

Global Sustainable Development Governance

Governing Global Climate Change: Past Achievements, Future Prospects

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The cumulative effects of a significantly changing climate are projected to have disastrous implications on the world's natural habitats and, along with that, to drastically increase the rate and likelihood of violent conflict globally, particularly in high-density, urban, poverty hotspots. Limiting the effects of a changing climate is thus critical in influencing multiple societal goals including equitable sustainable development, human health, biodiversity, food security and access to reliable energy sources. This article argues that the Group of Seven (G7) and Group of Eight (G8) have led global climate governance in ways that other international environmental institutions have largely failed to do. They have done so largely by placing climate protection at the forefront of their policy objectives, alongside economic, health, energy and security goals, and reaching consensus repeatedly among their leaders on the importance of stabilizing emissions through energy efficiency, conservation, investment and technological innovation. Moreover, this article argues that the summit's predominant capability and its constricted participation, democratic convergence and political cohesion – as well as the combined effects of global shocks – have all had positive impacts on the G7/8's success in mitigating climate change. Following a detailed process-tracing exercise over the summit's 40-year history in which surges and retreats on global climate governance are outlined, this article concludes by assessing the G7/8's accountability record on climate mitigation and outlines a set of recommendations for delivering a more coherent, results-driven accountability process for global climate governance.

Key words: G7, G8, G20, accountability, climate change, compliance, energy security, global governance, Intergovernmental Panel on Climate Change, Kyoto Protocol, Major Economies Meeting/Forum, United Nations Conference on Environment and Development, United Nations Environment Programme, United Nations Framework Convention on Climate Change

Introduction

On 31 March 2014, the Intergovernmental Panel on Climate Change (IPCC) released its most compelling scientific evidence to date on the catastrophic consequences of global climate change. The report concluded what the scientific community has been affirming for years, that “increasing magnitudes of warming increase the likelihood of severe, pervasive, and irreversible impacts” [IPCC 2014, p. 14]. Those impacts affect not only the natural environment and marine ecosystems, but also food security, freshwater availability, agricultural income, human security and human health. According to the report, the striking feature of observed climate impacts is

that they “are occurring from the tropics to the poles, from small islands to large continents, and from the wealthiest countries to the poorest” [United Nations, 2014]. Taken together, the cumulative effects of a significantly changing climate will not only have disastrous effects on the world’s natural habitats, but will also severely increase the rate and likelihood of violent conflict around the globe, particularly in high-density, urban, poverty hotspots. Limiting the effects of climate change is thus critical in influencing the achievement of numerous societal goals, including those related to “human health, food security, biodiversity, local environmental quality, energy access, livelihoods, and equitable sustainable development” [IPCC 2014, 5]. Yet almost 40 years ago, the leaders of the Group of Seven (G7), meeting in Tokyo, declared the need to “expand alternative sources of energy, especially those which help to prevent further pollution, particularly increases of carbon dioxide and sulphur oxides in the atmosphere” [G7, 1979]. By boldly acknowledging the need to halt the concentration of carbon dioxide emissions in the world’s atmosphere, the leaders embarked on a process that would see the G7/8 produce 228 discrete commitments on issues related to energy and climate change between 1979 and 2008 (see Appendix A). The G7/8’s leadership, however, has been exerted unevenly over this period, with clear surges in the G7/8’s governance of climate issues from 1975 to 1980, 1987 to 1992, and again from 2005 to 2009, with notable retreats in between.

The Argument

This article argues that although the process of governing global climate change by the G7/8 has been both challenging and constraining, the G7/8 has led climate governance in ways that other international environmental institutions have been largely unsuccessful at. It has done so largely because since its inception in 1975, the G7/8 has placed climate protection at the forefront of its policy objectives, alongside economic, health, energy and security goals, reaching consensus repeatedly among its leaders on the importance of stabilizing emissions through energy efficiency, conservation, investment and technological innovation. Moreover, this article argues that the summit’s predominant capability and its constricted participation, democratic convergence and political cohesion – as well as the combined effects of global shocks – have all had positive impacts on the G7/8’s success in mitigating climate change.

But while the G7/8’s initiation, leadership, shaping and support of climate issues linked to energy have been notable, its performance historically has been less impressive on issues linked to carbon sinks and marine protection. The G7/8 has also failed to produce the convention on forests that it promised to deliver at its Houston Summit in 1990.¹ Furthermore, during times of failed consensus, summit leaders have had to retreat to issues on the margins of the climate question, focusing for example on acid deposition [Bonn 1985], observation networks [Paris 1989], clean water [Evian 2003] and the reduce, reuse, recycle initiative [Sea Island 2004].

Following a detailed process-tracing exercise over the summit’s 40-year history in which surges and retreats on global climate governance are outlined, this article concludes by assessing the G7/8’s accountability record on climate mitigation and outlines a set of recommendations for delivering a more coherent, results-driven accountability process for global climate governance.

Invention: 1975–80

The first surge in the G7’s leadership in global climate governance began amid the collective shocks spurred by the disruption in global oil supply, price spikes and tanker spills of 1973, fol-

¹ Communiqués and declarations from all the G7 and G8 summits are available at the G8 Information Centre website at <http://www.g8.utoronto.ca>.

lowed by the second oil shock of 1979, and compounded by the nuclear explosion at Three Mile Island in the United States in 1979. It was at this point that the G7, at the 1979 Tokyo Summit, invented global climate governance with a highly informal regime to control carbon emissions that was the most ambitious and effective ever seen. The G7 took a number of preventive and ambitious steps to control climate change before its potentially irreversible harm could hit and move to levels beyond human control.

On 28 June, at the conclusion of the summit, the G7 leaders [1979] declared their “need to expand alternative energy sources, especially those which will help to prevent further pollution.” In doing so, they specifically noted the harmful effects of increases in carbon dioxide and sulphur oxide levels in the atmosphere. They further acknowledged the need to halt immediately, at 1979 levels, the concentration of carbon dioxide in the world’s climate.

In acting so boldly in 1979, G7 leaders were giving voice to the more implicit carbon-controlling environmental values embedded in their group from its very inception. At the conclusion of the first summit at Rambouillet, France, in 1975, the six leaders present declared that “our common interests require that we continue to cooperate in order to reduce our dependence on imported energy through conservation and the development of alternative sources” [G7, 1975]. In 1976, now with Canada at the table, they noted the intention to use energy resources “rationally” [G7, 1976]. The following year, with the European Community now added, they affirmed the value of “more efficient energy use” [G7, 1977]. At the first German-hosted summit, at Bonn in 1978, the leaders directly declared: “in energy development, the environment and human safety of the population must be safeguarded with greatest care” [G7, 1978]. And at their fifth summit in 1979, they took up carbon dioxide directly and declared that its concentration in the atmosphere must be immediately stabilized.

Throughout the following seven years, the G7 and other countries in the Organisation for Economic Co-operation and Development (OECD) moved in this desired direction, as their emissions of carbon dioxide into the atmosphere began to show signs of notable decline [Sustainable Energy Development Center, 2006; Barnes, 1994, p. 42].

The G7’s role in global climate governance during this first phase stands in sharp contrast to the historic absence of any powerful global intergovernmental organization dedicated to the control of climate change. The charter of the United Nations was silent about the existence, let alone the value, of the natural environment. During this initial period, the UN system lacked any functional organization to deal with either energy or the environment overall, beyond the fragile United Nations Environmental Programme (UNEP) created in 1972 [Kirton, 2004; Biermann and Bauer, 2005]. The Atlantic system of international organizations, centred in the North Atlantic Treaty Organization and the OECD, generated only the International Energy Agency (IEA) in 1974. The global community was thus institutionally defenceless, as the oil shocks of 1973 and 1979, stemming from the Organization of Petroleum Exporting Countries assaulted the global economy, and as the trees dying from acid rain in North America and Europe showed that a greater use of coal and other hydrocarbons killed living organisms. When George Kennan [1970], one of the world’s leading pioneers of the post-World War II order, called for a new powerful plurilateral institution to meet these ecological challenges, only the G7 responded to the call.

