the equator and near the poles. Communities in these regions will be the first to feel this hurting stalemate. And, these are the communities that will first become ripe for adap-tation negotiations, as they begin to engage in a diverse range of negotiations aimed at managing their environment through adaptation that will involve thousands of potential adaptive solutions. Ripeness theory when applied to climate change provides a perspective that has utility.

At this point it is difficult to say how negotiation and conflict management scholars might contribute in this environment, as we lack sufficient contextual knowledge, but future theorists may be able to answer this critical question as events unfold. Improvement in the science of climate adaptation and/or exog-enous shocks or climate catastrophe that fundamentally shifts perceptions will be instrumental to such understanding.

In the meantime, negotiation and conflict management researchers and scholars can contribute in areas that have higher degrees of predictability. For example, group and organizational researchers will find stimulating ques-tions in examining formal and informal emergency management responses to

extreme weather events. Such research may assist these researchers to move into regional associations that are concerned with managing emergency management programs on an international basis. With such experience, negotiation and conflict management researchers would then be prepared to make a contribution to the development of a theoretical framework that assists regional economic organizations in managing opposing interests so that effective regional food reserves are established.

Rising seas are a special concern for the citizens of small islands and countries built in low-lying coastal areas, as such land will disappear. Hopefully, an international agreement will be negotiated to provide security to these environmental refugees. Developing a theoretical framework that offers guidance toward framing this concern (environmental displacement or human rights) will make an important contribution to this future negotiation. Negotiation and conflict management researchers have demonstrated experience in the framing of environmental conflict.

This article provides just a sample of the interdependent challenges found within the study of climate change. Negotiation and conflict management scholars and researchers have the potential to make an important contribution to the study of interdependence in a climate change context if they try.

References

Albin, C. (2008). "Using negotiation to promote legitimacy: An assessment of proposals to reform the WTO." *International Affairs* 84(4): 757–775.

Aldy, J. and R. Stavins (2012). "Climate negotiators create an opportunity for scholars." *Science* 337 (6098): 1043–1044.

AHA Centre (2014). ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management. Available at: http://www.ahacentre.org.

APEC Emergency Preparedness (2014). Available at: http://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Emergency-Preparedness.aspx.

ASEAN (1979). *Agreement on the ASEAN Food Security Reserve.* New York: ASEAN (October 1979), available at: http://www.aseansec.org/1315.htm.

Ashe, J.W., R. van Lierop, and A. Cherian (2009). "The role of the Alliance of Small Island States (AOSIS) in the negotiation of the United Nations Framework Convention on Climate Change (UNFCCC)." *Natural Resources Forum* 23(3): 209–220.

Bazerman, M.H., C.E. Buisseret, and K.A. Wade-Benzoni (1998). "The role of judgment in global climate change," in A.J. Hoffman, editor, *Global Climate Change*. San Francisco: New Lexington Press.

Beltramino, J.C.M. (2005). "The building of Mercosur: A continuous negotiation process," in I.W. Zartman and V.A. Kremenyuk, editors, *Peace versus Justice*. New York: Rowman & Littlefield.

Benwell, R. (2009). "Voluntary aspects of carbon emissions trading." *International Journal of Environmental Studies* 66(5): 605–618.

Bodansky, D. (2010). *The Copenhagen Climate Change Conference: A Post-Mortem*. Athens, GA: University of Georgia Law School.

Boyer, B. and L. Cremieux (1999). "The anatomy of association: NGOs and the evolution of Swiss climate and biodiversity policy." *International Negotiation* 4(2): 255–282.

Brahmbhatt, M. and L. Christiaensen (2008). *Rising Food Prices in East Asia: Challenges and policy Options*. Washington DC: The World Bank.

Cazorla, M. and M. Toman (2000). *International Equity and Climate Change Policy* (Climate issue briefing No. 27). Washington DC: Resources for the Future, available at: http://rff.org/RFF/Documents/RFF-CCIB-27.pdf.

Cancún Agreements (2010). *United Nations Framework Convention on Climate Change*, available at: http://unfccc.int/meetings/cop_16/items/5571.php.

Chasek, P.S. and L.M. Wagner, editors (2012). *The Road from Rio: Lessons Learned from Twenty Years of Multilateral Environmental Negotiations*. London: Routledge.

Clemencon, R. (2008). "The Bali road map: A first step on the difficult journey to a post-Kyoto Protocol agreement." *The Journal of Environment & Development* 17: 70–94.

Copenhagen Accord (2009). *United Nations Framework Convention on Climate Change*, available at: http://unfccc.int/files/meetings/cop_15/application/pdf/cop15_cph_auv.pdf.

