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MONTEREY, CALIFORNIA

THESIS

**CLIMATE CHANGE MITIGATION: CAN THE U.S.
INTELLIGENCE COMMUNITY HELP?**

by

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June 2013

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COMMUNITY HELP?**

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ABSTRACT

The administration has declared climate change to be a threat to national security. Thus far, the national security establishment has focused its attention on adaptation to the effects of climate change rather than mitigation of the human cause, though evidence of the need to reduce global CO₂ emissions continues to mount. This thesis asks whether the U.S. Intelligence Community (IC) might be enlisted in the battle against climate change (global warming), by supporting the international monitoring, reporting, and verification (MRV) of a global greenhouse gas limitation treaty. This covert monitoring is already contemplated by the CIA, though the question remains open, Congress has conducted no public discussion of whether using the IC's unique covert sources and methods would in fact aid in climate change mitigation. This thesis compares various cases involving the IC's monitoring of weapons nonproliferation—and in particular the Non-Proliferation Treaty (NPT)—with a hypothetical international CO₂ emissions limitation agreement (ICELA) successor to the Kyoto Protocol. Using these case study findings, an analysis of four policy options for structuring an IC CO₂ emissions limitation monitoring entity (ICCME) is conducted. By adopting the most promising of these options, Congress might ensure that the ICCME would support, rather than undermine, a future ICELA.

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LIST OF ACRONYMS AND ABBREVIATIONS

CER	Certified Emission Reduction units or “carbon credits.”
CDM	Clean Development Mechanism
COM	U.S. Ambassadorial Chief of Mission
CO2	Carbon dioxide
CTBT	Comprehensive Test Ban Treaty
DNDO	Domestic Nuclear Detection Office
DNI	Director of National Intelligence
DPRK	Democratic People’s Republic of Korea
GHG	Greenhouse gases
GHGIS	Greenhouse Gas Information System
IAEA	International Atomic Energy Agency
ICCME	Intelligence Community international CO2 emissions monitoring entity (a hypothetical agency contemplated by this thesis)
ICELA	International Framework Convention on Climate Change
IMS	International Monitoring System
MEDE	Measurement of Earth Data of Environmental Analysis
NCPC	National Counterproliferation Center
NFIP	National Foreign Intelligence Program NFIP
NIM	National Intelligence Manager
NIO	National Intelligence Officer
NPT	Non-Proliferation Treaty
NSG	Nuclear Suppliers Group
NTM	National Technical Means (surveillance conducted with aircraft and satellites)

NWS	Nuclear Weapons State
NNWS	Non-Nuclear Weapon State
OSI	On Site Inspections
PRC	Peoples Republic of China
UNFCCC	United National Framework Convention on Climate Change
UNSCOM	United Nations Special Commission

GLOSSARY

Adaptation: efforts to reduce the negative consequences of climate change.

Anthropogenic CO₂ emissions: generally production of CO₂ emission the human combustion of fossil fuels as opposed to CO₂, which is produced and absorbed (carbon sinks) through the earth's natural "carbon cycle." Since pre-industrial times, anthropogenic CO₂ emissions have increased the concentration of CO₂ in the atmosphere from approximately 280 parts per million (ppm) to 392 ppm currently. The average yearly increase is of approximately 2 ppm.¹

Certified Emission Reduction units or "carbon credits": A means of imposing a cost on carbon emissions, and allowing industries to purchase or sell the right to emit carbon dioxide

Clean Development Mechanism: A Kyoto Protocol provision allowing for more developed countries to finance clean energy projects in less developed countries in exchange for Certified Emission Reduction (CER) units

CNNC: China National Nuclear Corporation

CO₂ Scrubbers: technology employed to remove carbon dioxide generated through the burning of fossil fuels.

Constraints: for the purposes of this discussion, the parameters of the atmospheric CO₂ transport model (e.g., time, space, location).

Covert monitoring: monitoring done through the use of secret or covert sources and methods

Direct measurements: employing sensors to measure CO₂ concentrations within a country or region (as opposed to "proxy measurements"). See entry below.

Fluxes: for the purpose of this discussion, the movement or flow of gases within the atmosphere.

Greenhouse gas: a gas, like carbon dioxide, that contributes to global warming by reducing the amount of sunlight-generated heat reflected back into space.

Greenhouse Gas Information System: a Department of Energy sponsored proposal for a greenhouse gas emissions monitoring regime developed jointly by 3 U.S. National Laboratories and the Jet Propulsion Laboratory. This thesis assumes that the regime will be either internationally run, or internationally recognized as the monitoring authority by the CO₂ emissions limitation agreement signatories. Within this thesis the acronym "GHGIS" is used in reference to such an internationally run ICELA monitoring regime unless otherwise specified.

In situ: for the purposes of this discussion, CO₂ sensing which is conducted with technology located within the atmosphere as opposed to from satellites.

¹ Dimotakis et al., GHGIS, 1-17.

Inventories: the CO₂ emissions self-reported by individual countries.

Mitigation: reducing the rate of climate change.

Modeling or transport modeling: employing a variety of temporal and spatial parameters to calculate how gases move from one place in the atmosphere to another.

Mission manager: for the purposes of this thesis, an IC position exercising a high degree of statutorily recognized executive authority over multiple federal agencies.

Mole: for the purposes of the current discussion, a unit of measurement commonly used in chemistry to express the concentration of a gas within the atmosphere.

Overt monitoring: treaty monitoring done openly (i.e., without the use of covert sources and methods).

Proxy measurements: the evaluation of a country's energy production and use in order to calculate the amount of CO₂ these activities generate.

Remote sensing: CO₂ measurements conducted by satellite.

Seuss effect: A characteristic of carbon that allows an experimenter to distinguish between CO₂ created through the combustion of fossil fuels as opposed to that released by living organisms.

EXECUTIVE SUMMARY

The Prospects for a Future International Climate Change Mitigation Treaty

For over a century, earth scientists have contemplated the likely climatic disruptions that would occur should humans continue to increase the relative proportion of atmospheric carbon dioxide through their burning of fossil fuels. Mankind has already increased the amount of carbon dioxide, the most potent greenhouse gas, to levels beyond what the earth has experienced for at least 800-thousand—and likely—more than 15 million years. The earth's oceans and atmosphere have departed from a state of chemical equilibrium established approximately 11-thousand years ago. There is ample evidence in the form of historically unprecedented planetary events, including the seasonal disappearance of millions of square miles of arctic sea ice, and frequent record breaking weather events, that we have entered an age of environmental uncertainty precisely when globalization has irreversibly altered human social dynamics.

This confluence of uncertainty and its attendant societal dislocations will worsen unless humans are able to stabilize the climate. Damage to the atmosphere is cumulative and pervasive, and climate change mitigation can only be accomplished through concerted international effort. The result of a multiyear international discussion under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC), the 1997 Kyoto Protocol represented the most important international effort to mitigate climate change to date. Economic fears, along with a disinformation campaign funded by industries reliant on fossil fuel combustion, resulted in widespread public misunderstanding about the expert consensus behind of the growing body of climate science, and in the U.S. failure to ratify the Kyoto treaty.

The scientific and observable evidence of climate change and its perils continues to mount. At some future moment, it seems probable that the U.S. will once again engage in some international effort to reduce the ongoing human caused accumulation of atmospheric CO₂. For lack of other practical alternatives, the U.S. is likely to pursue an approach similar to the Kyoto Protocol. Signatory commitments to Kyoto were not

accompanied by any formal monitoring regime, and this lack of a verification mechanism—along with other shortcomings—is often blamed for Kyoto’s limited achievements. It is likely that the design of any future international CO₂ emissions limitation agreement (ICELA) will include a monitoring mechanism.

The Intelligence Community and Treaty Monitoring

Most science based U.S. governmental institutions, including those that comprise and inform the national security establishment, recognize the unprecedented threat that CO₂ emissions pose to the nation. The potential economic ramifications of reducing national CO₂ emissions include the alteration of existing geopolitical relations. The CIA has already opened—and subsequently, in the face of persistent conservative Congressional criticism, closed—a Climate Change Center. Among the stated objectives of this center was the verification of future international climate change agreements.

Should the U.S. instigate or participate in a new Kyoto-type initiative, it is reasonable to assume that the Intelligence Community (IC) will be tasked with using its covert sources to identify treaty violations. This would present the IC with a unique opportunity to make an unprecedented contribution to the welfare of the nation and to the entire planet. Poorly managed, however, the IC’s monitoring activities could undermine the international trust on which any such effort will depend.

The Question Posed and the Research Framework Used to Answer It (Chapter I)

This thesis asks whether the benefits of IC engagement in the treaty monitoring mission justify the endangerment of the success of the treaty itself. To answer this question, the thesis first seeks to determine what IC monitoring might contribute to the overall monitoring task by supplementing overt international monitoring efforts, and how the IC effort would best be structured.

Because this hypothetical IC mission is unprecedented, the IC’s long experience monitoring international weapons limitation agreements is used as a surrogate. The thesis research is built on two methodologies. First, case studies of the IC’s monitoring of international weapons limitation agreements, principally the Nonproliferation Treaty

(NPT), are used to derive a set of objectives for a hypothetical Intelligence Community international CO2 emissions monitoring entity (ICCME). Second, these objectives are used to determine which of four IC organizational structures would best ensure the ICCME's success:

1. Allowing the IC to select its own approach,
2. empowering an executive with authority over IC resources to accomplish the monitoring mission,
3. creating a dedicated entity or agency within the IC, or
4. a hybrid solution combining options 2 and 3.

Finally, the entirety of the research is considered in order to evaluate whether such covert monitoring is justified given the need for international trust and cooperation in achieving significant climate change mitigation.

Building a New Intelligence Community Agency (Literature Review)

A review of the literature concerning the design of a new bureaucracy forms the foundation of the research for this thesis. Although the relevant literature infrequently addresses the design of a new bureaucracy directly, there is agreement in that the behavior of governmental agencies is generally dictated by three actors: the bureaucracy and its own institutional preferences, the legislature that enabled the bureaucracy, and the interest groups with which the bureaucracy is most associated and engaged. Though existing theories regarding bureaucracies weight the influence of these three factors differently, theoreticians concur in that all three must be taken into consideration when analyzing bureaucratic operations. They likewise agree that, in empowering a bureaucracy, the legislature must make calculations about structuring the governance of the bureaucracy so that the bureaucratic behaviors the legislature intends to achieve persist beyond the terms of the legislators themselves. With this in mind, the legislature's calculations focus particularly on the anticipated stability of the current political environment.

With the notable exception of Amy Zegart's scholarship, little of the relevant bureaucratic literature considers the Intelligence Community per se. One of Zegart's

contributions to the discussion is her observation that, due to the secrecy surrounding its behavior, the IC can operate with a high degree of autonomy. Similarly, since intelligence activities are usually outside the realm of routine domestic politics, the primary focus of legislatures in all countries, legislators can generally not afford to expend their time and political capital in attempts to direct the IC's behavior. Since carbon dioxide is not a typical IC adversary—and the ICCME mission is alien to any in which the IC is usually engaged—there will likely be a need to overcome institutional agency barriers in order to achieve the monitoring objective. Ensuring the ICCME remains “on task” and that its mission is not subverted by a preoccupation with historic U.S. adversaries, or too easily influenced by the short-term agenda of any single presidential administration, will be an important consideration for the monitoring entity's designers. This consideration is equally as important and for the policy recommendations presented in this thesis.

The Monitoring Value Added by the IC (Chapter II)

A determination of what the IC could in fact contribute to the monitoring objective depends primarily on identifying the impediments to overt monitoring. The overt monitoring challenge has been subject to studies conducted on behalf of the White House and the Department of Energy. In 2011, the JASONs, a group of our 30 of the U.S.'s most accomplished scientists, published a paper entitled, “Methods for Remote Determination of CO₂ Emissions” for the White House's Office of Science and Technology Policy (OSTP). The following year, four three of the U.S. National Laboratories and the Jet Propulsion Laboratory published a collaborative plan for the development of a Greenhouse Gas Information System (GHGIS) commissioned by the Department of Energy. This thesis has drawn extensively from these two works, both of which also address that period in the future when resistance to mitigation efforts will have ceded enough to allow for a new international effort in the form of an international CO₂ emissions limitation agreement. Both reports highlight the considerable time and uncertainty involved in arriving at firm conclusions about treaty signatory behavior. A reading of these studies suggests that covert monitoring could help to identify regimes that did not intend to respect treaty provisions, and thereby help focus the attention and

resources of an international monitoring regime which in turn could build a stronger and timelier case against any treaty violator.

Learning from Weapons Nonproliferation Monitoring (Chapter III)

Though there is no precedent for IC monitoring of a future ICELA, intelligence resources have been used in the past to monitor international weapons nonproliferation agreements—most notably the Treaty on the Non-Proliferation Treaty of Nuclear Weapons, more commonly known as the Non-Proliferation Treaty (NPT), which entered into force in 1970. This thesis draws on that history in order to ICCME design objectives. Before that historical examination, however, the nonproliferation treaty/climate change mitigation agreement analogy and, more specifically, the NPT/Kyoto analogy, are evaluated. Comparing the two situations suggests two highly relevant considerations. The first is that both the nonproliferation and climate mitigation issues and their respective international agreements have in the past, and will continue in the future, to divide nations into two opposing camps—those that have nuclear weapons or that have long profited from industrialization on the one side and those who do not have nuclear weapons or are only beginning to enjoy the benefit of industrialization on the other. This first consideration means that an international agreement on either the nonproliferation or climate change mitigation issue will be contested by agreement opponents and remain unstable. In the case of a future CO₂ emissions limitation agreement, this instability will only be exacerbated by any perceived unilateral U.S. initiative to police the agreement. The second and equally important consideration is derived by contrasting the options available for enforcing the NPT with those that might be used to encourage signatory compliance with the Kyoto Protocol or a future ICELA. Those countries with nuclear weapons, or with greater military resources, can compel treaty violators to adhere to treaty provisions. In joining together in a nonproliferation treaty, countries legitimize the future use of force against any signatory that violates the agreement. This legitimation does not imply that non-compliance with the NPT might serve as a “trigger” for military action by one or more of the other NPT signatories against the treaty violator. Rather the NPT is an adjunct to a pre-existing power dynamic. The treaty may foster greater signatory support or acquiescence of a military “option”

against the violator. Countries may independently elect to employ military force against a perceived nuclear threat. There is currently no similar conceivable military option against a country on the basis of their CO₂ emissions. In the case of an ICELA, treaty compliance is strictly voluntary. Covert weapons nonproliferation may be seen as partisan by other countries, but intelligence collected through the use of covert sources and methods may nevertheless be used by one country to compel adherence to treaty provisions. In the case of an ICELA, if findings arrived at through covert means are perceived as biased, they are more likely to create sympathy for the target country of that covert monitoring, and allow an identified treaty violator to re-direct attention and criticism at the U.S.