Revival: 1987–92

With the decline of the oil shocks of the 1970’s and recession of the 1980’s, G7 leadership virtually disappeared during the new cold war from 1981 to 1986, despite a spike at the G7’s second summit in Bonn in 1985. The summit’s references to pollution, natural resource management

and environmental measurement were the closest the G7 came to discussing climate change during this period, even as it celebrated declining world oil prices, approved increases in oil supply and issued a separate statement on the Chernobyl nuclear accident at its second summit in Tokyo in 1986.

But a second surge came in 1987–92, due largely to the deadly heat wave afflicting the United States in the summer of 1988 and the positive shock of the Cold War victory that gave G7 leaders, gradually including Russia in a new G8, the freedom to focus on new global security threats. Climate change thus returned to the G7's agenda in 1987, where it would continue to remain. At Toronto in 1988, it started its definition and expansion with the summit's call for "the establishment of an inter-governmental panel on global climate change under the auspices of UNEP and the World Meteorological Organization (WMO)" [G7, 1988]. Toronto further welcomed the Conference on the Changing Atmosphere to be held in the same city later that week.

It was thus during this period that the G7 was able to effectively catalyze the multilateral climate regime that would be created in Rio in June 1992. Here, under the UN Framework Convention on Climate Change (UNFCCC), only the existing industrial powers of the OECD were obligated to control their carbon emissions, as well as offer developing countries technology and finance for climate mitigation.

However, it was also the absence of any formal recognition of the existence or value of the natural environment in the UN charter and the absence of a UN energy organization, coupled with the failure of the WMO and the UNEP to take up climate change control at the highest political level that led the G7 to guide global climate governance during this period. And as the new post-Cold War era of globalization took hold, the G7 was able to successfully convince a reluctant American president George H. Bush to become a full partner in G8 environmental governance from 1989 to 1992. Bush himself came to the UN Conference on Environment and Development (UNCED) in Rio in 1992, thereby making this first-ever global sustainable development summit a notable success and allowing for the creation of the UNFCCC.

Meeting in Munich just one month later, G7 leaders agreed that the Rio Summit represented a "landmark in heightening the consciousness of global environmental challenges and giving new impetus to the process of creating a worldwide partnership on development and the environment" [U.S. Department of State 1992]. But along with the success of UNCED came the recognition that if Rio was to have any lasting significance, the international community had to act collectively to implement the conventions created there. G7 leaders at Munich thus stressed the importance and urgency of carrying the momentum forward and agreed on a several immediate measures to follow up, most notably on the ratification of the climate change convention by all G7 members by the end of 1993.

Munich's significance was further reinforced by its first-ever pre-summit assembly of G7 environment ministers, which began a process of securing environmental issues on the summit's standing agenda. After Munich, these ministerial meetings became a tradition in the summit's annual preparatory process.

The creation of the Conference of the Parties (COP) to the UNFCCC in 1992 and the subsequent Kyoto Protocol's Meeting of the Parties (MOP) in 1997 then led the G7/8 to leave the subject of climate mitigation to the UN process. G7/8 leadership thus saw a decline in global climate governance between 1993 and 2004, despite a spike at the Denver Summit of the Eight in 1997, now with Russia at the table, to help produce the Kyoto Protocol. The decline was predicated largely on the recurrent failure of the multilateral organizations created by the UN system to assume global leadership in combating a climate change problem that was becoming cumulatively worse and approaching critical thresholds by 2005.

Restoration: 2005–09

The G7/8's governance of climate change surged again to new heights during the post-Hurricane Katrina/Asian tsunami period from 2005 to 2009. With the evident failure of the UN regime to work by 2005, the G8 now reached out to involve emerging powers through the Gleneagles Plus Five process in 2005 and the Major Economies Meeting on Energy Security and Climate Change (MEM) in 2008–09 to pioneer a regime beyond Kyoto in which all existing and emerging powers would control their own carbon emissions.

A significant turning point came at the 2005 Gleneagles Summit, where British host Tony Blair made climate change one of the two major summit priorities and brought together the world's largest emitters (Brazil, China, India, Mexico and South Africa) through the Gleneagles Plus Five process. Blair is also credited with confronting the Americans who stood alone against all other G8 members as the only country not to have ratified the Kyoto Protocol. He successfully persuaded George W. Bush to accept a new climate change regime that would effectively move "beyond Kyoto" to include all existing and emerging powers. Gleneagles thus marked the emergence of a new consensus among the G8 members on both the importance and urgency of the effects of a changing global climate on a number of inter-related levels, including energy, health, security and the global economy.

From 2005 to 2009, the G8's focus on climate shifted from reacting defensively to becoming more proactive in the development of governance regimes that would deal with climate issues more innovatively. The UNFCCC and Kyoto's failure in containing the world's largest carbon emitters – led by China – induced the G8 to embrace these actors in more inclusive, burden-sharing ways. By bridging the efforts of G8 energy ministers as well as carbon-consuming and -producing countries through G8-centred bodies, the leaders put in place more comprehensive and inclusive initiatives to further institutionalize the process by which these actors would consolidate their climate mitigation efforts. An important example of this was through the creation of the MEM in 2008. Meeting at the end of the G8's 2009 L'Aquila Summit, and now calling their gathering the Major Economies Forum on Energy and Climate (MEF), the 17 leaders stated that climate change presented a "clear danger requiring an extraordinary global response," noting further the criticality of moving to a low-carbon economy that would include low-cost alternative clean energy technologies [MEF 2009]. They further affirmed they would work together "to identify a global goal for substantially reducing global emissions by 2050."

Reaching Out: 2009–14

Only with the evident failure of the UN regime to work by 2005, and the frustration at the Copenhagen COP/ MOP in 2009 to reach any meaningful consensus, did the G8 reassume the lead in governing global climate change. It did so by involving the other consequential energy and carbon producers in a balanced and G8-guided way at the summit and ministerial levels, initially through the MEM/F and then letting leadership pass to the new leader-level G20 summit. In doing so it pioneered a alternative regime to the UNFCCC in which all global powers agreed to control their carbon emissions in increasingly effective ways. The G20 was able to add the Kyoto-unconstrained energy producers of Saudi Arabia, Australia and Indonesia to the G8 Plus Five, as well as many emerging demand powers within the next tier. Initially limited in scope, climate change was an issue from the start of the G20's leaders' meeting in Washington DC in 2008, securing more attention at London in April 2009, peaking at Pittsburgh in September 2009, and then receding somewhat at Toronto and Seoul in 2010. By 2010, climate

change had become a joint venture of both the G8 and G20, as the earlier MEM/F summit process began to die out (see Appendix B).

Beginning at the Cannes Summit in 2011, the G20 began to take up a number of climate change initiatives within the broad context of green growth. For the first time the G20 mobilized support for innovative financing for climate change and committed to promoting low-carbon development strategies in order to optimize the potential for green growth. The G20 [2011] also stressed the relationship between energy and climate, devoting a section of the final declaration on the enhancement of energy markets through “improved energy efficiency and better access to clean technologies,” to achieve strong growth that is both sustainable and inclusive.”

The G20 [2012] continued to address energy directly and integrate it with environmental and climate concerns the following year in Los Cabos, where the leaders committed to phasing out “inefficient fossil fuel subsidies that encourage wasteful consumption.” Here, they also created the first-ever G20 study group on climate finance to consider ways to mobilize resources to help “transform economies towards a climate-friendly path” [G20, 2012].

And at the 2013 St. Petersburg Summit, G20 leaders [2013] devoted more than 10% of their final declaration (13 of 113 paragraphs) to sustainable energy policy and the fight against climate change. Their most prevailing commitment came in the context of a post-Kyoto control regime, where the G20 [2013] agreed to work toward “the successful adoption of a protocol, another legal instrument, or an agreed outcome with legal force under the convention applicable to all Parties by 2015.”