Copenhagen Diagnosis (2009). *Updating the World on the Latest Climate Science*. Sydney: Climate Change Research Centre, University of New South Wales.

Crump, L. (2010). "Climate change, multilateral trade and national food security." Paper presented before the European Association of Agricultural Economists (Stuttgart).

——— (2011). "Negotiation process and negotiation context." *International Negotiation* 16(2): 197–227.

——— (2013). "International trade negotiations," in M. Olekalns and W. Adair, editors, *Handbook of Research in Negotiation*. Cheltenham: Edward Edgar.

——— (2015). "Adam Smith in a warmer world: Climate change, multilateral trade and national food security." *Prometheus* 33 (in print).

Davis, C.B. and R.J. Lewicki (2003). "Environmental conflict resolution: Framing and intractability – an introduction." *Environmental Practice* 5(3): 200–206.

Delmas, M. and A.K. Terlaak (2001). "A framework for analyzing environmental voluntary agreements." *California Management Review* 43(3): 44–63.

Delreux, T. (2009). "Cooperation and control in the European Union: The case of the European Union as international environmental negotiator." *Cooperation and Conflict* 44(2): 189–208.

den Elzen, M.G.J. and N. Hohne (2008). "Reductions of greenhouse gas emissions in Annex I and non-Annex I countries for meeting concentration stabilisation targets." *Climate Change*, 91: 249–274.

Depledge, J. (2005). *The Organization of Global Negotiations: Constructing the Climate Regime*. London: Earthscan.

Docherty, B. and T. Giannini (2009). "Confronting a rising tide: A proposal for a convention on climate change refugees." *Harvard Environmental Law Review* 33(2): 349–404.

Downie, C. (2013a). "Three ways to understand state actors in international negotiations: climate change in the Clinton years (1993–2000)." *Global Environmental Politics* 13(4): 22–40.

——— (2013b). "Transnational Actors: Nongovernmental organizations, civil society and individuals," in P. Harris, editor, *Routledge Handbook of Global Environmental Politics*. New York: Routledge.

——— (2014). *The Politics of Climate Change Negotiations: Strategies and Variables in Prolonged International Negotiations.* Cheltenham: Edward Elgar.

Drabek, T.E. and D.A. McEntire (2003). "Emergent phenomena and the sociology of disaster: Lessons, trends and opportunities from the research literature." *Disaster Prevention and Management* 12(2): 97–112.

Druckman, D. and C. Albin (2008). *Distributive Justice and the Durability of Negotiated Agreements.* Occasional Paper Series, No. 10. Sydney: Australian Centre for Peace and Conflict Studies.

Durban Platform (2011). *United Nations Framework Convention on Climate Change*, available at: http://www.un.org/wcm/content/site/climatechange/pages/gateway/the-negotiations/durban.

Dynes, R.R. (1970). *Organized Behavior in Disaster*. Lexington MA: Lexington.

EAERR. (2003). *The East Asia Emergency Rice Reserve*. Bangkok Secretariat, available at: www.eaerr.com or www.apterr.org.

FAO (2008). *Soaring Food Prices: Facts, Perspectives, Impacts and Actions Required* (HLC/08/INF/1). Rome: Food and Agricultural Organization of the United Nations.

Felstiner, W.L.F., R.L. Abel, and A. Sarat (1980–81). "The emergence and transformation of disputes: Naming, blaming and claiming." *Law and Society Review* 15(3/4): 631–654.

G8 Leaders Declaration (2008). *G8 Hokkaido Toyko Summit Leaders Declaration.* At: http://www.mofa.go.jp/policy/economy/summit/2008/doc/doco80714__en.html.

Haas, P. (1992). "Introduction: Epistemic communities and international policy coordination." *International Organization* 46: 1–35.

Harrison, K. and L. Sundstrom (2007). "The comparative politics of climate change." *Global Environmental Politics* 7: 1–18.

Hadfield, G.K. (2008). "Framing the choice between cash and the courthouse: Experience with the 9/11 victim compensation fund." *Law and Society Review* 42(3): 645–682.

Hattori, T. (1999). "The road to the Kyoto Conference: An assessment of the Japanese two-dimensional negotiation." *International Negotiation* 4(2): 167–195.

Hoffmann, M. (2005). *Ozone Depletion and Climate Change: Constructing a Global Response*. Albany, NY: State University of New York Press.

INSARAG (2014). International Search and Rescue Advisory Group. Available at: http://www.insarag.org.