An as yet unfulfilled objective of the NPT is the voluntary disarmament of those countries that already possess nuclear weapons. In comparing the NPT with a future international CO₂ emissions limitation agreement, the NPT's as yet unsatisfied disarmament "pillar" should serve as a reminder of the importance and difficulty of maintaining signatory trust in any important international negotiation aimed at altering the behavior of nations.

The Equity Imperative: The ICCME under the Public Spotlight (Chapter IV)

Whether or not a country is ruled through democratic elections or not, public perception plays an essential role in determining the limits within which the country's leadership can maneuver. Significant climate change mitigation will require considerable public buy in. Absent a perception of treaty equity, there will be no treaty. Studies regarding equity suggest how even under the best of circumstances, individuals and societies often prioritize equity over outcomes more likely to further their material well-being. The U.S.'s own failure to ratify the Kyoto Protocol demonstrates how readily any perception of inequity can be used to undermine support for the treaty among Americans. This preoccupation with equity is a human, not a national trait. The IC can support monitoring through increased information, but only if this support can be offered in a way that treaty opponents cannot easily use to excite public suspicions about "fairness."

The Pivotal Role of China (Chapter V)

Maintaining a perception of unbiased treaty administration is especially critical when engaging China in climate change mitigation. In regard to climate change, the size of its population and amount of CO₂ emissions produced by its population alone earn China special attention within this thesis. The results of the research, however, demonstrate that—just as in considering weapons nonproliferation goals—China’s influence over global climate change mitigation efforts is even more outsized than the country’s dimensions alone would predict. In the past, the Chinese have portrayed the issue of nonproliferation in a way that undermines U.S. objectives, much in the way they have framed the western countries’ approach to climate change mitigation as unfair to developing countries. The Chinese will reject any U.S. accusation of ICELA noncompliance that does not carry the endorsement of the international community. Just as in the case of nonproliferation, however, Chinese support for climate change mitigation is likely to appear duplicitous when, in fact, it may merely be ambiguous. The Chinese central government exercises imperfect control over its country. If the ICCME can focus attention on Chinese treaty violators without exciting Chinese nationalist sentiment, it may improve the ability of Chinese mitigation supporters to prevail over their domestic opponents.

The Challenge of Integrating Covert and Overt Monitoring Efforts (Chapter VI)

Should the ICCME discover an ICELA violator, whether it be China or another country, that finding will need to be communicated to the international treaty monitoring regime (hitherto referred to within as the Greenhouse Gas Information System (GHGIS). The IC’s engagement with the International Atomic Energy Agency (IAEA) serves as an example of this type of intelligence sharing. Unfortunately, this model also demonstrates how easily the ICs behavior can undermine the legitimacy of the international monitoring regime. Impelled by the Bush administration’s effort to establish a case for the existence of Iraqi weapons of mass destruction (WMD), the IC demonstrated little regard for the viability of those international institutions empowered to police the NPT. The damage inflicted on the IAEA’s legitimacy echoes in current Iranian criticisms of the agency.

There is nothing remarkable about the administration's or the IC's disregard for the long-term goals of the NPT. The research for this thesis suggests an underlying pattern whereby administrations routinely exchange NPT objectives in pursuit of a short-term agenda. Absent close legislative attention, this pattern is sure to re-emerge in the case of future covert U.S. monitoring of the ICELA unless the ICCME is subject to close legislative scrutiny.

For its part, the GHGIS will remain sensitive to treaty signatory concerns regarding biased or unfair treaty administration. Over time, the GHGIS will only continue to heed ICCME findings if they are borne out through the GHGIS's own analysis.

The history of IC monitoring of international nonproliferation efforts has been marked by a progression of Congressional initiatives to uncover information about suspected NPT violators withheld by the IC and different presidential administrations. The IC can be held to account for its mission objectives and the conclusions of its analysis without compromising its sources and methods. Significant to the recommendations ultimately presented within this thesis, Congress has obliged the IC to issue routine reports on its nonproliferation findings. The adoption of a similar oversight mechanism would help ensure the ICCME achieves its monitoring objective in a means consistent with treaty success.

Effective Monitoring without Undermining the Treaty: Achieving Transparency (Chapter VII)

The U.S. Intelligence Community is a creation of the National Security Act of 1947. Until the early 1970s, the Watergate break-in, the establishment of the Church Committee, and its revelations of decades of intelligence agency misconduct, the IC functioned with little Congressional oversight.

The events of 9/11 demonstrated the need for effective intelligence operations, but the underlying political and institutional dynamics that resulted in previous intelligence abuses are perennial and not exclusive to intelligence agencies in the U.S. After intelligence agencies in the U.S., those in Britain have been most subject to scholarly

attention. A comparison of the two systems reveals that intelligence abuses are a feature, rather than an aberrancy of intelligence agencies. Effective intelligence requires a systematic legislative approach to intelligence oversight, particularly when intelligence mission effectiveness relies on ongoing public support.

Ultimately, the ICCME will fail to further the ICELA—and U.S. interests—unless it can provide the GHGIS with analytical support without undermining international trust in the treaty regime. By structuring the ICCME so as to expose the new agency to routine Congressional accountability in open session, Congress would reassure American citizens and international treaty signatories that the ICCME was in fact performing its duty without bias.

ICCME Design Objectives (Chapter VIII)

The ICCME will need to accomplish its monitoring goals while competing for resources with other IC agencies whose own human-adversary driven agendas will receive higher visibility within the Executive Branch. In discussing the challenges of these broad goals (e.g., protecting the integrity of the monitoring mission in the face of competing IC priorities), this thesis breaks them into a set of more discrete objectives (e.g., identify violators quickly and reliably) in order to consider how each might be best accomplished in structuring the ICELA within the wider IC.

Structural Options (Chapter IX)

Among an infinite assortment of possible organizational structures from which to form any new IC entity, three basic options are available: the IC can be allowed to select its own approach, a dedicated entity (herein referred to as a “center”) can be empowered by statute, or an executive with authority over IC resources can be assigned. In fact, many variations on these basic structures have been employed in the furtherance of national security objectives. To these three, this thesis proposes a fourth that combines attributes of the second and third options. A policy analysis is then conducted in which each of the four described options is subjected to an evaluation based on the previously case-study-derived ICCME objectives. Finally, based on this analysis, a policy recommendation is advanced.

Findings (Chapter X)

The International Community would be unwise to reject U.S. covert support, given that U.S. technological and intelligence resources could significantly augment the capacity of the international monitoring regime. Nonetheless, to enjoy international legitimacy, that support would have to be offered under conditions amenable to both the U.S. and a representative majority of other treaty signatories. IC monitoring support would have to be predicated on a transparent relationship between the IC entity entrusted with the covert monitoring task and the overt international treaty monitoring regime.

Establishing and maintaining a perception that the ICCME's engagement with the ICELA is indeed consistent with the signatories' common interests will only be accomplished by exposing the U.S.'s covert monitoring regime to a high degree of public scrutiny. This apparent paradox need not deter Congress. IC operations are frequently investigated by Congress in a manner that ensures public accountability and that protects sources and methods. By creating a rigorous and publicly visible Congressional oversight regime that narrowly focuses on the IC's international CO2 emissions limitation treaty function, Congress can shape an IC entity that will bear domestic and international scrutiny. In addition, it can be able to offer crucial support to international climate change mitigation efforts. Should the IC's monitoring regime be sheltered from public accountability, it will invite suspicions and remain heedless of the corrosive effects these suspicions will have on international treaty cohesion.

Should the U.S. choose to employ its intelligence resources to support overt monitoring of a future ICELA, Congress should statutorily empower an executive position within the IC with Cabinet level authority to marshal IC resources to engage in the monitoring function. Such a position would entail a high degree of public visibility and concomitant accountability.

Ultimately, however, such a statutorily established executive position, regardless of the authority wielded by the particular office holder, would run headlong into the resistance of other intelligence "players" with whom he or she would compete for resources. Unless this highly placed executive commanded a core group of dedicated

intelligence professionals whose loyalty to the extraordinary climate change mission was not divided among other intelligence objectives, the mission would suffer from a lack of institutional continuity and determination.

A “hybrid” agency—combining the institutional resources of a “center” well integrated in the larger IC, with the authority of high ranking executive leadership—will offer the country and the world the best hope for a constructive IC contribution to the global objective of climate change mitigation.

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I. CLIMATE CHANGE MITIGATION: CAN THE INTELLIGENCE COMMUNITY HELP

[The President's] own EPA director a couple of years ago testified before the House that the United States by itself is not going to accomplish the global warming problem. It's going to have to be done on a worldwide basis. And so we ought to be working on an international treaty as opposed to individual legislation for the United States.

U.S. Senator Chuck Grassley R-Iowa, interviewed on National Public Radio following President Barak Obama's Second Inaugural Address²

A. RESEARCH QUESTION

What does the Intelligence Community's past participation in monitoring international non-proliferation efforts suggest about how its resources might be optimally organized and employed to support the monitoring of future international CO₂ emissions limitation agreements?³ Does the IC's experience with weapons nonproliferation monitoring suggest that the benefits of employing Intelligence Community resources to supplement future climate change agreements monitoring justify the potential costs in global support for such a treaty?

B. THE PROBLEM STATEMENT

In the last two decades, the world has witnessed the most significant planetary changes since the dawn of civilization. Among the most stunning is the diminution of the Arctic ice sheets. Within a few brief years, the once mythic Northwest Passage has become an imminent reality. Speaking at the Arctic seminar on June 16, 2011, Admiral Gary Roughead, then U.S. Chief of Naval Operations, stated:

In my mind, there is a phenomenal event taking place on the planet today, and that is what I call the opening of the Fifth Ocean; that's the Arctic Ocean. We haven't had

² David Welna, "Republican, Democratic Lawmakers Weigh in on Obama's Speech NPR," January 22, 2013, National Public Radio, accessed February 26, 2012, <http://www.npr.org/2013/01/22/169950208/republican-democratic-lawmakers-weigh-in-on-obamas-speech>.

³ In order to focus the research and discussion of international global cooperative efforts designed to reduce climate "forcing" (i.e., human caused global warming), the discussion herein will generally be limited to international treaty efforts to limit CO₂ emissions. Though anthropogenic CO₂ emissions represent approximately 80 percent of human contributions to climate change eventual agreements will include other human generated greenhouse gases.

an ocean open on this planet since the end of the Ice Age. So if this is not a significant change that requires new, and I would submit, brave thinking on the topic, I don't know what other sort of physical event could produce that.⁴

Unprecedented as they may be, however, these changes do not evoke the same visceral reaction as the mayhem perpetrated on thousands of fellow American citizens on 9/11. Satellite images of ice disappearing on a continental scale have little power to overcome political inertia when that thaw is occurring thousands of miles from U.S. population centers. Wishing that this global event might prove a benign natural phenomenon is understandable. However, given the preponderance of scientific expertise that promises ongoing changes, assuming there is nothing to fear is—at best—irresponsible. Fortunately, along with most important scientific institutions, the U.S. national security establishment has begun to consider the implications of climate change and to plan for contingencies.⁵

By declaring climate change a matter of national security, the U.S. government has acknowledged the phenomenon's transnational scope, and moved the issue from one

⁴ Gary Roughhead, "Active in the Arctic Seminar" (presented at Active in the Arctic Seminar, Washington, D.C., June 16, 2011), Navy, accessed March 24, 2012, <http://www.navy.mil/navydata/people/cno/Roughhead/Speech/110616%20Arctic%20Capitol%20Hill.pdf>. Tom Tryon, "Confronting the 'Fifth Ocean'" *The Herald-Tribune*, July 10, 2011, Herald Tribune, accessed March 23, 2012, <http://www.heraldtribune.com/article/20110710/COLUMNIST/110709602>.

⁵ Peter Backlund, Anthony Janetos, and David Schimel, *The Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity in the United States*, U.S. Climate Change Science Program, Synthesis and Assessment Product 4.3 (Washington, D.C.: U.S. Climate Change Science Program and the Subcommittee on Global Change Research, 2008); Department of Defense [DoD], *2010 Quadrennial Defense Review Report* (Washington, D.C.: Department of Defense, 2010), 87; Dimotakis et al., GHGIS; Environmental Protection Agency [EPA], "Emissions Climate Change," Environmental Protection Agency, accessed December 18, 2011, <http://www.epa.gov/climatechange/emissions/index.html>; Michael McElroy and D. James Baker, *Climate Extremes: Recent Trends with Implications for National Security*, 2012, Harvard University, accessed February 14, 2013, http://environment.harvard.edu/sites/default/files/climate_extremes_report_2012-12-04.pdf (study funded by the Central Intelligence Agency); National Oceanic and Atmospheric Administration [NOAA], "Climate Program Office," National Oceanic and Atmospheric Administration, accessed December 16, 2011, http://climate.noaa.gov/index.jsp?pg=/education/edu_index.jsp&edu=literacy; National Aeronautics and Space Administration [NASA], "Climate Change: How Do We Know?" National Aeronautics and Space Administration, accessed December 16, 2011, <http://climate.nasa.gov/evidence>; Charles Perry and Bobby Andersen, *Dynamics in the Arctic Region: Implications for National Security and International Collaboration* (Washington, D.C.: Institute for Foreign Policy Analysis, 2012), Institute for Foreign Policy Analysis, accessed March 24, 2012, <http://www.ifpa.org/pdf/StrategicDynamicsArcticRegion.pdf>; United States Global Research Program [USGRP], *The U.S. Climate Change Science Program: Vision for the Program and Highlights of the Scientific Strategic Plan* (Washington, D.C.: United States Global Research Program, 2003).

of concern to traditionally environmentally oriented national institutions, to one that should be addressed ecumenically by all government institutions with the ability to contribute to countering this threat. As the national security establishment focuses greater human resources on confronting exigencies associated with climate change, the nation will be forced to contemplate possible extreme climate scenarios. Once convinced of the reality of the climate change threat, U.S. citizens will accept the sacrifices required to confront it. The prevention of disaster will ever remain preferable to even the most adroit response, and Americans need to understand the choice they face. Nonetheless, those charged with the security of the U.S.—homeland the ones who should most appreciate the potential long-term human costs of such unabated climate change—have demonstrated little initiative in championing efforts to stabilize the climate.

Regardless of the climate change consensus evidenced in publications and pronouncements emanating from military and civilian institutions within the federal government, there are currently considerable political restraints on the federal government's ability to adopt more aggressive climate change initiatives. These impediments are self-perpetuating. The magnitude of the changes in current human activities needed to halt the progression of climate change is so great—and the forces arrayed against taking action so boisterous—as to discourage even those most convinced of the need for urgent action from taking it. Absent a more resolute governmental acknowledgement of the need for reducing carbon emissions, it seems likely public attention to the issue will fluctuate. Regardless, the prospect is for public opinion—and thus climate change politics—to respond to increasingly perceptible or perceived changes in the world's climate.⁶ By “securitizing” the climate, the federal government may influence public opinion regarding climate change and thus expand its room to maneuver.⁷

⁶ Christopher Borick and Barry Rabe, “Fall 2011 National Survey of American Public Opinion on Climate Change,” *Issues in Governance Studies*, no. 45 (2012, February): 7, Brookings Institute, accessed March 24, 2012, http://www.brookings.edu/~media/Files/rc/papers/2012/02_climate_change_rabe_borick/02_climate_change_rabe_borick.pdf.