As the joint venture between G8 and G20 leaders continued throughout this period, each summit addressed climate change and mitigation efforts in varying degrees. Meeting in Lough Erne, Northern Ireland, in 2013, the G8 leaders [2013] noted they would pursue “ambitious and transparent action” on climate change through various international forums, including the MEF, the International Civil Aviation Organization and the International Maritime Organization. Moreover, in recognizing its members’ commitment to the Climate and Clean Air Coalition, the G8 formally acknowledged that climate change is “a contributing factor in increased economic and security risks globally.” They reiterated the pledge made by developed countries at Copenhagen to jointly mobilize \$100 billion of climate finance per year by 2020 through a “wide variety of sources.”

And at their summit in Brussels in 2014, the G7 [2014] – now again minus Russia – identified energy security as a key summit priority, noting clearly at the outset that the use of energy supplies as a means of threatening global security were “unacceptable.” The crisis in Ukraine highlighted the leaders’ conviction that diversifying the global supply of energy had to be at the centre of their collective agenda. The G7 [2014] thus committed to implement concrete domestic policies to build “a more competitive, diversified, resilient and low-carbon energy system” based on the principles agreed to by their energy ministers in May in Rome. Based on these principles, the G7 leaders acknowledged they would take concrete actions to facilitate exchanges with Ukraine on renewable energies and energy efficiency, encourage the use of low-carbon technologies (and nuclear energy in the countries that opt to use it) and promote a more integrated market for liquefied natural gas. The leaders also tasked the IEA to present a list of options for individual and collective actions in the field of gas security. Finally, the G7 tasked their energy ministers to report back to them on progress made in each of these issue areas by the time of their next summit meeting in Germany in 2015.

But in Brussels, G7 leaders also clearly recognized the link between energy security and climate change, noting that reductions in greenhouse gas emissions and a move to a low-carbon economy were both necessary for energy security. They said that they would do their part to limit the increase in global temperatures below two degrees Celsius above the pre-industrial

average. They further noted their commitment toward a “new protocol in 2015, another legal instrument or an agreed outcome under the convention with legal force applicable to all parties” – echoing the G20’s 2013 St. Petersburg statement [G7, 2014].

With regard to fossil fuel subsidies, the G7 indicated its commitment to their elimination and noted its intent to improve the measurement, reporting, verification and accounting of carbon emissions, consistent with those agreements within the UNFCCC.

Although no new money was pledged for energy and climate change in Brussels, the G7 reaffirmed its prior commitment to mobilize an additional \$100 billion per year by 2020 from both private and public sources aimed at mitigation and adaptation needs in developing countries.

G7/8 Decision Making and Accountability

Understanding how much and how well the G7/8 reaches and keeps its international commitments is key to understanding the effectiveness and legitimacy of the summit process as an international decision-making body.² Through its ability to make and reach agreements, over time the G7/8 has consistently demonstrated its capacity to make significant advances in global climate governance. Although communiqué-encoded deliberations on climate change began briefly in 1979, both core environmental and environment-related issues have been part of the G7/8’s agenda since the Rambouillet Summit. The 228 commitments that were generated from that first summit in 1975 until 2008 correspond with the phases of summit leadership, with more climate commitments on average generated from 1978 to 1992 (between one and seven commitments), prominent dips after the UN took control at its Rio UNCED conference in 1992 (fewer than four commitments, with the exception of the Kyoto spike of nine in 1997), and with notable surges again during the post-2005 Gleneagles period (reaching 54 commitments in 2008).

Environmental issues became a robust and regular part of the G7 leaders’ agenda at Paris in 1989. The “Summit of the Arche” was transformed into what the media heralded as a “green” summit, with environmental issues dominating the leaders’ discussions and consuming one third of the final communiqué [Kirton, 1990; MacNeill, Winsemius and Yakushiji, 1991]. In their introductory statement, the leaders spoke of “the urgent need to safeguard the environment for future generations,” further acknowledging that the protection of the environment required a “determined and concerted international response” [G7, 1989]. Regarding climate mitigation more specifically, the leaders said that the depletion of stratospheric ozone layer “is alarming and calls for prompt action.” They called for the conclusion of a framework convention on climate change that would “set out general principles or guidelines” and contain “concrete commitments,” thereby setting the course for the soon-to-be UNFCCC process [G7, 1989; see also Kokotsis, 1999].

During the seven years following the Paris Summit, the G7 produced many specific and often ambitious commitments in core areas of sustainable development – 34 on climate change, 15 on biodiversity and 13 on developing country debt [Kokotsis, 1999; Kokotsis and Kirton, 1997]. It also became more active in generating agreements that were specific, identifiable and measurable. In the area of environmental protection (specifically climate change and biodiversity), the summit generated 49 such commitments during this period, a significant increase from the 25 recorded in the energy domain from 1975 to 1989 [von Furstenberg and Daniels, 1991].

² Commitments are defined as discrete, specific, publicly expressed, collectively agreed to statements of intent; a “promise” or “undertaking” by summit members that they will undertake future action to move toward, meet or adjust to meet an identified welfare target [Kokotsis, 1999].

This sequence is consistent with the longstanding willingness of the G7/8 to defer to the UN once it got into the game and appeared to make forward progress. The G8's initial move came when the UN system had not yet recognized the existence of climate change as a physical phenomenon or political problem. The 1985 return came with the recent launch of the UN's Brundtland Commission, while the 1989 to 1992 rise showed the G7/8 lead in creating the Rio Summit and its UNFCCC achievement.

However, beginning with the Munich Summit in 1992, there was a sharp drop in attention to environmental issues due in part to the emergence at the time of the G7 environment ministers' forum to deal with the members' collective environmental interests. In large part, this was due to the flourishing of UNCED at Rio in 1992 and the institutions and processes it spawned, allowing the G7 to leave global environmental issues to the broader UN multilateral system. But it was also due to the G7's new preoccupation with providing assistance to the once communist countries in Central and Eastern Europe and the former Soviet Union. This preoccupation continued through to the "Denver Summit of the Eight," which was designed to present Russia's Boris Yeltsin as a full summit participant, but saw climate change emerge as a major issue in the lead-up to the completion of the Kyoto Protocol that year. Subsequently, Birmingham 1998, Cologne 1999, Okinawa 2000 and Genoa 2001 paid only modest attention to climate and the environment. The 2002 Kananaskis Summit gave it none at all outside of the G8 African Action Plan. While Evian 2003 restored the environmental agenda to a prime position, the subject and its climate component virtually disappeared at Sea Island in 2004. The forward leap at Gleneagles in 2005 suggests that, for the first time, the G7/8 had given up on the UN-centred COP/MOP process and took back the reins of climate change control. It was also at Gleneagles that climate change began to appear in several separate summit documents and receive a dedicated document of its own.

In terms of delivering on summit decisions, the evidence suggests that G7/8 members comply with their climate change commitments to a considerable degree. The initial study of compliance with G7 decisions by George von Furstenberg and Joseph Daniels [1991] examined the record from 1975 to 1989. Von Furstenberg and Daniels concluded that there was relatively high compliance in energy – the field closest to the environment during those years. Indeed, only in trade did the G7 members keep their commitments to a greater degree. But there was also a wide variation of overall compliance among the G7 members. The United Kingdom and Canada complied the most, and the United States and France the least.

After 1988, when climate change became a prominent issue, compliance with the relevant commitments was similarly high. Ella Kokotsis [1999] examined the records of the United States and Canada (the G7's largest and smallest members respectively) from 1988 to 1995 with regard to the core commitments on sustainable development – those relating to climate change, biodiversity and developing country debt. She found three striking patterns.

First, U.S. and Canadian compliance with these core sustainable development commitments was generally positive, with a net score of 26%.³ This positive compliance is a widespread

³ Compliance is measured according to governmental actions designed to modify existing instruments within the executive branch to accommodate the commitments reached [Kokotsis, 1999]. It therefore requires new or altered efforts by national governments where leaders very actively and consciously plan to implement their commitments. These actions need to be deliberate. Should a government arrive at fulfilling one of its summit commitments by chance, this does not constitute compliance. A commitment can be said to have been fully complied with if a summit member succeeds in achieving the specific goal set out in the commitment. However, there can still be varying degrees of compliance in the absence of a complete fulfillment of the commitment. Compliance measurement builds on the methodology first developed by George von Furstenberg and Joseph Daniels [1991] and follows a three-level measurement process: full or nearly full compliance with a commitment is assigned a score of +1; a score of –1 indicates complete or nearly complete failure to implement

phenomenon. Both the most powerful United States and relatively weak Canada have positive compliance records in all issue areas, with the exception of biodiversity commitments by the United States.