IPCC (2007a). *Climate Change 2007: The Physical Science Basis*, S. Solomon, D. Qin, M. Manning, M. Marquis, K. Averyt, M.M.B. Tignor, H L. Miller, and Z Chen, editors. New York: Cambridge University Press. Freely available via the Intergovernmental Panel on Climate Change at: http://www.ipcc.ch.

——— (2007b). *Climate Change 2007: Impacts, Adaptation and Vulnerability*, M. Parry, O. Canziani, J. Palutikof, P. Linden, and C. Hanson, editors. New York: Cambridge University Press. Freely available via the Intergovernmental Panel on Climate Change at: http://www.ipcc.ch.

——— (2007c). *Climate Change 2007: Mitigation*. B. Metz, O Davidson, P. Bosch, R. Dave, and L. Meyer, editors. New York: Cambridge University Press. Freely available via the Intergovernmental Panel on Climate Change at: http://www.ipcc.ch.

——— (2008). *Climate Change 2007: Synthesis Report.* R.K. Pachauri, and A. Reisinger, editors. Geneva: Intergovernmental Panel on Climate Change. Freely available at: http://www.ipcc.ch.

——— (2013). *Climate Change 2013: The Physical Science Basis.* T.F. Stoker, D. Qin, G.-K. Plattner, M Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, and P.M. Midgley, editors. Geneva: IPCC. Freely available via the Intergovernmental Panel on Climate Change at: http:// www.ipcc.ch.

——— (2014a). *Climate Change 2014: Impacts, Adaptation, and Vulnerability*. C. Field, V. Barros, K. Mach, M. Mastrandrea, editors. Geneva: IPCC. Freely available via the Intergovernmental Panel on Climate Change at: www.ipcc.ch.

——— (2014b). *Climate Change 2014: Mitigation of Climate Change*. O. Edenhofer, R.P. Madruga, Y. Sokona, editors. Geneva: IPCC. Freely available via the Intergovernmental Panel on Climate Change at: www.ipcc.ch.

Kanie, N. (2003). "Leadership in multilateral negotiation and domestic policy: The Netherlands at the Kyoto Protocol negotiation." *International Negotiation* 8(2): 339–365.

Kirton, M. (2013). "Caribbean Regional Disaster Response and Management Mechanisms." Washington DC: The Brookings-London School of Economics Project on Internal Displacement. Available at: http://www.brookings.edu/research/reports/2013/07/caribbean-regional-organizations-disasters.

Knox, J.H. (2009). "Linking human rights and climate change at the United Nations." *Harvard Environmental Law Review* 33(2): 477–498.

Kyoto Protocol (1997). *United Nations Framework Convention on Climate Change.* At: http://unfccc.int/resource/docs/convkp/kpeng.html

Larson, M.J. (2003). "Low-power contributions in multilateral negotiations: A framework analysis." *Negotiation Journal* 19(2): 133–149.

Lewicki, R.J., B. Gray, and M. Elliot (2003). *Making Sense of Intractable Environmental Conflicts: Frames and Cases*. Washington, DC: Island Press.

Limon, M. (2009). "Human rights and climate change: Constructing a case for political action." *Harvard Environmental Law Review* 33(2): 439–476.

Majchrazak, A., S.L. Jarvenpaa, and A.B. Hollingshead (2007). "Coordinating expertise among emergent groups responding to disasters." *Organization Science* 18(1): 147–161.

McConnell, A. and L. Drennan (2006). "Mission impossible? Planning and preparing for a crisis." *Journal of Contingencies and Crisis Management* 14(2): 59–70.

Meerts, P.W. and F. Cede (2004). *Negotiating European Union*. Hampshire: Palgrave Macmillan.

Meilstrup, P. (2010). "The runaway summit: The background story of the Danish Presidency of COP15, the UN Climate Change Conference," in H. Hvidt and H. Mouritzen, editors, *Danish Foreign Policy Yearbook 2010*. Copenhagen: Danish Institute for International Studies.

Mitra, S. and T. Josling (2009). *Agricultural Export Restrictions: Welfare Implications and Trade Disciplines.* Washington, DC: International Food and Agricultural Trade Policy Council.

Muller, B. (2001). "Varieties of distributive justice in climate change." *Climatic Change* 48(2–3): 273–288.

Neumayer, E. (2002). "Do democracies exhibit stronger international environmental commitments? A cross-country analysis." *Journal of Peace Research* 39(2): 139–164.

Oberthur, S. and H. Ott (1999). "*The Kyoto Protocol: International Climate Policy for the 21st Century.* Berlin: Springer.

Odell, J.S. (2006). *Negotiating Trade: Developing Countries in the WTO and NAFTA*. Cambridge: Cambridge University Press.