⁷ Barry Buzan, Ole Waever, and Jaap de Wilde, *Security: A New Framework for Analysis* (Boulder, CO: Lynne Rienner Publishers, 1998), 23–25.

In nations based on pluralism and the consent of the governed, the state's very legitimacy is contingent on the safety of its citizens. Philip Bobbitt asserts that the world is experiencing a transition from a nation state to a market state from which ills such as contemporary terrorism have emerged.⁸ In his book, *Terror and Consent*, he notes:

...because market states of consent assert that pluralism grounded in human rights distinguishes them from other forms of the market state, protecting civilians from the risks of catastrophes that threaten such pluralism is a proper defense aim of those states.⁹

Given the tools at its disposal, it is fair to ask whether the national security establishment can go beyond simply managing some of the effects of climate change and actually attempt to help stabilize the climate. There is no definitive means of answering this question, but the stakes are too high to forgo an exploration of the possibilities. The nation's multi-billion-dollar-a-year investment in national security should not remain sidelined in the battle against what may soon be accepted as the greatest long-term national threat short of nuclear winter. If, as suggested by Senator Grassley, effective mitigation depends on concerted international effort, then the national security establishment should consider means of supporting any such global initiative.¹⁰

The U.S. has participated in past international negotiations to collectively reduce the amount of carbon dioxide and other greenhouse gases (GHG) released into the atmosphere through human activities. Though the U.S. refrained from joining in the most important of the subsequent agreements, the Kyoto Protocol, there is wide and growing acknowledgement among U.S. scientific and governmental institutions that increasing CO₂ emissions continue to pose significant risk to U.S. security. During his second inaugural address, President Obama declared the need for the U.S. to lead on climate change mitigation.¹¹ As cited at the beginning of this thesis, Republican U.S. Senator Charles Grassley responded by reminding the President that the U.S. could not solve the

⁸ Philip Bobbitt, *Terror and Consent: The Wars for the Twenty-First Century* (New York: Anchor Books, 2009), 44.

⁹ Bobbitt, *Terror and Consent*, 215.

¹⁰ Welna, "Republican, Democratic Lawmakers."

¹¹ "Barak Obama's Second Inaugural Address," NPR, accessed January 23, 2013, <http://www.npr.org/2013/01/21/169903155/transcript-barack-obamas-second-inaugural-address>.

climate change problem alone and that an international effort was required.¹² Judging from the comments of both these U.S. leaders, as well as international scientific consensus regarding climate change, there is every reason to believe that the global concerns that prompted U.S. engagement in previous international climate negotiations will foster new efforts in the future.¹³

The adoption and success of international climate change agreements may hinge on the world's faith that they can be reliably monitored. Monitoring international CO₂ agreements will be an undertaking in which many international and national entities are likely to participate. Nevertheless, opponents of climate change will question the degree to which treaties can be verified in those countries unlikely to allow on site monitoring of their industry. Because carbon based energy sources are projected to remain the most economical during the initial period of transition to cleaner energy sources, any country that fails to adhere to an equitable international CO₂ limitation agreement will enjoy a proportionally higher GDP, part or all of which it may invest in greater military capacity.¹⁴ Thus, the security stakes among potential military rivals will remain high, and reservations concerning the integrity of all treaty participants' commitment to their treaty obligations cannot be dismissed. It is likely there will be a desire within the U.S. to independently verify treaty compliance, particularly among the nation's geopolitical competitors.

Ultimately, the task of monitoring international agreements on climate change includes evaluating three interrelated variables: the terms of the agreement, the measurement tolerances permitted within those terms, and the effort exerted by each signatory to remain within them. It is worth considering whether understanding and overcoming the technological and political challenges of monitoring CO₂ agreements

¹² Welna, "Republican, Democratic Lawmakers."

¹³ Council on Foreign Relations, "The Global Climate Change Regime," last modified February 2013, Council on Foreign Relations, accessed February 23, 2013, <http://www.cfr.org/climate-change/global-climate-change-regime/p21831>; United Nations Framework Convention on Climate Change [UNFCCC], "Essential Background," 2013, United Nations Framework Convention on Climate Change, accessed February 23, 2013, http://unfccc.int/essential_background/items/6031.php.

¹⁴ Kevin Bullis, "The Cost of Cutting Carbon," *Technology Review* (2009, January/February), *Technology Review*, accessed April 19, 2012, <http://www.technologyreview.com/energy/21835/>.

might be facilitated by the participation of the U.S. Intelligence Community.¹⁵ As yet, however, there has been no published discussion of how the Intelligence Community might be organized in order to assume this mission, nor whether it could in fact be organized so as to further rather than undermine the goal of climate change mitigation. This thesis is an effort to fill that void.

C. METHOD

1. Method Overview

Two methodologies, case study and policy analysis, undergird this thesis. Two steps are involved in designing a new IC entity. First, a set of objectives for the entity must be established. The thesis employs case studies to derive these ICCME design objectives. Second, resources within the IC must be organized so as to best achieve the previously derived objectives. After proposing a set of four IC organizational models with which to achieve these objectives, policy analysis is used to select the most promising among them.

Because the U.S. is not a party to any international CO₂ emissions limitation agreement, the IC has not yet been tasked with its monitoring. The IC has, however, been engaged in monitoring various international weapons nonproliferation agreements. Primary source documentation regarding these various IC monitoring efforts is classified. Nevertheless, several high profile cases have generated ample secondary source material in the form of scholarly works and media accounts. Because much of this secondary source material must rely on inference and analysis, whenever possible multiple sources and similar cases were considered in deriving relevant ICCME design objectives.

An important distinction between nonproliferation agreements and a future ICELA involves, as is subsequently explored in greater detail, the more narrow scope of enforcement options available in any treaty regarding climate change mitigation. Weapons nonproliferation treaties are negotiated in order to avoid armed conflict. While

¹⁵ Council on Foreign Relations, "The Global Climate Change Regime;" JASON, *Methods for Remote Determination*, 107; Joseph Romm, "Barrasso Seeks to Block Intelligence on Climate Change Threat," October 5, 2009, Grist, accessed January 2, 2012, <http://www.grist.org/article/barrasso-seeks-to-block-intelligence-on-climate-change-threat>.

they may reduce the likelihood of military action, they do not preclude it. Military action cannot be brought against a climate treaty violator. To a far greater extent than in the case of nonproliferation, the objectives of a future ICELA must be achieved through international cooperation. Though the U.S. is not party to the Kyoto Protocol—the most notable current international greenhouse gas limitation agreement to date—the U.S. played a key role in the negotiations of the agreement and the history of this negotiation provides an important case from which additional relevant ICCME objectives are mined.

Among an infinite assortment of organizational structures on which to form any new IC entity, three basic options are available. 1) The IC can be allowed to select its own approach; 2) a dedicated entity (herein referred to as a “center”) can be empowered by statute; or 3) an executive with authority over IC resources can be assigned. In fact, within the IC many variations on these basic structures have been employed in the furtherance of national security objectives. To these three, this thesis proposes a fourth that combines attributes of the second and third options. A policy analysis is then conducted in which each of the four described options is subjected to an evaluation based on the previously case study derived ICCME objectives. Finally, based on this analysis, a policy recommendation is advanced.

2. The Research

a. Bureaucratic Design

The focus of this thesis is the establishment of a new IC entity to accomplish a task within a specific political and institutional environment. Therefore, the foundational research is a review of the literature regarding bureaucratic design. The preponderance of the published literature focuses on bureaucracies outside the national security establishment. An important exception is the scholarship of Amy Zegart, which draws on the wider body of bureaucratic theory to focus on intelligence and other national security agencies. These sources provide a conceptual bureaucratic model and highlight the Congressional oversight “fire alarm mechanism,” which ultimately serves as a key determinant in selecting among the four organization options considered for the ICCME.

b. The Design Constraints

Bureaucracies can never be built entirely from scratch. They are creatures of circumstance, and those circumstances define the bureaucracy's structural and operational constraints. This thesis addresses the creation of a bureaucratic entity (the ICCME) under circumstances that have not yet manifested and, indeed, may never. The consequences of the accelerating accumulation of anthropogenic CO₂ within the atmosphere will, however, eventually result in future human attempts to slow or halt the damage. Effective action will require concerted human effort and judging from precedent—the Kyoto Protocol negotiated in 1987—it is very possible that this collaborative effort will result in a future international CO₂ emissions limitation agreement (ICELA). The evidence, in the form of the CIA's establishment of its Climate Change Center in 2009, also indicates that any such agreement would elicit a covert U.S. effort to monitor international compliance to the ICELA.

Two distinct U.S. objectives, then, present themselves. The first is to promote the mitigation of climate change through the vehicle of the ICELA. The second is to employ the IC in order to monitor the compliance of other countries to the provisions of the agreement. Because the U.S. cannot compel other nations to reduce their CO₂ emissions, U.S. promotion of the ICELA would have to be achieved by encouraging international cooperation. However, covert monitoring is the antithesis of cooperation and indeed has the potential to undermine the mutual trust on which the ICELA must be established. In order to design an intelligence entity that can achieve the second objective, covert treaty monitoring, without undermining the primary objective, treaty success, the researcher must identify both the monitoring objectives and the political constraints within which they must be accomplished.

c. Defining the ICCME's Practical and Political Objectives

This thesis considers both the potential and limitations for overt treaty monitoring through a review of two recently published documents. One is funded by the Department of Defense and the other by the Department of Energy, and hereafter they are referred to, respectively, as JASON and GHGIS, which consider the technology that

might be applied to the *overt* monitoring problem.¹⁶ The author consulted frequently with Karl Jonietz, a lead author of GHGIS, to ensure that the wider ICCME discussion remained faithful to the national knowledge base regarding the technological aspects of CO2 emissions measurement and modeling. The limitations of these overt technological options were subsequently used to identify *practical* objectives for the ICCME.

The remainder of the research explores the most important political actors—both within and without the U.S.—as well as the international treaty monitoring regime, and the political imperatives to maintaining mutual international trust in the treaty. In order to gain insight into the political constraints within which the ICCME must operate, an effort was made to seek out analogous international treaty regimes and circumstances. There is ample scholarly literature regarding the long history of U.S. IC support for international weapons limitation treaties generally and the Nonproliferation Treaty in particular. From this literature and contemporary and current governmental publications as well as media accounts, the researcher extracted and analyzed U.S. IC weapons limitation experiences from which to derive a set of *political* objectives for the ICCME. Because of the importance of China in past U.S. weapons limitation efforts, as well as to current prospects for climate mitigation, it is significant that the author benefited from the insight and suggestions of Wendy Frieman, a notable expert on China and nonproliferation.

d. Determining Options and Selecting Between Them

Once these two sets of ICCME objectives had been established (i.e., the first based on supplementing overt technological methods with covert IC resources and the second based on consideration of historical and current discussions of both IC support for international weapons limitation agreements and international climate change mitigation initiatives generally) four different organizational options were considered for the ICCME. The first three of these options are archetypes of existing IC entities. Ultimately, the counterbalancing strengths and weaknesses of the second and third options suggested the forth option, a hybrid of the previous two. In turn, each of these options was analyzed against the previously identified desirable ICCME objectives.

¹⁶ JASON, *Methods for Remote Determination*; Dimotakis et al., GHGIS.

While a significant portion of the analysis of these structural options was based on the previously described scholarly work and historical documentation, much relied as well on governmental publications. Most significantly, the analysis relied on the Permanent Select Committee on Intelligence's 1996 analysis of the IC, *IC21: The Intelligence Community in the 21st Century*; Alfred Cumming's *Intelligence Reform at the Department of Energy: Policy Issues and Organizational Alternatives*, which was published by the Congressional Research Service; and Christopher Lamb and Edward Marks', *Chief of Mission Authority as a Model for National Security Integration*, published by the Institute for National Security Studies.

D. LITERATURE REVIEW: BUILDING A NEW INTELLIGENCE COMMUNITY ENTITY

Climate change remains a controversial issue and any legislation aimed at addressing it will be subject to pressure from a wide array of powerful institutions, industries, and political interests. In empowering the IC or any segment thereof to monitor CO2 emissions treaties, care will need to be taken to ensure that these interests do not confuse or undermine the agency's mission.¹⁷

The closure of the CIA's Climate Change Center in November of 2012 was prompted by the type of political pressure sure to dog any governmental attempts to engage seriously with the climate change issue.¹⁸ The center had been established only three years earlier, and it had endured persistent criticism from conservative politicians, including some in Congress.¹⁹ At the time of its opening, the CIA's website had announced that the center's charter:

...is not the science of climate change, but the national security impact of phenomena such as desertification, rising sea levels, population shifts, and

¹⁷ Kate Martin, Director Center for National Security Studies, email correspondence with the author, August 23, 2012.

¹⁸ John Broder, "CIA Closes its Climate Change Center," *The New York Times*, November 20, 2012, accessed November 21, 2012, <http://green.blogs.nytimes.com/2012/11/20/c-i-a-closes-its-climate-change-office/>.

¹⁹ Central Intelligence Agency [CIA], "CIA Opens Center on Climate Change and National Security," Central Intelligence Agency, accessed October 16, 2012, <https://www.cia.gov/news-information/press-releases-statements/center-on-climate-change-and-national-security.html>; Romm, "Barrasso Seeks to Block."

heightened competition for natural resources. The center will provide support to American policymakers as they negotiate, implement, and verify international agreements on environmental issues. That is something the CIA has done for years.²⁰

It went on to quote then Director Leon Panetta as saying, “Decision makers need information and analysis on the effects climate change can have on security. The CIA is well positioned to deliver that intelligence.”²¹

The brief history of the CIA’s Climate Change Center highlighted three issues central to this thesis. First, the national security establishment already recognizes climate change as a national security issue. Second, absent Congressional intervention, the CIA will likely assume a leadership role in shaping the Intelligence community engagement with the issue of climate change. Third, the CIA would include among its duties, or prerogatives, the verification of “international agreements on environmental issues.”

Whether it be the CIA or another department or agency, the assumption that the IC should engage in treaty verification or monitoring is unremarkable. Nonetheless, as will be explored more fully in this thesis’ discussion of the history of the NPT, the nature of that engagement can influence public perceptions. Those perceptions can in turn alter the way the U.S. or other governments behave with the treaty regime.

While increased knowledge about treaty signatory compliance can increase signatory cooperation, this benefit is derived from the resultant increase in mutual signatory trust. However, mistrust between nations is the *raison d’être* of intelligence agencies. In enlisting intelligence to monitor treaty compliance, this underlying contradiction must be considered. Again, the history of the NPT and the IC’s engagement with the IAEA provides insight into how the IC can both promote and undermine treaty success.