Second, there continued to be wide variations by country, even within North America. The United States was relatively “black,” with a compliance rate of only 11%. In contrast, Canada was remarkably “green,” with a compliance rate of 50%. This suggests the compliance gap widened during the summit’s third seven-year cycle compared to the summit’s first two, when Canada’s compliance rate was 41% compared to the United States at 24% (according to the Von Furstenberg and Daniels energy data). The two North American neighbours were thus growing farther apart.

Third, compliance increased over the decade. It was lower for both countries and all issues areas (save developing country debt) in the pre-Rio period of 1988 to 1991 than in the post-Rio period of 1992 to 1995. It was highest around the time of the Rio Summit for both countries. Both the United States and Canada increased their compliance over time, within the third cycle compared to the summit’s first 15 years and over the third cycle itself. The G8 Research Group’s 12 full compliance assessments of this period largely confirm these results (see Appendix C). The G7 climate compliance average was 50%, led by Canada at 100%, with all other members lagging by a considerable margin.

Since 1996, the G8 Research Group has assessed the G7/8’s annual compliance record with a selection of “priority” commitments from each summit, including those for climate change. These assessments have been supplemented by retroactive compliance assessments for the years prior to 1996 [Kirton and Guebert, 2009; Kirton, Larionova and Savona, 2010]. The results from the 10 assessed climate commitments from 1996 to 2002 reveal an average compliance of 41%, a drop from the previous period (see Appendix C). The 20 fully assessed climate commitments from 2003 to 2007 show a surge in compliance to 72%. Only the G8’s St. Petersburg Summit in 2006 broke the high compliance pattern at 33%.

The central climate commitment produced at Gleneagles in 2005 was complied with at a level of 89%, with only Italy’s score of 50% preventing complete compliance here (50% is the equivalent of zero, which indicates a work in progress) (see Appendix C). Gleneagles secured complete compliance for its climate-related commitments on renewable energy and on surface transportation, both at 67%. In all three cases, the United States, Germany and the European Union complied completely. At an overall level 65%, Gleneagles was the second highest complying summit (after Okinawa 2000). There are thus good reasons for believing that Tony Blair’s approach to energy-climate integration and dealing with a sometimes reluctant and unilateralist George Bush worked well in both producing climate commitments and seeing them through.

The following year, at St. Petersburg, the promise to “deliver on commitments made in Gleneagles” had resulted in a compliance score of 67% [G8, 2006]. Of the 20 priority commitments produced, climate change generated the fifth highest compliance score, surpassed only by those related to energy transparency, the Middle East, renewable energy, and the Glo-

a commitment; and an “inability to commit” or a “work in progress” is given a score of 0. Inability to commit refers to factors outside the executive branch that impede implementation. Work in progress refers to an initiative that has been launched by a government but has not yet been completed by the time of the next summit, and whose results therefore cannot be judged. The assessment period is from the conclusion of one summit to the beginning of the next. For the G7/8, which meets annually, a one-year time frame also coincides with the annual cycle of national political agendas, such as budgets and annual addresses, which vary from year to year. Thus the summit cycle accounts for variations that occur on a yearly basis; this is now true for the G20, which has met twice in 2009 and 2010 but since then meets annually. Some commitments may be reiterated – which means they were made at previous summits but have not yet been completed because there was not sufficient time for their implementation. A reiterated commitment is still counted as distinct and hence measured.

bal Partnership against Weapons and Materials of Mass Destruction. Indeed, all these higher-ranking commitments were related to energy and climate, and promoted the overall objectives set by the new Gleneagles – St. Petersburg consensus.

And between 2008 and 2013, when the G8 reassumed the lead in global climate governance, compliance with the summit's core energy and climate commitments similarly fared well, with above-average compliance scores for every year. The only notable exception was 2012, when a last-minute security fear prompted organizers to change the summit's venue from Chicago to Camp David, resulting in a tightly scripted summit agenda and a shift to focus on the European sovereign debt crisis, with very little attention paid to the environment and climate change.

This final phase of the summit's lead on global climate governance corresponds with the start of the G20 summit and the subsequent division of labour on matters related to climate change. From its inception in 2008 to 2013, the G20 produced 41 discrete climate-related commitments, with a steady increase in the number generated between 2008 and 2013. As with the G8, the only exception was in 2012, where the financial crisis in central Europe took attention away from other transnational global issues (see Appendix D). In terms of delivering on decisions, of the 25 core climate commitments from 2008 to 2012 assessed by the G20 Research Group, compliance has occurred 88% of the time – the highest of all G20 issue areas assessed (see Appendix E).

Challenges Confronted by World Leaders

The G8's global climate leadership has been neither continuous nor comprehensive in covering all component issues contained within, or related to, climate change control. While the G8 has done well on climate issues linked to the sources of energy, it has done less well on the sinks produced by biodiversity and oceans, and has failed to produce the convention on forests that it promised at Houston in 1990. And at times, it has had to retreat to components on the periphery of the climate debate including acid rain, freshwater and the program on reduce, recycle and reuse. Nor has it been able to make the architecturally flawed UNFCCC and Kyoto Protocol regimes work.

Nonetheless, the Gleneagles breakthrough of 2005 was central in producing a new consensus, with ambitious commitments and high compliance, and led to the new UNFCCC and G8 Plus Five Gleneagles Dialogue. In institutionalization, the G7/8 combined energy and climate actors in G8-centred bodies, beginning in 1979–80 and again in 2003–05, as well as when George W. Bush hosted the summit in 2004. Through inclusion, the G8 increasingly involved at the summit and ministerial levels the other consequential energy and carbon-producing and -consuming countries, in a balanced but G8-guided way. In doing so, it pioneered an alternative to the UNFCCC, in which all global powers agreed to control their carbon emissions in increasingly effective ways.

But the challenges confronted by global climate change are vast, and their impacts have the potential to affect every species and human being on Earth, as the UN's March 2014 IPCC [2014] assessment report concludes. One of the biggest challenges currently facing world leaders is their ability, and indeed capacity, not only to comprehend the vastly complex and largely uncertain characteristics of the climate debate, but also to act in a concerted and comprehensive fashion on this mounting yet still disputed scientific consensus.

How world leaders at future summits can best help in this regard is indeed a complex question. Over the past 40 years, the G8's governance of global climate change has not been continuous or complete in addressing climate mitigation and control.

To effect change, a number of prescriptive changes need to take place. First, the G7/8 must exert leadership in global climate governance in ways that have yielded successes in the past – through initiation, leadership, inclusion and collective support of global climate governance initiatives. Empirical evidence suggests that summits perform best in terms of deliberation and delivery at times when leaders have made climate change their top summit priority. World leaders, including those in the G7/8 and G20, must thus place climate protection at the apex of their health, development, security and economic agendas.

But the G7/8 and G20's ability to meet and keep their collectively endorsed commitments matters beyond their ability to reach agreements, for doing so demonstrates the summit's legitimacy and credibility as an effective centre of global governance. Although compliance with climate commitments has yielded above-average compliance scores over time, the G7/8 and G20 would both benefit from an ongoing commitment to transparency and candid self-reporting through rigorous accountability mechanisms. As a start, this would include an accountability working group dedicated solely to global climate initiatives. By dedicating resources to such a group, the necessary accountability mechanisms on climate mitigation could track and report on difficult and complex climate results. Data limitations would thus need to be addressed in a comprehensive manner, as baseline data and consistent methodologies allow for more rigorous assessments. In addition, existing monitoring systems would need to be improved, allowing for timely and reliable information to enhance results-oriented reporting. And, finally, the G7/8 and G20 would need to continue to rely on the ongoing support of their partner organizations – non-governmental organizations, foundations, civil society and private sector associations – to ensure the successful delivery of their climate-related commitments.