OHCHR (2009). *Report of the Office of the United Nations High Commissioner for Human Rights on the Relationship between Climate Change and Human Rights* (UN Doc. A/HRC/10/61), January 15.

Parry, M., J. Lowe, and C. Hanson (2009). "Overshoot, adapt and recover." *Nature* 458 (30 April): 1102–1103.

———, C. Rosenzweig, and M. Livermore (2005). "Climate change, global food supply and risk of hunger." *Philosophical Transactions of the Royal Society* 360: 2125–2138.

Refugee Convention (1951). *United Nations Convention Relating to the Status of Refugees* 189 UNTS 150.

Ringius, L. (1999). "Differentiation, leaders, and fairness: Negotiating climate commitments in the European Community." *International Negotiation* 4(2): 133–166.

———, A. Torvanger, and A. Underdal (2002). "Burden sharing and fairness principles in international climate policy." *International Environmental Agreements: Politics, Law and Economics* 2(1): 1–22.

Rosenthal, U. and A. Kouzmin (1997). "Crisis and crisis management: Toward comprehensive government decision making." *Journal of Public Administration Research and Theory* 7(2): 277–304.

Sjostedt, G. (1993). *International Environmental Negotiations*. Newbury Park, CA: Sage.

——— (2009). "Negotiating climate change: The search for joint risk management," in R. Avenhaus and G. Sjostedt, editors, *Negotiated Risks: International Talks on Hazardous Issues*. Berlin: Springer.

——— and A. Penetrante, editors (2013). *Climate Change Negotiations: A Guide to Resolving Disputes and Facilitating Multilateral Cooperation*. New York: Routledge.

Smith, W. and J. Dowell (2000). "A case of co-ordinative decision-making in disaster management." *Ergonomics* 43(8): 1153–1166.

Stern, N. (2006). *The Economics of Climate Change*. Cambridge: Cambridge University Press.

Susskind, L.E. and L. Crump (2008). *Multiparty Negotiation: Theory and Practice of Public Dispute Resolution*. London: Sage.

———, S. Mckearnan, and J. Thomas-Larmer (1999). *The Consensus Building Handbook: A Comprehensive Guide to Reaching Agreement*. Thousand Oaks, CA: Sage.

Tamiotti, L., R. Teh, V. Kulacoglu, A. Olhoff, B. Simmons, and H. Abaza (2009). *Trade and Climate Change: A Report by the United Nations Environmental Programme and the World Trade Organization*. Geneva: WTO.

ten Brink, P. (2002). *Voluntary Environmental Agreements: Process, Practice and Future Use*. Sheffield: Greenleaf Publishing.

UN Climate Change Conference (COP15 Copenhagen) (2009). *United Nations Framework Convention on Climate Change*, available at: http://en.cop15.dk.

UNFCCC (1992). Full text of the convention. *United Nations Framework Convention on Climate Change*. Available at: http://unfccc.int/essential_background/convention/background/items/1349.php.

UNHCR (1998). *United Nations Refugee Agency Guiding Principles on International Displacement* (E/CN.4/1998/53/Add.2).

Vogler, J. (2009). "Climate change and EU foreign policy: The negotiation of burden sharing." *International Politics* 46(4): 469–490.

von Stein, J. (2008). "The international law and politics of climate change: Ratification of the United Nations Framework Convention and the Kyoto Protocol." *Journal of Conflict Resolution* 52(2): 243–268.

Wagner, L.M. (2007). "North – south division in multilateral environmental agreements: Negotiating the private sector's role in three Rio agreements." *International Negotiation* 12(1): 83–109.

——— (2013). "A forty-year search for a single-negotiating text: Rio+20 as a post-agreement negotiation." *International Negotiation* 18(3): 333–356.

Weischer, L., J. Morgan, and M. Patel (2012). "Climate clubs: Can small groups of countries make a big difference in addressing climate change?" *Review of European Community and International Environmental Law* 21(3): 177–192.

Williams, A. (2008). "Turning the tide: Recognizing climate change refugees in international law." *Law & Policy* 30(4): 502–529.

Winham, G.R. and A.M. Finn (2000). "The NAFTA negotiations: Economic and negotiation perspectives, " in *International Economic Negotiation: Models Versus Reality*, V.A. Kremenyuk and G. Sjostedt, editors. Cheltenham: Edward Elgar.

Zartman, I.W. (1989). *Ripe for Resolution: Conflict Resolution in Africa* (2nd Ed.). New York: Oxford University Press.

——— (2000). "Ripeness: The hurting stalemate and beyond," in P.C. Stern and D. Druckman, editors, *Conflict Resolution after the Cold War*. Washington, DC: National Academy Press.