U.S. participation in any future ICELA will reflect a national acknowledgement of the need to mitigate climate change. In considering how best to monitor such an ICELA, Congress should consider whether and how to structure the IC’s treaty

²⁰ CIA, “CIA Opens Center on Climate Change.”

²¹ Ibid.

involvement. This discussion will benefit from a survey of what is currently understood about the creation of a new bureaucracy.

1. The Powers behind the Bureaucratic Throne

Ostensibly, the people's political representatives create federal agencies to conduct the public's business and protect the public's interest. However, theoreticians have studied how these agencies originate and operate within a complex and shifting political environment. Generally, the wider public interest influences bureaucratic behavior only indirectly. Understanding the underlying political dynamics that determine how bureaucracies function is essential to devising an agency able to resist outside attempts to divert it from the fulfillment of its mission (i.e., supporting efforts to ensure compliance with international CO2 emissions agreements).

Most of the literature regarding the design of bureaucracies ignores the U.S. Intelligence Community. One recent exception is the work of Amy Zegart, who has written extensively on how existing governmental bureaucracies shaped—and perhaps intentionally handicapped—U.S. security institutions at the moment of their conception. Among the writers considered, Zegart provides the most fully formed theory of bureaucratic origins and design from which to contemplate the development of a new agency within the Intelligence Community. While Zegart incorporates much of what her scholarly predecessors proposed, she identifies differences between strictly domestic regulatory agencies, so clearly influenced by their associated interest groups, and those of the national security establishment, largely ignored by the legislature and generally more responsive to the President.

Public opinion and electoral politics provide the context within which the principal players exert their influence over policies and the bureaucracies that carry them out. Within this political framework, theorists identify interest groups, the legislature, and the bureaucracies themselves as the actors who ultimately determine bureaucratic behavior.

a. The Relevant Actors

Among Zegart's predecessors, Terry Moe, notes political science theorists seek to include "society" or, more specifically, voters into their calculations.²² Moe discusses this as an impediment to the creation of a useful model and recommends the substitution of "interest groups" for voters or constituents.²³ He identifies the relevant actors in any theory of bureaucracy as "interest groups, politicians, and bureaucrats."²⁴

i. Interest Groups. In Moe's proposed model, the interest group, desiring to promote a policy agenda, exerts its political influence over the legislature to create an agency to further that agenda.²⁵ Faced with the question of how most efficiently to exercise its influence over the agency, the interest group designates subject matter experts working within the constraints of a predefined set of rules. The substance of these rules is a compromise between adequate flexibility to allow the subject matter experts to respond to contingencies and enough rigidity to impede the subject matter experts from acting contrary to the desires of the interest group.

George Stigler's arguments on regulatory agencies, though not directed at agency creation, offer insight into why interest groups, rather than the public at large, figure so prominently in theories regarding bureaucracies. According to Stigler, constituents seek benefits from politicians, and these benefits equate to a transfer of wealth from one group to another.²⁶ Stigler identifies the larger per capita stake held by members of a smaller group as the key driver.²⁷ Stigler explains this apparent paradox of smaller groups wielding greater relative power by noting that members of the smaller group—more motivated than the individual members of the larger group—are able to form a more informed and cohesive front as they seek benefits from the politicians.

²² Terry M. Moe, "The Politics of Structural Choice: Toward a Theory of Public Bureaucracy," in *Organization Theory: From Chester Barnard to the Present and Beyond*, ed. Oliver E. Williamson, (Oxford: Oxford University Press, 1990), 116.

²³ *Ibid.*, 124.

²⁴ *Ibid.*, 131.

²⁵ *Ibid.*, 124.

²⁶ George J. Stigler, "The Theory of Regulation," *The Bell Journal of Economics and Management Science*, 2, no. 1 (1971, spring): 3–5. This theory came to be known as "regulatory capture."

²⁷ *Ibid.*, 11.

Stigler employs this reasoning to explain why and how the interests being regulated are often the true beneficiaries of regulation.²⁸

“New institutionalists” is the term that Zegart applies to theorists like Stigler, Moe, and others who focus their attention on the interest groups influencing different government agencies as the key to understanding bureaucracy. Zegart relies on these thinkers for much in her own theory, but because she feels their narrow focus blinkers them to the influence of the President and of the agencies themselves, she suggests that what they offer is “less a theory than a collection of analytic concepts.”²⁹ Zegart’s intention is not to denigrate the ideas they offer, she in fact sees those ideas as a previously missing acknowledgement that, as she puts it, “institutions matter.”³⁰

For Zegart, one place that existent government agencies matter is during the creation of new agencies. The strength of the “new institutionalists’” analytic tools is that they provide a means of considering how and why existing bureaucracies exert their influence and shape the prospects for the agencies created in their wake.

Implicit in any international CO₂ limitation treaty is an effect on the activities of domestic industry. Though not directly under the purview of a U.S. intelligence agency monitoring international CO₂ limitation treaty compliance, U.S. industry, particularly those with overseas operations, will likely take an active interest in all aspects of treaty enforcement. The literature suggests not only that these industries will seek to protect their own interests, but that they might also support the monitoring mission through their sustained attention to the application of the treaty’s provisions.

Murray Horn demonstrates that the attentiveness of government regulated enterprises to actions of the regulatory agency relieves the legislature of one of its primary impediments to overseeing other types of non-regulatory government agencies: information asymmetry.³¹ Whereas the functioning of a non-regulatory agency

²⁸ Sam Peltzman, “Toward a More General Theory of Regulation,” *Journal of Law and Economics*, 19, no. 2, (1976, August): 212–213; Stigler, “The Theory of Regulation,” 5.

²⁹ Zegart, *Flawed by Design*, 14.

³⁰ *Ibid.*

³¹ Murray J. Horn, *The Political Economy of Public Administration* (New York: Cambridge University Press, 1995).

can remain relatively opaque to the legislature, those entities overseen by a regulatory agency are often more knowledgeable than their regulators about the impact of regulatory actions or inactions.³²

ii. The legislature. Ultimately, it is the legislature that holds the power to determine the structure and operational parameters of any new bureaucratic agency. Enabling a new agency or altering the mission of an existing agency is, however, recognized by theorists as presenting a multiplicity of risks and benefits which the legislature must weigh in considering the agency's enabling legislation.

David Epstein and Sharyn O'Halloran found that, among the various tools available to legislatures to address what Horn called "the commitment problem" (i.e., the difficulty for any legislature to ensure the agency it created will continue to pursue its goals beyond that enacting or authorizing legislature's tenure), other scholars had given little attention to one of the most apparent options: simply writing limits to the agency's discretion into the enabling legislation. From the legal, legislative, and economic perspective, Epstein and O'Halloran consider the benefits and costs to the legislature of exercising this option.

Epstein and O'Halloran note the advantages to the legislature in permitting the agency greater latitude. These include:

1. the avoidance of subsequent legislative conflicts,
2. the assurance that the subject matter experts retain the ability to adopt the measures they need to perform effectively, and
3. freedom from having to spend excessive amounts of time overseeing the agency.

Epstein and O'Halloran identify the cost to the legislature in foregoing the imposition of strict operating instructions on the government agency.³³ Previous authors highlighted the legislature's resulting inability to enforce bureaucratic accountability. To this discussion, Epstein and O'Halloran contribute nuance by

³² Ibid.

³³ David Epstein and Sharyn O'Halloran, "Administrative Procedures, Information, and Agency Discretion," *American Journal of Political Science*, 38, no.3 (1994, August): 698.

observing that the legislature thereby also forfeits the option of re-directing the agency's efforts should these "drift" from the legislature's intent.³⁴ They postulate a relationship between the degree of the legislature's uncertainty about the future and the amount of discretion they will invest in an agency.³⁵

Epstein and O' Halloran apply an explicitly formulaic approach to this "commitment problem."³⁶ A legislature seeking to ensure the durability of the policies it assigns to the new agency, may be willing to sacrifice its own day-to-day control over the functioning of the agency in order to make it more difficult for any future legislature to fundamentally alter the functioning of the agency. They note that a future legislature opposed to the mission or functioning of the agency will confront the "transaction costs" of overriding the original enabling legislation. The new legislature may be unwilling, for example, to take on strong public or interest group opposition to alter the legislation. What Epstein and O'Halloran add to this discussion are the inclinations of the agency itself. Here the advantage of employing the term "drift" becomes apparent because it allows the theorists to easily represent a situation where the policy preferences of the agency mirror or—less likely—diverge from those of the legislature as these evolve over time.

Zegart points out that the secrecy inherent in national security matters limits the ability for outside interests, and to a great extent even Congress, to influence the policies of an intelligence agency. Zegart notes that the incentives for Congressional members to engage in oversight of intelligence agencies are generally few. Largely focused on their particular congressional constituencies, though they may have the tools to influence international relations at their disposal, individual congressmen prioritize domestic rather than foreign matters—the bulk of national security concerns.³⁷

iii. The Bureaucracies (Bureaucratic Independence). Perhaps Daniel Carpenter's premier contribution to the development of a theory of bureaucracy is

³⁴ Epstein and O'Halloran, "Administrative Procedures," 698.

³⁵ Ibid., 697–720.

³⁶ Ibid.

³⁷ Zegart, *Flawed By Design*, 28–36.

his questioning of the strict “principal-agent” process regulating relations between the legislature and the bureaucracy.³⁸ Previous models suggest that interest groups determine the legislative agenda, and the legislature assigns the policy objective to the bureaucracy. Carpenter argues that the process need not be so linear. An astute bureaucratic agency, having earned legitimacy among the public or interest group, can change the agenda and, in effect, dictate the agenda to the legislature. In Carpenter’s words, “Political harmony and the appearance of control can mask autonomy.”³⁹

In *Flawed by Design*, Zegart considers the 1947 *National Security Act* and its establishment of the National Security Council, the Central Intelligence Agency, and the Joint Chiefs of Staff. Zegart describes the flaws in these agencies, which she attributes to the machinations of those federal bureaucrats who stood to lose influence, and were able to legislatively ensure the new entities would be unable to fulfill their centralizing mandate. Those political scientists, who maintain that the behavior of nations can be understood as the furtherance of their interests, overlook—in Zegart’s view—the influence that internal national factors can have in those nations’ conduct.⁴⁰ According to Zegart, the fact that bureaucratic ambitions can undermine the establishment of effective intelligence agencies demonstrates an essential failure of this “realist” school of political science theory.⁴¹ In other words, bureaucratic interests can trump national interests.

Finally, Zegart describes the considerable means the bureaucracy has to promote its own agenda and to hinder Congressional or Presidential efforts to create new agencies or to alter the functioning of existing agencies.⁴² The bureaucracy’s leverage includes:

1. its expertise on which politicians are often forced to rely for policy direction and implementation,

³⁸ Daniel P. Carpenter, *The Forging of Bureaucratic Autonomy: Reputations, Networks, and Policy Innovation in Executive Agencies, 1862–1928* (Princeton, NJ: Princeton University Press, 2001), 353.

³⁹ Ibid., 357.

⁴⁰ Zegart, *Flawed by Design*, 50–51.

⁴¹ Ibid., 13.

⁴² Ibid., 50–51.

2. “asymmetrical incentives,” by which Zegart means that bureaucrats are willing to go to much greater lengths to preserve their prerogatives than other political actors are to impose change or reform,
3. the bureaucracy’s ability to ignore or delay the implementation of actions requested of it (indeed, the bureaucracy can use even the implied threat of obstructionism to discourage political reform), and,
4. appealing to the public through press leaks, congressional hearings, or targeted publicity campaigns.

Whereas Zegart suggests that the national security agencies enjoy greater influence over their makers than do their domestic counterparts, Carpenter demonstrates how domestic agencies’ closer association with the public can confer a notable degree of authority on these bureaucracies’ leaders.⁴³ Interestingly, both authors build their arguments by showing how agencies of similar origin can evolve into very different creatures. Both offer evidence that the varied outcomes in their examples confirm the validity of their theoretical models, rather than undermine these models’ predictive potential. While Zegart maintains that extant bureaucracies may impose their own agenda on the genesis of a new agency—and so determine that agency’s fate—Carpenter shows how an agency’s success at winning public support determines the degree of discretion it enjoys.

b. Tools to Limit Independence of the Bureaucracy

McCubbins, Noll, and Weingast’s contention is that the legislature can overcome many of the limitations of monitoring and sanctions by employing and adjusting administrative procedures.⁴⁴ The authors suggest that procedural requirements in the 1946 *Administrative Procedures Act* (APA) can shape the decision-making environment and effectively limit the choice of options available to the bureaucratic decision maker.

By obliging the agency to engage in decision and rulemaking procedures that permit input by the interest group that inspired the creation of that agency, the

⁴³ Carpenter, *The Forging of Bureaucratic Autonomy*, 356.

⁴⁴ Mathew D. McCubbins, Roger G. Noll, and Barry R. Weingast, “Administrative Procedures as Instruments of Political Control,” *Journal of Law, Economics, and Organization*, 3, no. 2 (1987, autumn), 244.

legislature can, in the authors' estimation, generally ensure the desired decision making environment persists into the future.

In response to theorists who suggest the eventual dissolution of interest groups who foster bureaucratic agencies, Jonathan Macey's refutation suggests a yet more entwined symbiosis between those interest groups and their related bureaucracies.⁴⁵ According to Macey, no empowered interest group is likely to disappear spontaneously, and any possibility of this occurrence is further diminished by the existence of the new agency, which owes its very existence to that interest group or regulated entity.⁴⁶

2. Literature Review Conclusion

Because the scholarly literature on agency design is more descriptive than prescriptive, the guidance it suggests must be inferred. Zegart's contention, noted earlier, regarding the contributions of some of her academic colleagues that what they offer is "less a theory than a collection of analytic concepts" is perhaps an accurate conclusion about theories of bureaucratic design in general. Nevertheless, it may be that these concepts provide more guidance in designing an agency than an overarching theory might.⁴⁷

Some of the analysis shows how the composite of influences over the design and behavior of the bureaucratic agency implies a dynamic wherein projections about the future drive interest group and legislative decisions about how to ensure the bureaucracy pursues their respective agendas in perpetuity. If interest group and legislative projections are for a future political climate similar to their contemporary one, the bureaucracy can be allowed the freedom to adjust to circumstances that are not expected to alter the relevant political environment. If the future appears less stable, then the legislature is likely to impose a more restrictive regime on the bureaucracy's enabling legislation. Given the high degree of uncertainty that characterizes every aspect of climate change, any political consensus about addressing it could be short lived, and it

⁴⁵ Jonathan R. Macey, "Organizational Design and Political control of Administrative Agencies," *Journal of Law, Economics, and Organization*, 8, no. 1, (1992, March): 96.

⁴⁶ *Ibid.*, 96.

⁴⁷ Zegart, *Flawed by Design*, 14.

would seem prudent to impose stricter, rather than more flexible requirements on any bureaucratic agency enlisted to address the issue.