Finally, recent events in Ukraine resulting in the temporary suspension of Russia in the G8 process hold some promise for the future of climate governance, for it has restored the group's sense of democratic convergence and political cohesion. The G7 is well poised to build on its original and long-standing mandate based on a strong set of democratic principles, social inclusion and the rule of law. Combined, these factors will serve the G7 well in not only recognizing the complex interdependencies of climate mitigation, but also in forming a comprehensive and collectively agreed-to global strategy for guiding future climate change negotiations.

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Appendix A:

G7/8 Climate Change Commitments by Issue, 1979–2008

Issue	1979	1985	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	Compliance	
Energy alternatives	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	4	0.33	
Intergovernmental Panel on Climate Change	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	N/A	
Climate change (general)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	7	2	14	0.72	
Environmental problems	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.29	
Greenhouse gases	0	0	0	0	1	1	1	1	0	0	0	0	1	2	0	0	0	0	0	0	0	3*	2	5	1	18	0.51
World Meteorological Organization network	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	−1.00	
United Nations Framework Convention on Climate Change	0	0	0	0	1	1	1	1	0	0	0	0	0	0	1	1*	0	0	1	0	4	3	3	5	22	0.07	
Sinks (general)	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	N/A	
Forests	0	0	0	0	0	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	10	N/A	
Research/science	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0.71	
Funding least-developed countries	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	N/A	
Global Environment Facility	0	0	0	0	0	0	0	1	1	1	0	0	2	1	0	0	1	0	0	0	0	0	0	0	7	−0.13	
United Nations Commission on Sustainable Development	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	N/A	
National action plan	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0.36	
Post-2000 initiatives	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	N/A	
Reports/planning	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	4	N/A	
Sustainable development	0	0	0	0	0	0	0	0	0	0	3	0	1	0	1	0	1	1	0	0	0	0	2	0	9	0	
Polluter pays	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	N/A	
Rio conference	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	1	0	0	0	0	0	0	0	0	5	N/A	
Conference of the Parties	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1*	1	0	1	0	0	0	0	0	7	0.34	
Global warming	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	N/A	
Developing country limits	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	N/A	
Monitoring	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	N/A	

Issue	1979	1985	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	Compliance	
Kyoto	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1*	0	0	0	0	0	1	0	0	0	6	1
Renewable energy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	4	0.86
Sequestration/ Carbon Sequestration Leadership Forum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3*	1	2	0	7	N/A	
Technology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5*	1	7	4	18	0.22	
Developing country technology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	N/A	
Global Earth Observation System of Systems	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	3	1	
Awareness	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1*	0	0	0	1	N/A	
Dialogue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	N/A	
Gleneagles Dialogue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	4	N/A	
Transport	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	5	0.33	
Aviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	3	N/A	
Global Climate Observing System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	N/A	
Energy use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0.22	
Energy intensity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.33	
Hydrocarbons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	N/A	
Major economies join	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	N/A	
Sharing practices	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	N/A	
Emission profiles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	N/A	
Assist developing countries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	7	N/A	
Avoid consequences	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A	
Mid-term goals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	N/A	
Mitigation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	N/A	
Post-Kyoto	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A	
Carbon capture and storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	N/A	
Earth Observation System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A	
Financing/Funding	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	N/A	
Trade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	N/A	
Interlinked challenges	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A	
Reductions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	N/A	
Capacity building	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A	
Methodological issues	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A	
Nairobi work programme	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A	
Sectoral approaches	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A	
Total	1	1	1	0	4	7	5	7	4	4	7	3	9	7	4	4*	4	1	4	3	29*	20	44	54	228		

Notes: * Commitment encompassed more than one issue area and therefore does not necessarily add up to the total number of commitments calculated for that issues or year. N/A = Data not available.

Appendix B: G20 Compliance by Summit and Issue, 2008–12

Commitment (N=107)	Average	Argentina	Australia	Brazil	Canada	China	France	Germany	India	Indonesia	Italy	Japan	Korea	Mexico	Russia	Saudi Arabia	South Africa	Turkey	United Kingdom	United States	European Union
Washington, November 2008 (N=4)																					
2008-4 (Macroeconomics)	0.75	1	1	1	1	0	1	1	1	1	0	1	1	0	0	1	1	0	1	1	1
2008-76 (Financial regulations)	0.47	-1	0	0	0	0	1	1	0	1	1	0	0	0	1	0	1	1	1	1	1
2008-33, 34, 35 (Trade)	0.59	0	1	1	1	0	0	1	0	0	1	1	1	1	0	1	1	1	0	1	1
2008-5 (Development)	0.80	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	0	1	1	1	1
Summit Average	0.66	0.25	0.75	1.00	0.75	0.25	0.75	1.00	0.25	0.50	0.75	0.75	0.67	0.50	0.50	0.33	0.75	0.67	1.00	0.75	1.00
London, April 2009 (N=6)																					
2009-19 (Macroeconomics)	0.35	0	1	0	1	0	0	1	-1	0	0	0	0	0	1	1	1	1	1	0	0
2009-39 (Financial regulations)	-0.05	-1	0	-1	0	-1	1	0	0	0	-1	0	0	0	0	0	1	0	1	0	0
2009-62-68 (Trade)	0.50	0	1	1	1	0	1	1	0	-1	1	0	1	0	0	0	1	1	1	1	0
2009-75-76 (Development)	0.30	-1	1	1	1	-1	1	1	0	0	0	1	0	0	1	0	-1	-1	1	1	1
2009-78 (Development)	0.00	-1	0	0	0	0	1	1	-1	-1	0	0	-1	0	0	0	0	0	1	0	1
2009-84 (Climate change)	-0.10	-1	0	-1	0	1	0	0	-1	0	0	0	1	0	-1	0	0	-1	0	0	1
Summit Average	0.17	-0.67	0.50	0.00	0.50	-0.17	0.67	0.67	-0.50	-0.33	0.00	0.17	0.17	0.00	0.17	0.17	0.33	0.00	0.83	0.17	0.67
Pittsburgh, September 2009 (N=15)																					
2009-117 (Macroeconomics)	0.70	1	0	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	0	0
2009-9 (Financial regulations)	0.15	0	1	-1	0	0	1	1	-1	-1	0	1	1	0	1	-1	0	-1	1	0	1
2009-40 (Financial regulations)	0.78	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1
2009-13&68 (IFI reform)	0.05	-1	0	-1	1	-1	1	1	-1	-1	0	1	1	-1	0	0	1	-1	1	1	0
2009-88 (Development)	-0.05	-1	1	-1	0	0	0	1	-1	-1	-1	0	0	0	0	0	1	-1	1	1	0
2009-97 (Development)	-0.05	-1	0	-1	1	0	0	0	-1	-1	0	1	0	0	0	0	0	-1	1	0	1
2009-89 (Development)	0.88	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2009-107 (Trade)	0.05	0	0	-1	0	0	0	0	-1	-1	1	-1	1	0	-1	0	1	1	1	0	1
2009-18 (Environment)	0.05	0	-1	0	-1	1	1	1	0	1	-1	1	1	1	-1	-1	1	1	-1	1	-1
2009-72 (Environment)	0.45	0	0	0	0	0	1	1	0	1	1	1	1	1	0	0	0	0	1	1	0
2009-83 (Environment)	0.44	0	1	1	1	1	1	1	1	0	1	1	0	0	-1	-1	0	0	1	1	1
2009-84 (Environment)	0.75	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	0
2009-85 (Climate change)	0.86	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
2009-96 (Corruption)	0.10	0	0	1	1	0	0	1	-1	0	-1	0	-1	0	-1	0	1	-1	1	1	1
2009-98 (Corruption)	0.40	0	1	0	1	0	1	0	-1	0	0	0	1	1	1	-1	1	1	1	1	0