Likewise it will be important to heed the warnings implicit in Zegart's analysis of how the pre-existing national security establishment may seek to ensure any new agency or initiative lacks the authority to fulfill its mission. It will be particularly important to remain attentive to current IC preferences and objectives that may run counter to those of limiting CO2 emissions.

Whereas Zegart notes the Intelligence Community's relative insulation from meaningful congressional oversight, U.S. participation in any future international CO2 emissions limitation agreement (hereafter referred to as an ICELA) presupposes a high level of domestic political engagement. Given Carpenter's reflections on the political leverage available to bureaucracies that communicate effectively with the public, and other writers', especially Macey's, analysis of interests groups' interaction with bureaucracies that operate within their domain, a dynamic could emerge whereby the intensity of interest group and wider public engagement with the subject of climate change might reveal the issue as yet another manifestation of the modern convergence of domestic and international politics. In engaging with global climate change, the IC may find itself more exposed to, and perhaps more influenced by, the day-to-day concerns of Americans.

In designing an agency, the framing of its mission will play an important role is determining the coalitions that emerge as champions and detractors. The relative strength of these coalitions, their respective agendas, and the existing political climate will all determine the bounds within which the agency designers must work. Given these bounds, the designers will consider how the hierarchy, personnel practice, decision-making process, legislative oversight, and various other variables can best be employed to ensure the resultant agency has the best chance of accomplishing the tasks required for it to achieve its goals and objectives.

E. INTRODUCTION: RESCUING TOMORROW TODAY

The scientific consensus attributing the climate change phenomenon to human activity is clear. Ninety-seven to 98 percent of climate scientists accept that climate change is occurring and that humans are the cause.⁴⁸ Nonetheless, U.S. and global socio-economic conditions remain resistant to the type of concerted international action needed to forestall the worst climate change effects. Increasing observable evidence will promote understanding about the threat climate change poses to human societies. Greater understanding will reduce, but not eliminate, resistance to mitigation efforts. The findings within this thesis are intended to support decision makers in that future period when international mitigation efforts have coalesced, however provisionally, around a new effort to reduce CO2 emissions.

The White House's Office of Science and Technology Policy (OSTP), the Department of Energy, and the Central Intelligence Agency have each enlisted the support of the most prestigious U.S. scientific institutions to evaluate the nation's ability to monitor a future international CO2 emissions limitation agreement. In 2011, the JASONs, a group of 30 of the U.S.'s most accomplished scientists, published a paper entitled, *Methods for Remote Determination of CO2 Emissions for the OSTP*. The following year, three of the U.S. National Laboratories and the Jet Propulsion Laboratory published a collaborative plan for the development of a Greenhouse Gas Information System (GHGIS) commissioned by the Department of Energy. This thesis has drawn extensively from these two works, both of which also address that period in the future when resistance to mitigation efforts will have ceded enough to allow for a new international effort in the form of an international CO2 emissions limitation agreement. While the CIA's evaluation is not itself available for public research purposes, its existence likewise supports for the premise underlying this thesis.⁴⁹

⁴⁸ Justin Gillis, "Study Affirms Consensus on Climate Change," *The New York Times*, June 22, 2010, accessed February 28, 2013, <http://green.blogs.nytimes.com/2010/06/22/evidence-for-a-consensus-on-climate-change/>.

⁴⁹ Charles Mead and Annie Snider, "Why the CIA is Spying on a Changing Climate," January 10, 2011, McClatchy, accessed December 16, 2011, <http://www.mcclatchydc.com/2011/01/10/106406/why-the-cia-is-spying-on-a-changing.html>.

A steady stream of newly released scientific reports suggests the dangers of anthropogenic climate change are graver than suggested by prior warnings.⁵⁰ While the international scientific community has arrived at a consensus about the clear link between the climate effects we are witnessing and human burning of fossil fuels,⁵¹ science cannot predicted with precision how climate change will unfold. Increasingly, however, scientific and governmental reports employ the terms “non-linear effects” and “abrupt climate change” in the forecasts they do make. A recent World Bank climate change report frames the challenge in its title, *Turn Down the Heat: Why a 4°C Warmer World Must be Avoided*. So far, the earth has warmed approximately 0.8 °C since preindustrial times.⁵² The World Bank report notes that, even given current the international pledges to reduce greenhouse gas emissions, the likelihood is for the earth to warm to at least 3°C above preindustrial times by the end of the current century with the possibility that, if “current [international] mitigation commitments and pledges...are not met, a warming of 4°C could occur as early as the 2060s.”⁵³

Even among those who have long acknowledged the dangers of anthropogenic climate change, it is only recently that the complexity of the climate phenomenon has been given the attention it merits. Climate complexity should be of especial interest to those concerned with national security. As the authors of the World Bank report note, “The effects of a 4°C warming will not be evenly distributed around the world, nor would the consequences be simply an extension of those felt at 2°C warming.”⁵⁴ Like many other climate change warnings, the World Bank report includes a long list of potential effects of a warming planet.⁵⁵ Sea level rise, increased flooding, increased temperature extremes, alternation of ocean circulation patterns that could plunge Europe into a new

⁵⁰ National Intelligence Council, *Global Trends 2030: Alternative Worlds* (Washington, D.C.: National Intelligence Council, 2012), Office of Director of National Intelligence, accessed February 28, 2013, http://www.dni.gov/files/documents/GlobalTrends_2030.pdf, 31; World Bank, *Turn Down the Heat: Why a 4°C Warmer World Must Be Avoided* (Washington, D.C.: International Bank for Reconstruction and Development, 2012).

⁵¹ World Bank, *Turn Down the Heat*, xiv.

⁵² Ibid.

⁵³ Ibid., xiii.

⁵⁴ World Bank, *Turn Down the Heat*, xv.

⁵⁵ Ibid., xv–xvii.

ice age, more severe and unpredictable hurricanes on the U.S. East coast, droughts in the mid-west, more frequent crop failures, loss of bio diversity, acidification of the oceans, increasingly significant loss of fresh water supplies for huge population centers, and many other singular, though significant, climate effects are described in, *Turn Down the Heat* and in thousands of other discussions of the subject. But beyond these isolated impacts, the World Bank report confronts a more fundamental danger noting:

Projections of damage costs for climate change impacts typically assess the costs of local damages, including infrastructure, and do not provide an adequate consideration of cascade effects (for example, value-added chains and supply network) at national and regional scales. However, in an increasingly globalized world that experiences further specialization in production systems, and thus higher dependency on infrastructure to deliver produced goods, damages to infrastructure systems can lead to substantial indirect impacts. Seaports are an example of an initial point where a breakdown or substantial disruption in infrastructure facilities could trigger impacts that reach far beyond the particular location of the loss.⁵⁶

The World Bank report goes on to lament the lack of more comprehensive studies of the wider impacts of events that are too often discussed in isolation.⁵⁷ The need for a more comprehensive approach to the problem of climate change extends beyond the scientific community and must be more widely embraced by all governmental institutions. Another recent evaluation, funded by the CIA and conducted by a group of prominent scientists, identifies the many studies that are needed in order to better assess the full potential impact of climate change, including the likely timelines involved in those impacts. The CIA funded publication notes:

The conventional approach to assessing the impacts of climate change—that they will unfold only slowly and in the distant future following pathways to which society can easily adapt—is inadequate. Impacts that were once thought of as threatening future societies have been telescoped suddenly into the present, and some consequences are stark. The risk of major societal disruption from weather and climate extremes such as droughts, floods, heat waves, wildfires, and destructive storms is already with us, and

⁵⁶ World Bank, *Turn Down the Heat*, xvii.

⁵⁷ *Ibid.*, 37.

expected to increase. Changes of the magnitude we are witnessing already threaten water availability, food security, energy decisions, and critical civil and defense infrastructure. The rapid loss of permanent Arctic ice could result in a cascade of climate feedbacks that lead to irreversible change. We can no longer assume that the extremes of tomorrow will resemble the extremes of yesterday.⁵⁸

These World Bank and CIA alerts echo an increasing number of similar reports from other government, scientific, and educational institutions. Cumulatively, they identify an unprecedented level of risk that should be aggressively addressed by all U.S. security institutions. Although this thesis is anticipatory, it was inspired by a need that requires immediate action.

⁵⁸ McElroy and Baker, *Climate Extremes*, 4.

II. THE MONITORING VALUE ADDED BY THE IC

The U.S. has participated in past international negotiations to collectively reduce the amount of carbon dioxide and other greenhouse gases (GHG) released into the atmosphere through human activities. Though the U.S. subsequently refrained from joining the most important of the subsequent agreements, the Kyoto Protocol, there is wide acknowledgement among U.S. scientific and governmental institutions that increasing CO₂ emissions continue to pose significant risk to the nation's security. There is little reason to believe that the global concerns that prompted the U.S. to engage in previous international climate negotiations will not foster new efforts in the future.⁵⁹

During the Cold War, Congress depended on determinations by the IC regarding the nation's ability to monitor Soviet compliance with specific provisions of arms control treaties. In fact, by giving Congressional responsibility for evaluating the IC's effectiveness in arms control treaty monitoring to the Senate Select Committee on Intelligence, the Senate gained greater leverage over intelligence policy.⁶⁰ In determining whether or not to ratify a future international CO₂ emissions limitation agreement, Congress will likely call on IC expertise to determine the nation's ability to verify that other treaty signatories are abiding by the treaty provisions. In making this evaluation, Congress will have the opportunity to greatly influence the nation's treaty monitoring effort, and by extension, the prospects for treaty success.

As noted in the literature review, the CIA has already assumed that its role will include "support to American policymakers as they negotiate, implement, and verify international agreements on environmental issues."⁶¹ No publicly available documentation regarding the origin of this assumption exists. The discussion of environmental issues and national security extends back into the 1970s. Though there is no public record of IC participation in the 1997 Kyoto negotiations, the subsequent advent of China as both a major greenhouse gas contributor and potential U.S.

⁵⁹ Council on Foreign Relations, "The Global Climate Change Regime;" UNFCCC, "Essential Background,"

⁶⁰ Mark Lowenthal, *Intelligence: From Secrets to Policy* (Los Angeles, CA: Sage, 2012), 228–229.

⁶¹ CIA, "CIA Opens Center on Climate Change."

geopolitical rival may have drawn the IC's attention.⁶² More frequently than not perhaps, China has been involved—if not always implicated—when the IC has found evidence of international weapons nonproliferation violations.⁶³ Regardless of how this link between environmental issues and the need for IC involvement was established, the question as to whether there is a proper role for the IC in monitoring any future ICELA should be asked. Like weapons proliferation, climate change will unquestionably imperil U.S. security. It does not follow necessarily, however, that both problems are amenable to a similar national security approach.

It is likewise important to consider how the IC came to monitor weapons nonproliferation treaties. Weapons proliferation predates nations themselves as a “security” concern. For example, ancient civilizations attempted to restrict slaves and conquered rivals from accessing weapons.⁶⁴ Treaties to counter weapons proliferation provided a cooperative international approach to a problem that had long been policed by regimes individually. The notion of using covert means to monitor a treaty involving anthropogenic CO₂ emissions reverses the weapons nonproliferation chronology. As will be seen subsequently, this difference has important implications when considering whether or not to enlist the IC in a novel climate change mitigation mission. That the CO₂ mitigation effort is conducted by treaty rather than by arms tacitly acknowledges that climate change is not a problem that can be solved through force but must ultimately rely on cooperation. Unless covert means are employed in a manner that fosters cooperation, they are unlikely to prove beneficial. Before endeavoring to answer the question as to whether the IC should be engaged in ICELA monitoring, it is necessary to consider the problem of ICELA monitoring more generally. As noted previously, two prestigious groups of U.S. scientists have conducted research into this question at the request of the White House and the Department of Energy, the aforementioned JASONs

⁶² Lester Brown, “Redefining National Security,” Worldwatch Paper 14, Worldwatch Institute, Washington, D.C., 1977.

⁶³ Shirley Kan, *China and Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues*, (Washington, D.C.: Congressional Research Service, 2012), 2, Federation of American Scientists, accessed June 30, 2012, <http://www.fas.org/sgp/crs/nuke/RL31555.pdf>.

⁶⁴ Peter Hunt, “Arming Slaves and Helots in Classical Greece,” in *Arming Slaves: From Classical Times to the Modern Age*, ed. Christopher Leslie Brown and Philip D. Morgan (New Haven, CT: Yale University Press, 2006), 14.

and the GHGIS authors. This chapter is dedicated to a review of their findings, with particular attention to the considerable challenge of reliably identifying ICELA violators using exclusively overt methods, and focuses attention on the opportunities that might exist to facilitate or supplement the overt monitoring effort with covert resources.

A. THE CHALLENGE OF MEASURING CO₂ EMISSIONS: AGREEING ON ESTIMATES

The overwhelming preponderance of scientific evidence establishes a strong correlation between climate change and the increase in CO₂ concentrations in the atmosphere that have resulted from human burning of fossil fuels.⁶⁵ Humans have upset a balance in the amount of CO₂ recycled by the earth that persisted for millennia prior to the industrial age. This concentration currently exceeds any in at least the last 650,000 years. The earth has begun to seek a new CO₂ equilibrium, but until it does in some future—possibly hundreds of years from now—there is little the human race can predict about the climate, except the near certainty that it will continue to change from the one known throughout recorded history. In absolute terms, however, the amount of CO₂ generated yearly through billions of discrete human actions remains a small fraction of the total atmospheric CO₂.⁶⁶ There is no way currently, nor will there be in any foreseeable future, to measure the precise amount of anthropogenic carbon dioxide that each country may or may not release into the atmosphere.

Unlike any limitation on nuclear warheads, say, any country entering a climate agreement must acknowledge each participant's need to, as accurately as possible, estimate the amount of CO₂ generated by its human population through that population's various enterprises and actions. Each participating country's commitment will be to activities to reduce CO₂ emissions by an amount proportional to that to which that country has agreed.

Since reducing CO₂ emissions and mitigating associated global climate change currently requires a degree of engagement and potentially significant economic sacrifice

⁶⁵ DoD, *2010 Quadrennial Defense Review Report*, 87; EPA, "Emissions Climate Change;" NASA, "Climate Change? How Do We Know?" NOAA, "Climate Program Office."

⁶⁶ JASON, *Methods for Remote Determination*, 15.

on the part of the participating countries, each of those countries will seek to ensure that other participants are respecting their commitments. Each country's own willingness to enter into and its desire to adhere to its own CO₂ emissions commitments will depend, in some degree, on its confidence that its efforts are conscientiously being replicated by the other partners to the agreement.⁶⁷

The task of monitoring international agreements on climate change includes evaluating three interrelated variables: the terms of the agreement, the measurement tolerances permitted within those terms, and the effort exerted by each signatory to remain within those tolerances. The terms of the agreement negotiated between countries will likely be determined, in part, by the means employed to establish whether parties to the agreement are living up to their commitments. The second variable, the uncertainty allowed for within the agreement terms, follows from the difficulty of accurately measuring the anthropogenic CO₂ emitted by any country. Various existing and emerging technologies can reduce the uncertainty in measurements of CO₂ emission, but they cannot eliminate it. To one degree or another, signatories to any international climate change agreement must accept the need to establish limits or targets based on estimations. Using agreed upon methodologies for measuring carbon dioxide "inventories" and emissions, countries must each work to reduce their emissions by amounts within certain statistical tolerances. Ultimately, the willingness of each individual country to scrupulously fulfill their commitments, the third variable, may be influenced by the likelihood of having agreement compliance shortcomings discovered.

B. DIRECT AND PROXY COMPLIANCE MONITORING: MULTIPLE MEANS TO REDUCE UNCERTAINTY

Carbon dioxide emission agreements can be monitored in two ways. The first is to employ sensors to measure CO₂ concentrations within a country or region. Used in conjunction with models that essentially predict the movement of the atmosphere within that country or region and after having accounted for the naturally occurring CO₂ "fluxes" produced in the area in question, these sensor derived measurements provide an

⁶⁷ Clare Breidenich and Daniel Bodansky, *Measurement, Reporting and Verification in a Post-2012 Climate Agreement* (Arlington, VA: Pew Center on Global Climate, 2009), Pew Center on Global Climate, accessed January 7, 2012, <http://www.pewclimate.org/docUploads/mrv-report.pdf> (change 6–7).

estimation of the CO₂ being generated by human activities. The second is by evaluating a country's energy production and use in order to calculate the amount of CO₂ these activities generate. These two approaches might be employed in tandem with each complementing, enhancing, and helping to calibrate and confirm the results of the other. In a U.S. government commissioned study entitled "Methods for Remote Determination of CO₂ Emissions," the independent group of scientists known as JASON chose to refer to the first of these monitoring approaches as "direct" and the second as "proxy."⁶⁸

JASON distinguished a third category that they described as "inventories" or the CO₂ emissions self-reported by the country in question.⁶⁹ These inventories are most relevant to establishing a country's baseline emissions circumstances against which to measure future emission reduction efforts and achievements. For example, should a country opt to decommission a coal burning power plant and replace it instead with one employing nuclear energy, inferences can be reliably made regarding the relative reduction in CO₂ emission that country thus achieves. Considered in conjunction with direct and proxy measurements, inventories can assist in further reducing uncertainty about the precise amount of anthropogenic CO₂ being generated by and/or within a country.

This chapter offers an overview of the potential and limitations of using direct monitoring. Ultimately, it will be demonstrated that direct monitoring alone is currently unable to provide reliable measurements of anthropogenic CO₂ emissions without the unfettered establishment and monitoring of *in situ* sensors throughout the territory of each climate agreement signatory. Current global political and economic circumstances preclude this eventuality, and it will be necessary to supplement direct monitoring, including remote sensing through the use of satellites, with information about the actual actions of agreement signatories gathered through other means (i.e. "proxy" monitoring and/or the self-reported "inventories" of the signatories). In fact, whether the U.S. elects to evaluate its agreement partners' compliance through direct, proxy, or inventory monitoring, or most likely some weighted combination of all three methods, a

⁶⁸ JASON, *Methods for Remote Determination*.

⁶⁹ *Ibid.*, 10.

determination will need to be made as to the extent that technological tools can and should be relied upon to provide accurate estimates.

As previously noted, each participant to an international CO₂ emissions agreement must recognize the need to build a certain degree of potential “error” into the terms of these agreements. Much past unwillingness to engage in climate change agreements has resulted from controversies ignited over the uncertainties inherent in such a complex issue. The public has frequently confused properly circumspect scientific language regarding predictions about the climate, with uncertainty about the established link between anthropogenic CO₂ and climate change. Clearly, successful action to confront climate change is aided by reducing allowances for “error” to the greatest degree possible.⁷⁰

1. Direct Monitoring: Inferring CO₂ Emissions from Atmospheric CO₂ Concentrations

The measurement of CO₂ emissions from a country or region is achieved by using *in situ* (within the Earth System) or satellite sensors to establish the concentration of atmospheric CO₂ parts per million (ppm mole fraction) in samples collected at multiple locations. Meteorological and other data are employed to determine the upstream origins of the samples. Once aggregated, this data is used to inform equations or models from which CO₂ emissions estimates are derived.

The National Oceanic and Atmospheric Administration (NOAA) has been involved in the most substantial efforts to model the natural uptake and release of CO₂ from the atmosphere through its Earth System Research Laboratory.⁷¹ The ESRL CarbonTracker project employs 89 surface monitoring stations to collect data on atmospheric CO₂, which it then combines with meteorological predictions to model CO₂ fluxes worldwide. JASON notes that there are 258 parameters within the CarbonTracker model that are adjusted to further refine the accuracy of the model in light of actual CO₂ measurements. While mindful of the scientific contributions made by CarbonTracker,

⁷⁰ JASON, *Methods for Remote Determination*, 191.

⁷¹ National Oceanic and Atmospheric Administration [NOAA], “CarbonTracker 2011: ESRL Global Monitoring Division,” National Oceanic and Atmospheric Administration, accessed February 20, 2012, <http://www.esrl.noaa.gov/gmd/ccgg/carbontracker/>.

JASON suggests that these considerable achievements must be built on and refined before they will provide a level of “spatial and temporal resolution” needed for any meaningful CO₂ emissions monitoring regime.⁷²

In situ sensors could be fixed or mobile. The establishment of fixed sensors would likely require the cooperation of the “host” country. Mobile sensors could be placed on aircraft, either with the approval and knowledge of the country through whose airspace the aircraft traveled or not. Samples of the local atmosphere could also be collected on a conveyance, such as an aircraft, traversing the region targeted for CO₂ measurement, and then subsequently analyzed.⁷³

Importantly, the primary source of uncertainty in CO₂ emissions is, and is likely to remain, the difficulties inherent in constructing atmospheric models which reduce uncertainties to within generally acceptable tolerances.⁷⁴ These tolerances would have to be determined by the agreement signatories.

a. Constraints

Constraints can be considered the parameters of the atmospheric CO₂ transport model. For CO₂ emissions modeling the constraints include, at minimum:

- Temporal sampling density,
- Spatial sampling density,
- Location, and
- Sensor performance

These constraints need to be considered when modeling the behavior of the atmosphere, which is dependent on meteorological data superimposed on a model of natural CO₂ sources and sinks.⁷⁵

Temporal sampling density can be considered the frequency with which measurements are taken. Depending on the means of sampling and the technology

⁷² JASON, *Methods for Remote Determination*, 44.

⁷³ Dimotakis et al., GHGIS, 1–20.

⁷⁴ Ibid., 15.

⁷⁵ JASON, *Methods for Remote Determination*, 40.

employed for sample analysis, more frequent sampling implies an increase in costs. Regardless of the technology, however, these costs are likely to decrease with improved performance as the technology matures. Because there will be localized variability in CO₂ concentration for a variety of reasons, more frequent measurements can reduce uncertainty about the reliability of measurements.

Spatial sampling density, the number of sensors or—in the case of satellite imagery the number and resolution of the images—likewise influences the cost of monitoring as more measurements generally imply greater reliability of the inferences taken from the available measurements. Because of localized variability in the movement, both lateral and vertical, of the atmosphere, denser sampling can further reduce uncertainty.

Location determines the spatial relation of one sample to another.

Sensor performance, the benefits of increased sensor sensitivity to overall measurement significance increases as temporal and spatial measurement density increases and conversely.

C. ACCURACY VERSUS PRECISION IN CO₂ MEASUREMENTS

Somewhat paradoxically, sensor *accuracy* from either remote (satellites) or *in situ* sensors is an important consideration, but it must also be evaluated separately from sensor *precision* for the purposes of modeling. For instance a sensor may detect very small changes in CO₂ concentrations, with a considerable degree of inter-measurement accuracy, but be far off the mark of the actual mole number. Modeling in combination with known values may then be used to adjust the mole numbers so that they more accurately reflect actual mole concentrations.

1. How Accurate Do Measurements Need to Be?

CO₂ is already a very small constituent of the atmosphere, currently at approximately 390 (parts per million) ppm.⁷⁶ To be useful, measurements of actual CO₂ concentrations must attain a certain level of sensitivity. The literature suggests this

⁷⁶ World Bank, *Turn Down the Heat*, 24.

accuracy must be from between 0.1 and 5 ppm. For any particular model the value of greater sensor accuracy quickly approaches a point of diminishing returns. A model built to achieve a coarse resolution of atmospheric behavior will derive limited additional benefit from very precise CO₂ concentrations taken at widely separated locations on an infrequent basis. Therefore, the cost investments in greater accuracy must be justified against the model in question and the degree of acceptable uncertainty agreed upon by treaty signatories.

D. MEASURING CO₂ IN A GAS SAMPLE

1. Gas Chromatography

Gas chromatography is the process wherein a sample is passed through a medium that absorbs different constituents of the sample at different rates. As the sample passes through the absorption column, different constituents leave the column at different times and can be electronically identified as they escape. This technique provides precise measurement, but the instrument is expensive (up to hundreds of thousands of dollars) and analysis of a single sample can take up to an hour.

2. Cavity Ring-Down Spectroscopy (CRDS)

CRDS is a laser technique wherein a short burst of light is trapped within a cavity filled with the gas to be analyzed. As the light makes round trips within the cavity, the time for the beam's intensity to degrade is measured and this provides a very precise, down to parts per trillion, detection of the moles of the substance being measured within the sample. CRDS provides measurements that are both accurate and precise. Additionally, CRDS measurements can be conducted continuously. However, the cost for the device is currently between \$50,000 and \$100,000.

3. Non-Dispersive Infrared (NDIR)

NDIR is the preferred technology for satellite measurements of CO₂, but also is preferred over spectroscopy for in situ measurements.⁷⁷ CO₂ absorbs a specific wavelength band in the infrared spectrum. By illuminating a gas sample with this

⁷⁷ JASON, *Methods for Remote Determination*, 50.

infrared wavelength and measuring the attenuation of that wavelength, the concentration of CO₂ in the sample can be derived. The cost for these systems varies, but some can be purchased for under \$5000. The cost appears to be declining and a low cost device, suitable for widespread use, could likely be developed within a short time span. Like CRDS, NDIR systems provide a continuous reading. JASON suggests that one way of deploying such a device would be to place them on cell towers.⁷⁸

E. REMOTE (SATELLITE) SENSING OF CO₂

Satellites can be used to measure atmospheric CO₂ levels in one of two ways, both based on CO₂'s absorption of particular wavelengths of infrared light. The first is to sense the sunlight reflected off the earth in order to determine the relative attenuation of those wavelengths. The second involves sensing the thermal emissions of the atmosphere caused by the presence of CO₂.

There are several challenges that must be overcome in order to derive useful measurements of CO₂ from satellites. Most of the difficulties have to do with factors that distort or complicate the readings being attempted. Such factors include other molecules, particularly H₂O, that also absorb or emit thermal signals, variations in ground reflectivity, and atmospheric pressure and temperature differences. While *in situ* sensors based within the atmosphere benefit from a controlled volume of gas, satellite measurements are complicated by a range of atmospheric conditions.

Likewise, there are benefits and drawbacks in choosing between several possible satellite orbits. JASON describes the pros and cons of six orbit options.⁷⁹ Currently, there is insufficient data to determine an optimal orbit for conducting CO₂ measurements, and any such determination may involve assessing how different options can be supplemented with *in situ* sensing. JASON suggests several important benefits of a geosynchronous orbit, and that the effectiveness of such a satellite could be augmented with data currently collected by existing low earth orbit satellites.⁸⁰

⁷⁸ Ibid., 58.

⁷⁹ JASON, *Methods for Remote Determination*, 75.

⁸⁰ Ibid., 65–70.

1. In Situ versus Satellite Sensing

The authors of the JASON study previously collaborated with the CIA's Crime and Narcotics Center to identify crops from infrared satellite imagery. They compare this prior experience to the challenge of conducting satellite sensing and modeling of the CO₂ emission and absorption of earth's vegetation.⁸¹ These so called "normalized difference vegetation indices" (NDVI) will likely not provide sufficiently precise information from which to adequately distinguish natural from anthropogenic CO₂ fluxes.⁸² Ultimately, deriving useful information from satellites may depend on calibrating satellite sensing with that done in situ. Given a region of relatively similar vegetation, one or more in situ sensors could provide a measure of the natural CO₂ flux that could then be extrapolated to a larger area using data provided by the satellite.

JASON suggests that using, as yet hypothetical, low cost in situ sensors on weather balloons.⁸³ Fitted with GPS transmitters, these balloons would collect CO₂ measurements that could then be correlated with the balloon's movements to inform CO₂ emissions models. Continued study of transport models (i.e., how CO₂ emissions diffuse within the atmosphere) will be necessary to know whether these in situ types of sensors would be better suited to monitoring CO₂ emissions treaties than satellites, or whether some combination of both would offer the optimal combination of performance and cost.⁸⁴

2. The Seuss Effect

Named for Hans Seuss, the Austrian chemist who called attention to the phenomenon, the Seuss effect provides a means of distinguishing between CO₂ released through natural processes and that produced by the combustion of fossil fuels. Though currently not practical for use in a widely deployed sensing regime, the measurement of carbon isotopes in an atmospheric sample can be employed to extrapolate the concentration of anthropogenic CO₂ emissions in a given location. The "effect" is in fact

⁸¹ Ibid., 60.

⁸² JASON, *Methods for Remote Determination*.

⁸³ Ibid., 61.

⁸⁴ Ibid., 60–61.

a by-product of atmospheric nuclear weapons testing. Nuclear weapons testing in the 1960s resulted in a significant increase in the concentration of carbon 14 in the atmosphere. Fossil fuels do not contain carbon 14. The burning of fossil fuels results in a localized dilution of the amount of atmospheric carbon 14. When subjected to analysis, vegetation growing within that local atmosphere reveals the amount of local anthropogenic CO₂ emissions through the relative absence of the photosynthetically fixed carbon 14 isotope. In cases where other measurements are not possible or practical, agricultural exports of reliably known geographic origin can be analyzed to provide evidence of the local anthropogenic CO₂ emissions. Most importantly, whereas other means of deriving CO₂ concentrations provide only the concentration, the Seuss effect isolates the anthropogenic from the naturally occurring CO₂ in the atmosphere.⁸⁵

F. FILLING A GAP LEFT BY TECHNOLOGY

This review suggests the scope of the technological challenge involved in attributing CO₂ emissions to one or another human source. It has by no means exhausted either the challenges or options involved in CO₂ emissions monitoring. For example, this thesis has not discussed the difficulties in incorporating oceanic carbon fluxes into the climate model, or the possibilities offered by international air travel for collecting and analyzing atmospheric samples.