Commitment (N=107)	Average	Argentina	Australia	Brazil	Canada	China	France	Germany	India	Indonesia	Italy	Japan	Korea	Mexico	Russia	Saudi Arabia	South Africa	Turkey	United Kingdom	United States	European Union
Summit Average	0.34	-0.08	0.43	-0.14	0.60	0.36	0.73	0.69	-0.14	-0.14	0.08	0.62	0.54	0.43	0.13	-0.21	0.62	0.14	0.87	0.73	0.38
Toronto, June 2010 (N=14)																					
2010-6 (Macroeconomics)	0.78		1		1		0	1			1	1	1						1	0	
2010-16 (Macroeconomics)	0.83		1		1		1				1								1	0	
2010-17 (Macroeconomics)	0.63	1				1		0		0		1	1			0					
2010-26 (Financial regulations)	0.05	0	0	0	1	0	0	1	0	-1	1	0	0	-1	0	-1	-1	0	0	1	1
2010-37 (IFIs)	0.89	0	1	1	1	1	1		1	1	1	1	1	1	1	0	1	1	1	1	1
2010-44 (Trade)	0.15	-1	1	-1	1	1	1	1	-1	0	1	1	1	-1	-1	1	-1	-1	1	-1	1
2010-20 (Development)	0.16	0	0	0	1	0	1	1	0	-1	0	0	0	-1	-1	-1	-1	0	1	1	1
2010-51 (Development)	0.95	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1
2010-56 (Climate change)	0.40	1	1	1	1	1	0	0	1	0	1	0	1	-1	-1	-1	0	0	1	1	1
2010-57 (Climate change)	-0.06		0	0	0	0	0	0	0	-1	0	0	0	0	0	0	-1	0	0	0	1
2010-58 (Climate change)	0.89	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
2010-60 (Environment)	0.50	0	1	1	0	0	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1
2010-43 (Food and agriculture)	0.25	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
2010-53 (Corruption)	-0.20	0	0	0	0	0	0	-1	-1	0	0	-1	0	0	0	-1	0	0	0	0	0
Summit Average	0.40	0.30	0.75	0.50	0.75	0.55	0.58	0.64	0.20	0.00	0.75	0.64	0.67	-0.10	0.20	0.00	0.00	0.25	0.75	0.42	0.80
Seoul, November 2010 (N=35)																					
2010-40 (Macroeconomics)	0.30	0	1	-1	1	0	1	1	1	0	1	-1	1	-1	1	0	0	0	0	0	1
2010-48 (Macroeconomics)	0.90		1		1		1	1			1	1		1					1	0	1
2010-61 (Macroeconomics)	0.90	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1
2010-51 (Financial regulations)	0.65	-1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	0	1
2010-83 (Financial regulations)	0.70	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	0	0	1	1	1
2010-90 (Financial regulations)	0.65	1	1	1	1	1	1	1	1	0	1	1	1	1	0	-1	0	-1	1	1	1
2010-92 (Financial regulations)	0.45	-1	1	0	1	0	1	1	0	0	1	1	1	1	0	1	-1	0	1	0	1
2010-96 (Trade)	-0.05	-1	1	-1	0	-1	0	0	0	0	0	1	1	0	-1	1	-1	0	0	0	0
2010S-122 (Development)	0.65	-1	1	0	1	1	1	1	1	0	1	1	1	-1	1	0	1	1	1	1	1
2010S-47 (Development)	0.25	0	0	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0
2010S-55 (Development)	0.35	1	1	-1	1	1	1	0	0	-1	0	0	1	0	0	0	1	1	1	0	0
2010S-56 (Development)	0.65	1	1	-1	1	-1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	0
2010S-57 (Development)	0.65	0	1	1	1	1	1	1	0	1	1	1	1	1	-1	0	1	1	1	-1	1
2010S-77 (Development)	0.30	0	0	0	1	1	1	1	-1	-1	1	1	1	0	0	0	0	0	1	1	-1
2010S-107 (Development)	0.40	0	1	1	0	1	0	1	1	1	0	0	1	0	-1	-1	0	1	1	0	1

Commitment (N=107)	Average	Argentina	Australia	Brazil	Canada	China	France	Germany	India	Indonesia	Italy	Japan	Korea	Mexico	Russia	Saudi Arabia	South Africa	Turkey	United Kingdom	United States	European Union
2010S-108 (Development)	1.00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2010S-109 (Development)	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010S-110 (Development)	0.45	-1	1	0	1	-1	1	1	1	1	1	1	1	0	-1	0	0	0	1	1	1
2010S-111 (Development)	0.05	0	0	0	0	0	0	1	1	-1	0	-1	1	0	0	0	0	0	0	0	0
2010S-112 (Development)	-0.25	-1	0	0	-1	0	0	1	0	-1	-1	-1	0	0	-1	-1	1	-1	0	0	1
2010S-113 (Development)	0.47	0	1	1	1	1	1	1	0	1	-1	0	-1	-1	1	1	0	1	1	1	1
2010S-116 (Development)	-0.40	-1	0	0	-1	-1	0	0	-1	0	0	-1	0	-1	0	-1	-1	0	0	0	0
2010S-117 (Development)	0.30	0	1	0	1	1	1	1	1	0	1	0	-1	-1	-1	0	0	0	1	1	1
2010S-118 (Development)	0.15	0	0	0	1	0	1	1	0	-1	1	0	-1	-1	0	0	0	-1	1	1	1
2010S-119 (Development)	0.63	1	1	1	0	1	0	0	1	1	0	1	1	0	0	1	0	1	1	0	1
2010S-120 (Development)	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010S-121 (Development)	0.19	-1	0	0	1	-1	0	1	0	0	0	0	1	0	0	0	0	0	1	1	1
2010S-123 (Development)	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010S-124 (Development)	-0.06	-1	0	-1	1	-1	1	1	0	-1	0	0	1	0	0	-1	0	0	0	0	0
2010S-125 (Development)	1.00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2010S-126 (Development)				1								-1								0	
2010-127 (Environment)	0.26	0	1	1	1	-1	0	-1	0	0	1	0	1	0	1	0	1	-1	1	0	
2010-135 (Environment)	0.75	0	1	1	1	1	1	1	1	0	1	1	1	1	1	-1	1	0	1	1	1
2010-143 (Corruption)	0.45	0	0	1	0	1	0	-1	1	1	1	-1	1	1	1	-1	1	1	1	0	1
2010-152 (International cooperation)	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Summit Avenue	0.37	-0.03	0.66	0.26	0.61	0.29	0.63	0.71	0.35	0.20	0.47	0.34	0.56	0.06	0.07	0.10	0.23	0.24	0.77	0.39	0.63
Cannes, November 2011 (N=16)																					
2011C-16 (Macroeconomics)	0.50	0	1	-1	1	1	1	1	0	0	1	-1	0	1	1	0	1	0	1	1	1
2011C-78 (Macroeconomics)	0.11		1		1		-1	1			-1	-1	0					0	1		
2011C-91 (Macroeconomics)	0.70	1		1		1			1	1				1	0	-1		1			
2011C-147 (Financial regulations)	0.55	-1	1	1	1	1	1	1	1	-1	1	1	0	1	0	1	1	-1	1	0	1
2011C-149 (Financial regulations)	0.74	1	1	1	1	1	1	1	1	1	1	1	1	1	-1	0	-1	1	1	1	1
2011C-152 (Financial regulations)	0.85	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
2011C-25 (IFI Reform)	0.50	-1	1	1	-1	1	1	1	1	0	1	1	1	1	0	0	0	1	-1	1	1
2011C-47 (Trade)	0.25	-1	0	0	1	0	1	1	-1	-1	1	1	0	0	-1	1	1	0	1	0	1
2011C-266 (Development)	0.40	-1	1	0	1	0	1	1	-1	0	1	1	1	0	0	0	0	0	1	1	1
2011C-267 (Development)	0.26	-1	0	0	1	0	-1	-1	1	0	1	1	1	-1	1	1	1	-1	1	1	1
2011C-236 (Environment)	0.63	0	1	1	0	1	1	0	1	0	1	0	1	1	1		1	0	1	0	1