The significance of the climate change problem—and its entry into the national dialogue as a national security threat—suggest that we will increasingly focus the country's resources on climate stabilization efforts. The challenge of monitoring international climate change agreements, though not yet discussed widely, is receiving considerable attention from national security establishment, as evidence by the JASON study, and the more recent GHGIS paper.⁸⁶ These studies reveal that, though considerable technological resources exist to monitor anthropogenic CO₂, they remain far from being able to do so with the accuracy and reliability we would desire as parties to an international agreement, and on which U.S. policymakers will demand in making vital decisions about the country's future.

⁸⁵ Dimotakis et al., GHGIS, 5–9.

⁸⁶ Ibid.

As evidenced by the creation of the CIA's now disbanded Climate Change Center the IC has been proactive in developing internal expertise on climate change issues, including the challenges posed by the likely U.S. desire to independently monitor the treaty compliance of other countries. Nevertheless, given the complexity of determining the optimal balance of available technological and human intelligence collection methods, it is likely the IC will continue to rely on outside technological expertise to supplement its own. The IC too frequently relies upon trusted vendors to provide advice on developing technologies.⁸⁷ Significant contracts will be won or loss according to the technologies employed. Because the optimal mix of monitoring technologies will remain contingent upon many different variable (e.g., the treaty provisions, the sources of CO2 emissions most targeted) vendors will be have many opportunities to champion technologies that will most enhance their own influence within the IC, or increase their own profits, rather than those that will most efficiently achieve the monitoring objectives. In the case of CO2 monitoring, the technology options should be subjected to independent evaluation by entities that can dispassionately consider all the available technological alternatives. The decision of whether to launch a new satellite or instead to deploy 10 thousand in situ sensors should not be made without a nuanced and unbiased understanding of the complexity of the treaty monitoring environment. Simple cost and instrument sensitivity comparisons will be inadequate guides for responsible governmental decision makers.

Most importantly, regardless of how accurately we are able to model regional and national contributions to anthropogenic climate change agreements, considerable uncertainty is bound to persist about these sources for the foreseeable future. An intelligence agency well versed in the technological challenges of greenhouse gas monitoring would be best equipped to identify U.S. knowledge gaps and to fill them with information collected by means only available to a clandestine organization.

⁸⁷ Dana Priest and William Arkin, "National Security Inc." *The Washington Post*, July 19, 2010, accessed November 20, 2012, <http://projects.washingtonpost.com/top-secret-america/articles/national-security-inc/>; Glenn J. Voelz, "Contractors and Intelligence: The Private Sector in the Intelligence Community," *International Journal of Intelligence and Counterintelligence*, 22, no. 4 (2009): 587.

G. PUBLIC SENSORS AND THE IC

In studying international environmental agreements game theory, researchers have hypothesized a paradoxical phenomenon involving the human predilection for equity (the need to maintain a broad consensus about the equitable distribution of national treaty sacrifices is the subject of Chapter IV). Underlying the theory is the idea that even though some countries that choose not to participate in an international agreement on climate change, these non-participating nations are home to many citizens who will feel a duty to reciprocate the sacrifices made in treaty signatory countries. Ultimately, according to this theory, countries where this sense of reciprocal duty holds sway may adopt internal measures and behaviors matching or surpassing the restrictions their nation would otherwise have been held to under the terms of the treaty. However, by not signing on to the treaty, these countries thereby increase the level of climate change concern in countries where the sense of duty might be less prevalent, thereby encouraging these countries to participate in the treaty.⁸⁸

The implications of a duty that citizens in one country might feel towards those in another are particularly significant in regard to the ICCME task. It suggests, furthermore, an area where the challenge of identifying ICELA violations would differ substantially from that of the NPT (the subject discussed in detail in the next chapter). In any country the number of citizens—whether inside or outside of government—who would have ready access to information regarding their own country's ICELA compliance are exponentially greater than those who would have knowledge of the materials needed or used to build nuclear weapons. Moreover, while it can safely be assumed that the majority of world citizens do not believe that their country would maliciously employ nuclear weapons, those citizens who recognize the danger of rising atmospheric CO₂ levels also understand that the CO₂ emissions of any country, including their own, imperils all. The 18-year old United National Framework Convention on Climate Change (UNFCCC) is only one example of the international solidarity that has been established on the issue. Informed citizens of any country recognize then that they are

⁸⁸ Andreas Lange and Carsten Vogt, "Cooperation in International Environmental Negotiations Due to a Preference for Equity," *Journal of Public Economics*, 87 (2003): 2065.

equally impacted by emissions issuing from their own country as they are by those from another.

It is worth highlighting another fundamental difference between nonproliferation and ICELA monitoring efforts. Very few citizens of any country would have both the knowledge and the motivation to divulge information regarding their own country's failures to meet their NPT obligations. Self-interest and a sense of duty to ICELA compliant countries would, however, lead many citizens to reveal ICELA treaty violations committed within their own country. Given the possibility that in some countries, individuals who provided such revelations might face harsh punishments should they be discovered, it will behoove the international community to support and sustain a mechanism whereby treaty violations might be reported anonymously.

It is not hard to conceive of a situation where a simple worker in a power plant, for instance in India, becomes aware that the CO₂ scrubbers in the plant where he works are being systematically disabled to save his company money. In this case, whistleblowing could well lead to a loss of more than just the whistleblower's employment. In many countries like India, whistleblowing has proven fatal.⁸⁹ Once the ICELA were put in place, it is all but certain that treaty violations would occur. In such a case, it is likely that some individual citizens who identified potentially systemic treaty violations in their place of work might well be inclined, but would nonetheless fear, bringing their concerns to an international monitoring regime. Any international treaty monitoring regime would likely include representatives from the very countries who might themselves be violating the treaty. Therefore, such a multinational treaty monitoring entity would face enormous challenges in guaranteeing the anonymity of the violation reporter. However, the U.S. IC could provide a reliable and safe conduit for such whistleblowing.

⁸⁹ Anna Hazare, "Whistleblowers' Relatives Crying out for Justice," *Yahoo News*, March 25, 2012, *Yahoo News*, accessed October 10, 2012, <http://in.news.yahoo.com/whistleblowers-relatives-crying-justice-anna-hazare-073203916.html>; Mehul Srivastava and Andrew MacAskill, "Whistleblowers Murdered in India Show Fatal Hazard of Exposing Corruption," October 19, 2011, *Bloomberg News*, accessed November 26, 2012, <http://www.bloomberg.com/news/2011-10-19/whistleblowers-face-deadly-hazards-in-india.html>.

Recently, the U.S. Air Force Office of Special Investigations instituted an anonymous tip line that can be accessed through the internet.⁹⁰ By providing such a tip line, an IC agency could make whistleblowing against an ICELA violator safe, when it otherwise might not be. By collecting, vetting, and aggregating such tips, the ICCME could provide anonymized reports to the GHGIS for follow-up. Such a mechanism would not only discourage treaty violation and increase global trust in the viability of the ICELA, it would go far to demonstrate the value the IC could add to international ICELA monitoring.

H. THE U.S. IC AS A KEY CONTRIBUTOR TO GLOBAL TRUST IN THE ICELA

As with nonproliferation of nuclear weapons, should the U.S. IC identify violations of a future ICELA, it will attempt to address such violations through the mechanisms made available by the international community. Unilateral U.S. declarations alone will not be viewed as legitimate by the international community, and it is unlikely any signatory in treaty violation would feel compelled to rectify its behavior absent an international finding. While other nations may employ their intelligence agencies to support an international treaty monitoring regime, the U.S. is unquestionably most prepared to do so. Therefore, the U.S. IC will find itself once again supporting an international treaty monitoring agency, like the IAEA, with the difference that the U.S. will need to be infinitely more cautious that the GHGIS's legitimacy is not undermined by its association with the U.S. IC.

While there is a chance violations of the NPT could have ramifications for an average world citizen, the likelihood is remote for most. An ICELA will likely impact most world citizens directly, and there is ample evidence that any negative perceptions regarding the application of the treaty provisions could detrimentally impact on the chances for treaty success. Should the IC, however, contribute to the effectiveness and legitimacy of the GHGIS, the effect could be equally as profound, and would doubtless be ranked among the IC's most important achievements.

⁹⁰ U.S. Air Force, "OSI introduces New Smart Phone Anonymous Tip Line," October 1, 2012, U.S. Air Force (news), accessed October 10, 2012, <http://www.af.mil/news/story.asp?id=123320531>.

The IC is calibrated to protect the nation from real and potential human adversaries. The IC's perpetual vigilance is a virtue that should never be undervalued. The caution that imbues the ethos of members of the IC, however, sits uneasily with any form of collaboration. Should the IC's vigilance preclude its subordination to the needs of international cooperation in the pursuit of lower CO2 emissions, then the IC will fail in its larger mission of ensuring national security. If, however, the IC can come to appreciate its unique qualifications for fostering global trust in the ICELA, its contribution to mitigating climate change could be decisive.

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III. WAR BY OTHER MEANS: LEARNING FROM WEAPONS NONPROLIFERATION MONITORING

The previous chapter drew attention to the complexity involved in monitoring an ICELA. It also identified opportunities where covert sources and methods might serve to fill knowledge gaps, most notably regarding signatory intentions, and better focus overt monitoring efforts. Ultimately, however, U.S. participation in an ICELA will be predicated on a desire to mitigate climate change. While reliably determining the amount of CO₂ emitted by any treaty signatory may help achieve this end, this monitoring activity is not the end in itself.

By defining international climate change agreement verification as part of its Climate Change Center's mission, the CIA drew an implicit analogy between international weapons nonproliferation treaty monitoring and cooperative international action to mitigate climate change. In order to explore the prospects for an ICCME, this thesis draws the same analogy explicitly. Ultimately, through the cases to be discussed, this thesis finds this analogy to be partially justified. There is much to be learned both in the similarities and differences between the application of covert resources to the treaties dedicated to nonproliferation and CO₂ emissions limitation.

A. CONTAINING A TYRANT—THE NPT AND IC SUCCESS

Ending Muammar Gaddafi's nuclear weapons ambitions is among the U.S. Intelligence Community's most significant achievements and a striking example of U.S. intelligence support for the NPT. Throughout the 1970s and 1980s, Gaddafi made repeated attempts to obtain nuclear weapons. In seeking nuclear weapons technology and nuclear weapons, however, his regime engaged in negotiations with countries that were, like Libya itself, signatories to the NPT. The U.S. IC was able to expose and thus abort these attempted treaty violations. Eventually, Gaddafi was forced to recognize that these efforts were too costly and that he would benefit more by abandoning his pursuit of

nuclear weapons in order to secure the right to join the international community of nations.⁹¹

The Libyan example demonstrated how difficult it could be to identify treaty violators absent covert monitoring. While the NPT did not include a monitoring regime, signatories to the agreement enlisted the IAEA to perform this function. In the cases of both the NTP and the Kyoto Protocol, treaty signatories anticipated being able to rely on signatory honor to greater degree than subsequent experience justified. The NPT included a provision for “safeguards” whereby NNWS would permit inspections of the civilian use nuclear facilities that received technical and material assistance from NWSs. In her book, *China, Arms Control and Nonproliferation*, China and nonproliferation specialist Wendy Frieman notes, “The notion that a country would establish a clandestine nuclear weapons program in parallel with a safeguarded civilian program was not contemplated at the outset of the regime.”⁹² This is, in fact, what countries including Libya and Iran, proceeded to do. Signatories to the NPT have progressively increased the scope of the monitoring activity, largely in reaction to attempts by both signatories and non-signatories to contravene the treaty’s provisions and the IAEA’s ability to uncover violations. There should be little doubt, however, that without the involvement of the U.S. IC, no effective monitoring of the NPT would have been possible.

Analysts of the Kyoto Protocol have attributed much of the treaty’s failings to a lack of any ability to verify compliance. Environmental treaty scholar Scott Barrett addresses the issue head on, noting:

Where verification is difficult, monitoring will be especially important. Very often, the payoff to one country of complying with a treaty will depend on whether the other parties are also complying with it. Even the suspicion that others are not complying with a treaty may cause cooperation to unravel. Put differently, if cheating can’t be

⁹¹ Sverre Lodgaard, *Nuclear Disarmament and Non-Proliferation: Towards a Nuclear-Weapon Free World?* (New York: Routledge, 2011), 123; “Chronology of Libya’s Disarmament and Relations with the United States Arms Control Association,” last modified January 2013, accessed March 26, 2013, <http://www.armscontrol.org/factsheets/LibyaChronology>.

⁹² Wendy Frieman, *China, Arms Control, and Nonproliferation* (New York: RoutledgeCurzon, 2004), 8.

detected then it can't be punished; if it can't be punished then it can't be deterred; and if it can't be deterred then cooperation can't be sustained by the treaty's bootstraps.⁹³

Given the difficulty of verifying ICELA compliance with exclusively open monitoring, it follows that without intelligence agency resources, the chances of success for a future ICELA may be greatly diminished.

Should countries attempt to intentionally skirt the provisions of a future ICELA, an ICCME may be similarly suited to uncovering such efforts. Indeed the well-publicized existence of such a U.S. IC initiative would be likely to discourage any country from attempting to evade the treaty provisions. In discussing the design of a monitoring mechanism for a future international greenhouse gas reduction agreement, the authors of the GHGIS paper note that, "the primary benefit of GHGIS is not achieved by accurate outputs alone, but from the expectation that GHGIS outputs will be accurate and definitive and, in turn, induce behavioral change by governments or international actors."⁹⁴ Properly applied, information provided by intelligence agencies could serve to direct GHGIS focus, increasing the likelihood both of identifying violators and of ultimate treaty success.

Nevertheless, caution must be employed in comparing the Libyan success with the prospects for using Intelligence Community findings to induce change in an ICELA violator's behavior. In joining together in a nonproliferation treaty, countries legitimize the future use of force against any signatory that violates the agreement. Gaddafi was aware that the ultimate price for continuing his pursuit of nuclear weapons could well be foreign armed intervention. Tripoli had already been the target of U.S. bombers in April of 1986. It is unimaginable that the U.S. or the international community would initiate or countenance armed enforcement of a future ICELA. Though an ICELA might include sanctions for treaty violators, it is self-interest and the preservation of a country's good international standing that will inspire treaty compliance among most treaty signatories. Injudicious use of intelligence could undermine the legitimacy of the international treaty

⁹³ Scott Barrett, "On the Theory and Diplomacy of Environmental Treaty-Making," *Environmental and Resource Economics*, 11, no. 3 (1998): 322.

⁹⁴ Dimotakis et al., GHGIS, 2.1.3

monitoring regime, and ultimately prompt rejection of the treaty by the citizens of the identified treaty violator country. Before considering the important similarities between the NPT and Kyoto or a future ICELA, it is important to establish the limits of the analogy by focusing attention on the dynamics underlying international cooperation on environmental issues.

B. ENVIRONMENTAL TREATY DYNAMICS

Nonproliferation treaties are, ultimately, military treaties. Countries purchase some assurance of protection from real or potential military aggression in exchange for their own agreement to refrain from aggressive behaviors, or to support the use of force to protect other treaty signatories from aggression. At the end of this exchange, as in Libyan example, lies the prospect of military action against a treaty violator.