Commitment (N=107)	Average	Argentina	Australia	Brazil	Canada	China	France	Germany	India	Indonesia	Italy	Japan	Korea	Mexico	Russia	Saudi Arabia	South Africa	Turkey	United Kingdom	United States	European Union
2011C-242 (Environment)	0.95	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
2011C-227 (Food and agriculture)	0.15	0	0	1	1	-1	1	0	1	0	1	-1	0	0	1	-1	-1	1	-1	1	0
2011C-228 (Food and agriculture)	0.95	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2011C-282 (International cooperation)	0.25	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0	1	0	0
2011C-156 (Socioeconomic)	0.70	1	0	1	1	1	0	1	1	-1	1	1	0	1	1	0	1	1	1	1	1
Summit Avenue	0.54	0.00	0.67	0.60	0.73	0.53	0.60	0.67	0.60	0.14	0.80	0.47	0.60	0.67	0.60	0.21	0.47	0.20	0.67	0.73	0.85
Los Cabos Summit (N=17)																					
2012LC-29 (Macroeconomics)	0.45	-1	1	-1	1	0	1	1	0	1	1	-1	0	1	1	0	1	0	1	1	1
2012LC-18 (Macroeconomics)	0.50		1		1		-1	1			-1	1	1						1	0	1
2012LC-177 (Macroeconomics)	0.80	0		1		1			1	1				1	1	1	1	0			
2012LC-64 (Financial regulations)	0.55	1	1	0	1	1	1	0	1	0	0	1	0	1	1	1	1	0	0	0	0
2012LC-65 (Financial regulations)	0.37	1	1	1	0	0	0	0	1		0	1	0	0	0	1	0	0	0	1	0
2012LC-68 (Financial regulations)	0.15	-1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0
2012LC-48 (Trade)	0.25	-1	1	-1	1	0	1	1	-1	0	0	1	1	1	-1	0	-1	0	1	1	1
2012LC-6 (Development)	0.85	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1
2012LC-40 (Development)	0.70	0	1	1	1	0	1	1	0	1	0	1	1	0	1	1	0	1	1	1	1
2012LC-88 (Development)	0.80	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1
2012LC-91 (Climate change)	0.70	1	1	1	1	1	1	1	1	-1	0	1	1	1	1	-1	1	0	1	1	1
2012LC-96 (Environment)	0.58	0	1	1	0	1	1	0	1	0	0	0	1	1	1		1	0	1	0	1
2012LC-77 (Food and agriculture)	0.35	1	1	1	1	-1	1	0	0	1	0	-1	-1	0	1	0	1	0	1	1	0
2012LC-98 (Corruption)	-0.10	0	0	0	0	0	0	-1	0	0	0	-1	0	0	0	0	0	0	0	0	0
2012LC-41 (Socioeconomics)	0.55	1	1	1	1	-1	1	0	0	0	0	0	1	1	1	1	1	-1	1	1	1
2012LC-35 (Socioeconomics)	1.00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2012LC-47 (Investment)	0.95	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1
Summit Average	0.55	0.31	0.94	0.56	0.75	0.38	0.69	0.50	0.50	0.47	0.13	0.50	0.63	0.69	0.56	0.47	0.50	0.25	0.75	0.75	0.69
Overall Compliance Average	0.42	0.03	0.66	0.34	0.64	0.35	0.63	0.63	0.26	0.14	0.43	0.43	0.56	0.31	0.29	0.11	0.37	0.22	0.76	0.54	0.66
Average of G8 members	0.56																				
Average of non-G8 members	0.33																				

Note: IFI = international financial institutions.

Appendix C: G7/8 Summit Climate Change Compliance, 1985–2013

	Commitment (N=69)	Canada	France	Germany	Italy	Japan	Russia	United Kingdom	United States	European Union	Total
	N=69	0.51	0.40	0.61	0.12	0.55	0.23	0.66	0.31	0.77	0.45
1	1985-1	0	1	1	0	0		0	1	1	0.50
2	1987-32	1	0	0	0	0		1	0		0.29
1989 (4/4) 100											
3	1989-1	1	0	1	0	1		1	-1		0.43
4	1989-2	-1	-1	-1	-1	1		1	-1		-0.43
5	1989-3	-1	-1	0	1	1		-1	-1		-0.29
6	1989-4	1	0	0	-1	0		1	-1		0.00
1990 (4/7) 57											
7	1990-1	1	1	1	1	0		0	-1		0.43
8	1990-2	1	1	1	-1	1		1	-1		0.43
9	1990-3	-1	-1	1	-1	0		1	-1		-0.29
10	1990-5	-1	-1	-1	-1	-1		-1	-1		-1.00
1991 (2/5) 40											
11	1991-1	1	0	1	0	0		0	-1		0.14
12	1991-4	1	1	1	1			1	-1		0.67
1992 (3/7) 43											
13	1992-1	1	0	1	0	1		1	1		0.71
14	1992-2	1	1	1	1	1		1	-1		0.71
15	1992-6	1	1	1	0	1		0	1		0.71
1993 (2/4) 50											
16	1993-1	1	-1	-1	0	1		0	1		0.14
17	1993-3	1	1	1	1	1		1	1		1.00
1994 (2/4) 50											
18	1994-1	1	0	1	0	0		1	1		0.57
19	1994-3	1	1	1	0	1		1	1		0.86
1995 (2/7) 29											
20	1995-2	1	0	-1	0	0		1	1		0.29
21	1995-23	1	0	-1	0	0		1	1		0.29
1996 (1/3) 33											
22	1996-87	0	0	1	0	1		1	1		0.57
1997 (2/9) 22											
23	1997-8	0	1	1	-1	1	1	1	0		0.50
24	1997-9	-1	1	1	0	0	-1	1	-1	1	0.11
	1997-10										
	1997-11										
	1997-21										
1998 (3/7) 43											
25	1998-32						1		1		1.00
26	1998-34	1	1	1	1	1	1	1	1		1.00
27	1998-35	1	1	1	1	1	1	1	1		1.00
1999 (1/4) 25											
28	1999-32	0	0	0	-1	1	-1	-1	1	-1	-0.22
2000 (1/7) 14											
	2000-86										
2001 (4/4) 100											
29	2001-xx	0	0	0	0	0	-1	0	0		-0.13
30	2001-xx	0	0	0	0	0	0	0	0		0.00
31	2001-xx	1	0	1	0	-1	0	0	0		0.13
32	2001-44	0	0	0	0	0	0	0	0		0.00

GLOBAL SUSTAINABLE DEVELOPMENT GOVERNANCE

2002 (1/1) 100											
33	2002-8	1	1	1	1	1	1	1	0	1	0.89
2003 (2/4) 50											
34	2003-75	0	1	1	1	1	1	0	1		0.75
35	2003-92	1	1	1	1	1	1	1	1	1	1.00
2004 (2/3) 67											
36	2004(s)-3	1	1	1	1	1	1	1	1	1	1.00
37	2004-S2	1	1	1	0	1	0	1	1	1	0.78
2005 (5/29) 17											
38	2005-1	0	1	1	-1	0	1	1	0	1	0.44
39	2005-A1	1	1	1	1	1	1	1	1	1	1.00
40	2005-A2	1	1	1	0	1	1	1	1	1	0.89
41	2005-O9	1	1	1	1	0	-1	1	1	1	0.67
42	2005-15	1	1	1	1	1	1	1	1	1	1.00
2006 (9/20) 45											
43	2006-62	0	0	0	0	0	0	1	0	1	0.22
44	2006-99	0	0	0	0	0	1	1	0	1	0.33
45	2006-110	1	1	0	-1	1	0	-1	-1	-1	-0.11
46	2006-116	1	0	1	0	0	0	0	1	1	0.44
47	2006-123	0	-1	1	0	1	0	0	1	1	0.33
48	2006-138	-1	0	0	0	1	-1	1	1	1	0.22
49	2006-156	1	0	1	1	1	1	1	1	1	0.89
50	2006-162	0	1	1	1	1	0	1	1	1	0.78
51	2006-165	-1	0	0	0	0	0	1	-1	1	0.00
2007 (3/49) 06											
	2007-30										
52	2007-35	1	1	1	1	1	1	1	1	1	1.00
53	2007-36	1	0	0	0	1	0	1	1	0	0.44
54	2007-27	1	1	1	1	1	0	1	1	1	0.89
	2007-44										
	2007-65										
2008 (3/55) 05											
55	2008-55	1	1	1	1	1	1	1	-1	1	0.78
56	2008-72	1	-1	1	-1	1	-1	1	1	1	0.33
	2008-251										
57	2008-265	1	1	1	-1	1	0	1	1	0	0.56
2009 (5/42) 12											
58	2009-49	1	1	1	1	1	0	1	0	0	0.67
59	2009-64	1	1	1	1	1	1	1	1	1	1.00
60	2009-66	1	1	1	1	1	0	1	1	1	0.89
61	2009-73	0	1	1	0	1	0	1	1	1	0.67
62	2009-98	1	-1	-1	-1	1	-1	1	0	1	0.00
2010 (3/10) 30											
63	2010-26	-1	1	1	0	-1	1	1	-1	1	0.22
64	2010-27	0	0	0	-1	-1	0	0	0	0	-0.22
65	2010-55	1	1	0	1	1	0	1	1	1	0.78
2011 (1/6) 17											
66	2011-51	1	1	0	0	1	1	1	1	0	0.67
	2012 (1/5) 20										
67	2012-29	1	0	1	-1	0	-1	0	0	1	0.11
2013 (2/12) 17											
68	2013-145	1	0	1	0	-1	1	1	1	1	0.56
69	2013-150	-1	0	1	-1	0	-1	0	0	1	-0.11

Appendix D: G20 Commitments by Issue: 2008–13

Year	Macroeconomics	Microeconomics	Financial Regulations	Trade	Socioeconomic	Labour and Employment	Development	Food and Agriculture	Education	Good Governance	IFI Reform	International Cooperation	Accountability	Transparency	Climate Change	Environment	Energy	Terrorism	Crime and Corruption	Total
2008 Washington	6	–	49	5	–	–	4	–	–	–	14	9	4	1	–	–	–	–	3	95
2009 London	15	–	21	14	1	4	6	–	–	–	21	1	2	1	3	–	–	–	–	88
2009 Pittsburgh	25	–	23	6	1	3	9	3	3	–	11	7	15	–	3	–	16	–	3	127
2010 Toronto	15	–	11	9	2	–	8	2	–	1	4	–	2	–	3	–	1	–	3	61
2010 Seoul	28	–	24	17	6	–	22	2	–	–	16	2	4	–	8	1	14	–	9	153
2011 Cannes	91	–	37	15	12	–	18	34	–	–	22	14	5	–	8	3	18	–	5	282
2012 Los Cabos	69	–	18	10	3	18	10	4	–	–	8	5	13	–	5	–	10	–	7	180
2013 St. Petersburg	44	2	18	11	–	27	13	3	–	–	4	1	17	1	11	1	14	1	26	194
Total	293	2	201	87	25	52	90	48	3	1	100	39	62	3	41	5	73	1	56	1,180

Note: IFI = international financial institutions.

Appendix E: G20 Compliance Averages by Issue Area, 2008–12

Member	Macro-economics	Trade	Domestic Financial Regulation	Corruption	International Financial Institutions	Development	Climate Change	Energy	Food and Agriculture
United States	0.25 (4)	–0.08 (13)	0.75 (4)	0.5 (2)	1.0 (3)	0.6 (5)	1.0 (2)	0.8 (5)	1.0 (1)
Japan	0.67 (3)	0.31 (13)	0.25 (4)	–0.5 (2)	1.0 (2)	0.6 (5)	1.0 (1)	1.0 (1)	0.0 (1)
Germany	0.8 (4)	0.9 (13)	0.8 (4)	–1 (2)	1.0 (2)	0.8 (5)	1.0 (1)	1.0 (1)	0.0 (1)
United Kingdom	1.0 (4)	1.0 (13)	0.8 (4)	0.5 (2)	1.0 (3)	1.0 (5)	1.0 (2)	0.6 (5)	0.0 (1)
France	0.5 (4)	0.7 (13)	0.75 (4)	0.5 (2)	1.0 (3)	0.6 (5)	1.0 (1)	1.0 (4)	0.0 (1)
Italy	0.5 (4)	0.92 (13)	0.25 (4)	0.0 (2)	0.33 (3)	0.0 (5)	1.0 (1)	1.0 (1)	0.0 (1)
Canada	1.0 (4)	0.92 (13)	0.25 (4)	0.5 (2)	1.0 (3)	0.8 (5)	1.0 (2)	0.2 (5)	1.0 (1)
Russia	0.67 (3)	–0.08 (13)	0.5 (4)	0.5 (2)	0.33 (3)	0.25 (4)	1.0 (2)	–0.2 (5)	0.0 (1)
European Union	0.5 (2)	0.9 (13)	0.8 (4)	0.0 (2)	0.3 (3)	0.8 (5)	0.0 (1)	–1.0 (1)	1.0 (1)
China	0.5 (2)	0.15 (13)	–0.25 (4)	0.0 (2)	–0.33 (3)	–0.2 (5)	1.0 (1)	0.0 (1)	0.0 (1)
India	0.0 (2)	0.0 (13)	–0.3 (4)	–1.0 (2)	–0.3 (3)	–0.4 (5)	1.0 (1)	–1.0 (1)	0.0 (1)
Brazil	0.5 (2)	0.62 (13)	–0.67 (3)	0.0 (2)	–0.33 (3)	0.0 (5)	0.0 (1)	1.0 (1)	1.0 (1)
Mexico	0.0 (1)	0.23 (13)	–0.25 (4)	0.5 (2)	–0.33 (3)	–0.2 (5)	1.0 (2)	0.8 (5)	0.0 (1)

Member	Macro-economics	Trade	Domestic Financial Regulation	Corruption	International Financial Institutions	Development	Climate Change	Energy	Food and Agriculture
South Africa	1.0 (2)	0.85 (13)	0.25 (4)	0.5 (2)	1.0 (3)	0.0 (5)	0.0 (1)	1.0 (1)	0.0 (1)
Australia	1.0 (4)	0.85 (13)	0.25 (4)	0.5 (2)	0.33 (3)	0.6 (5)	1.0 (1)	1.0 (1)	1.0 (1)
Korea	0.5 (4)	1.0 (10)	0.25 (4)	0.5 (2)	1.0 (3)	0.2 (5)	1.0 (1)	1.0 (1)	0.0 (1)
Indonesia	0.33 (3)	-0.62(13)	-0.25 (4)	0.0 (2)	-0.33 (3)	-0.8 (5)	0.0 (1)	0.0 (1)	0.0 (1)
Turkey	1.0 (2)	0.8 (10)	0.0 (4)	-0.5 (2)	-0.33 (3)	-0.4 (5)	1.0 (1)	1.0 (1)	-1.0 (1)
Saudi Arabia	0.33 (3)	0.2 (10)	-0.5 (4)	-1.0 (2)	0.0 (3)	-0.2 (5)	0.0 (1)	1.0 (1)	0.0 (1)
Argentina	0.33 (3)	0.0 (13)	-0.5 (4)	0.0 (2)	-0.67 (3)	-0.6 (5)	1.0 (1)	0.0 (1)	0.0 (1)
All Average	0.17 (60)	0.48 (251)	0.17(79)	0.05 (40)	0.33 (58)	0.17 (99)	0.88 (25)	0.51 (43)	0.2 (20)
Average of G8 members	0.56 (32)	0.62 (117)	0.56 (36)	0.17 (18)	0.76 (25)	0.61 (44)	0.92 (13)	0.46 (28)	0.33 (9)
Average of non-G8 members	-0.16 (28)	0.35 (134)	-0.16 (43)	-0.05 (22)	-0.03 (33)	-0.18 (55)	0.67 (12)	0.6 (15)	0.09 (11)

Note: Number in parentheses indicates number of commitments assessed.