The NPT is only one tactic employed by some countries to encourage other countries to forego acquiring nuclear weapons. In certain instances, individual countries have acted preemptively to keep rival countries from acquiring nuclear weapons. Israel's attack on Iraq in 1991, on Syria in 2007, and the U.S. invasion of Iraq in 2003 are examples.⁹⁵ The NPT suggests to those countries considering the pursuit of nuclear weapons (like Iran) that if they forego nuclear weapons, there is a better chance that some of their nearby rivals will agree to forego them as well. In any case, should there be a military will to prevent another country from pursuing nuclear weapons, the treaty will only retard or accelerate the employment of that military option by making it more or less politically palatable. Though the U.S. desired U.N. endorsement of the Iraq invasion, it was prepared to act unilaterally regardless.

In fact the NPT was composed of three "pillars." Two of these, non-proliferation and the peaceful use of nuclear technology (i.e., the sharing of nuclear technology by nuclear weapons states with non-nuclear weapons states) will be shown to parallel analogous aspects of the Kyoto Protocol. Fewer weapons and the sharing of nuclear technology for peaceful purposes are echoed in Kyoto's aspirations for reduced CO2 emissions and the sharing of "clean technologies." But it is perhaps the NPT's remaining

⁹⁵ Lodgaard, *Nuclear Disarmament*, 126, 181.

“pillar” (i.e., the notion that nuclear weapons countries would eventually disarm)⁹⁶ that most resembles Kyoto or a future ICELA. Whether realistically or not, the NPT originally envisioned the eventual elimination of nuclear weapons. Four decades after the NPT was negotiated, however, there is little discussion regarding universal nuclear disarmament. While arguably vital for the maintenance of world stability, the NPT’s non-proliferation objectives merely required that the status quo be upheld. Universal disarmament, like a hypothetical ICELA, would require that individual countries trust one another’s intentions enough to risk the erosion of their relative geostrategic power. Were the U.S. ever to consider comprehensive nuclear disarmament, the role of the IC in evaluating that option—determining the strategic intentions of potential rivals—might more resemble the task of a future ICCME.

If the U.S. or China refuse to participate in an ICELA, and continue to pollute, it will only be moral suasion that will change their behavior. Were China to reduce its import of oil unilaterally, that would only make oil cheaper in the U.S. and so increase the incentive for the U.S. to refuse to “abate.” The rest of the world might want to punish the U.S. economically, but whatever economic sanctions they might be able to coordinate would be insignificant compared to the U.S.’s economic incentive for burning oil. In part, because they can only be sustained through cooperation—not military threats—scholars have devoted attention to environmental treaties as a unique area of study.

1. Game Theory

For over two decades, there has been growing interest in the lessons game theory may have for a future international greenhouse gas limitation agreement. Of particular focus has been the question of which particular “game” most resembles the current global situation. While it may only be in the hindsight of a successful or unsuccessful agreement that such a determination will be possible, the theories are helpful in identifying the situational variables that bear on treaty signatory decisions about treaty participation and compliance. Though these variables are largely determined by existing conditions, some, including participant evaluations of the costs and benefits of treaty

⁹⁶ Ibid., 4.

participation, are subject to modification, sometimes with a significant impact on the likelihood of treaty success.⁹⁷ Thus far, the literature does not address the question of IC monitoring of these agreements directly, nonetheless game theory highlights the importance of “player” confidence in the behavior of fellow treaty signatories.

Three game theory concepts are commonly employed in discussions of international treaties. These are the prisoner’s dilemma,⁹⁸ the Nash equilibrium, and Pareto optimality. States engage in treaties for many different reasons, and their motivations regarding adherence or defection from them cannot be easily isolated or quantified. The concepts, like those referred to above, however, help in discussing the influence that information about treaty compliance is likely to exert on countries as they contemplate treaty participation and their own adherence to treaty provisions.

Countries that enter into an international agreement cannot know with certainty whether the other signatory(ies) will adhere to their agreements or “defect.” In the language of CO2 limitations agreements, treaty signatories either “abate” or “pollute.” The relevance of the prisoner’s dilemma to an international CO2 limitation agreement and monitoring in general is that the monitoring will allow the “prisoners” (i.e., the treaty signatories) more insight into their treaty counterparts’ intentions. If the prisoners can communicate and, more importantly, know the others’ true intentions, both can benefit from the optimal outcome.

Academics have performed experiments with test subjects in order to determine their behavior under repeated iterations of the prisoner’s dilemma game. The results suggest that the test subjects will increasingly cooperate towards a point of equilibrium as they accumulate more knowledge about their counterparts’ past behaviors.

The idea that knowledge about a treaty counterpart’s behavior will lead towards a maximum equilibrium is where the prisoner’s dilemma may be said to converge on the

⁹⁷ Stephen J. DeCanio and Anders Fremstad, “Game Theory and Climate Diplomacy,” *Ecological Economics* 85 (2011): 3.

⁹⁸ The prisoner’s dilemma describes a situation in which two prisoners are separated, and then given two options. Each is told that she may betray the other prisoner or remain silent. Each is also told that if both remain silent, both will receive a one month sentence, but that—should both betray one another—they will each be given a three-month prison sentence. Alternatively, if one betrays the other, and the other remains loyal, the betrayer will be set free, and the other will be given a one year prison sentence.

“Nash equilibrium.” The Nash equilibrium is the point at which all parties to an agreement have determined their maximum level of agreement participation—what they are willing to sacrifice in order to gain the agreement’s promised benefits—based on each participant’s knowledge that all other participants will adhere to their current level of commitment (sacrifice), and not vary from it.

Importantly, there may actually be multiple or even infinite “Nash equilibria” in any international agreement corresponding to different sets of treaty signatory behavior. At the extreme end of these different possible points of Nash equilibrium is the Pareto optimality. This theoretical limit is where the commitment (sacrifice) of all parties to the agreement achieves the maximum level of aggregate benefit (e.g., the greatest reduction in CO2 emissions).

Theorists build models of treaty adherence based on the concepts, including those described above. Unfortunately, the models only roughly approximate reality in that countries and their negotiators do not typically negotiate as equals (i.e., because of their relative economic and military power, or the authority that they exercise within their government or society varies significantly). Likewise, negotiators may ostensibly negotiate with a similar agenda, but in fact are more likely to be motivated by any variety of objectives. Nevertheless, the conceptual framework supported by the concepts described above help in discussing and isolating the variety of issues involved in treaty negotiation and participation. They demonstrate, for instance, the fundamental benefits provided by treaty transparency and monitoring reliability.

Rather, directly deciding the outcome of the “game,” effective treaty verification may help determine the conditions under which the game is played. “Games” are modeled on whether or not participants have full knowledge of the influence that their own behavior will have on other participants. To the extent that intelligence can increase player confidence about the future, it can help optimize the “equilibria” points upon which players settle.

2. The Geopolitical Balance: U.S. and China

In their paper, “Game Theory and Climate Diplomacy,” DeCanio and Fremstad discuss the situation wherein two potential treaty participants may prefer to “play abate,” rather than continue to pollute, but fear that substantially reducing their use of fossil fuels will provide the other player, their geopolitical rival, with a strategic advantage in the form of relatively less expensive energy.⁹⁹ The authors thus model the current situation confronting the U.S. and China (discussed at greater length in Chapter V). Both countries may contemplate reducing their use of fossil fuel in order to address the threat of unmitigated anthropogenic contributions to climate change but realize that, should their rival not abate as well, their sacrifice will ultimately prove insufficient to stop the worst effects of climate change. According to DeCanio and Fremstad, the only solution in this case is for both powers to reach an agreement to play abate. Implicit in their discussion is that both parties will find it in their best interest to continue to adhere to the agreement, so long as they remain confident that their rival will continue to do so as well.¹⁰⁰

Perhaps the greatest benefit in the discussion of these game theory concepts is the common ground that they provide for two divergent conceptual schools of international law, the “realists” who suggest that “international law” is ultimately an oxymoron (i.e., that states will inevitably do what is in their individual best interest) and the “idealists” who believe that the normative sum of the growing body of international law does more to compel the behavior of states than the individual treaty parts that make it up.¹⁰¹ Regardless of whether a student of international law is more inclined to embrace the realist or idealist school, the tools provided by game theory highlight the benefits of increasing or maximizing participants’ knowledge regarding their collective and individual treaty compliance (i.e., the potential benefits of supplementing overt treaty monitoring with covert sources and methods).

⁹⁹ DeCanio and Fremstad, “Game Theory.”

¹⁰⁰ Ibid.

¹⁰¹ DeCanio and Fremstad, “Game Theory;” Jens Ohlin, “Nash Equilibrium and International Law,” *Cornell Law Review*, 96, (May, 2011): 880–881, Cornell, accessed October 20, 2012, <http://www.lawschool.cornell.edu/research/cornell-law-review/upload/Ohlin-final.pdf>.

3. Changing Games

An important question for theorists, and ultimately for all inhabitants of the planet, is whether the world in fact find itself in a prisoner dilemma situation, or another game theory variant initially referred to as the “stag hunt,” which is more recently known as a “cooperation game.”¹⁰² In a cooperation game, players realize that they can only achieve the maximum outcome by coordinating their actions with other players. In the realm of climate change mitigation, game theory suggests a far greater chance of treaty success if the game played is one of cooperation rather than of conflict.¹⁰³ Knowledge about the behavior of other game participants represents a radical change in “prisoner dilemma” game conditions. So long as all participants believe that the sacrifices they make individually will be amply rewarded by the good represented by efforts of other participants, they have no reason to “defect” from the agreement. As evidence of adherence mounts, the agreement becomes self-enforcing. This ideal situation is described by natural resource economist Scott Barrett who notes:

Suppose that the players in Stage 1 can correctly forecast that the players in Stage 2 will correctly forecast how the players in Stage 3 will behave. The equilibrium will be especially compelling in the sense that the players’ beliefs will be confirmed by the choices actually made in later stages of the game.¹⁰⁴

By increasing the level of commonly available participant behavior information, monitoring efforts like those proposed by the GHGIS or the ICCME hypothesized in this thesis can likewise increase the likelihood that the game played will be of coordination rather than of conflict.¹⁰⁵

4. Player Calculations

Regardless of a state’s constitutional order, an understanding its citizens’ expectations aids in understanding the bounds of that state’s actions. In his book,

¹⁰² Personal correspondence with Stephen J. DeCanio, October 28, 2012.

¹⁰³ Scott Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-making* (New York: Oxford University Press, 2003), 195.

¹⁰⁴ Barrett, *Environment and Statecraft*, 196.

¹⁰⁵ Ibid.

Environment and Statecraft: The Strategy of Environmental Treaty-Making, Scott Barrett, previously quoted, describes the ways that current game theory sheds light on the prospects of any international environmental agreement. In proposing his analysis, however, Barnett adds an important caveat. Although game theory requires the observer to assume the players involved, in the case of treaties, nations are unitary actors:

[This] is an assumption that we know is untrue. States are represented at international negotiations by their governments, but governments are not imbued with a fixed set of preferences. A government's position on any given issue is rather determined by an internal negotiation, even if final decisions are made by the executive. International negotiations normally involve a variety of agencies or ministries, and the interest of these parties are in turn influenced by lobbyists representing the views of various associations, including grassroots environmental organizations and business groups... The negotiation supergame is thus a huge and complex system, incorporating a rich and far-from-uniform set of domestic political institutions.¹⁰⁶

As described in the previous discussion on game theory, a state of equilibrium is achieved when all players assume that they cannot improve their individual payoff by changing their own behavior given the behavior of the other player(s). To the extent that players can be confident that the other player(s) will not “defect” from the agreement, an optimal level of participant contribution may be maintained. Suggestions that the agreement might be either ineffective or inequitable will alter the accounting that each player (state) makes regarding the utility it derives from adhering to the agreement. A recalculation may compel one or more players to change their behavior (i.e., to “defect”). The greater public confidence in the agreement, the greater its perceived utility, and the more interest the state's central authority has in appearing to adhere to the agreement. (A government so inclined might feign adherence but will not do so if the cost of pretending to adhere to the agreement exceeds the cost of genuine compliance. The international monitoring regime and the IC's monitoring efforts may act, in effect, to increase a country's cost of attempting to hide its defection.) For the purpose of an ICELA, this is where public perception and the unitary “will” of the state converge. In so far as the ICCME increases the public's faith in the ICELA's equity and reliability, the greater the

¹⁰⁶ Ibid., 54.

utility of ICELA adherence for the state, and the more cost it will endure to secure the benefit derived by the perception—justified or not—that it is respecting the ICELA’s provisions.

Analysts have identified a similar dynamic at work under treaty regimes that regulate weapons of mass destruction. In a paper commissioned by the Weapons of Mass Destruction Commission, Jim Walsh wrote:

The treaty is stronger when member states believe that the treaty is working and that nations can be counted on to abide by the rules. It is weaker when governments believe that the treaty is not working or failing. A perception of failure encourages states to consider alternatives such as hedging and gives pro-bomb advocates an opening to make their case.¹⁰⁷

Likewise, to the extent that the ICCME increases the difficulty (i.e., cost) of concealing a violation of the ICELA’s provisions, the greater the likelihood that states will, in fact, respect their commitments. In fact, analysts of the Kyoto Protocol have attributed much of the treaty’s failings to a lack of any ability to verify compliance. Environmental treaty scholar Scott Barrett addresses the issue head on, noting:

Where verification is difficult, monitoring will be especially important. Very often, the payoff to one country of complying with a treaty will depend on whether the other parties are also complying with it. Even the suspicion that others are not complying with a treaty may cause cooperation to unravel. Put differently, if cheating can’t be detected then it can’t be punished; if it can’t be punished then it can’t be deterred; and if it can’t be deterred then cooperation can’t be sustained by the treaty’s bootstraps.¹⁰⁸

Given the difficulty of verifying ICELA compliance with exclusively overt monitoring, it follows that without intelligence agency resources, the chances of success for a future ICELA may be greatly diminished.

¹⁰⁷ Jim Walsh, *Lessons from Success: The NPT and the Future of Non-proliferation* (Stockholm, Sweden: Weapons of Mass Destruction Commission, 2005), 5, United Nations, accessed August, 3, 2012, <http://www.un.org/disarmament/education/wmdcommission/files/no41.pdf>.

¹⁰⁸ Barrett, “Environment and Statecraft,” 322.

C. COMPARATIVE TREATIES: NPT AND KYOTO

1. How the NPT and Kyoto Split the World

Since the NPT entered into force in 1970, it can be said to have met with mixed results. While subsequent to 1970, Israel, India, Pakistan, and North Korea developed nuclear weapons, many countries who might otherwise have gained access to the bomb have not.¹⁰⁹ The NPT, which required signatories that possessed nuclear weapons to aid in the development of peaceful nuclear technology among countries that did not, was inspired by a concern that the likelihood of using nuclear weapons grew as the number of countries possessing them increased. So, in return for the non-nuclear weapons states (NNWS) forgoing the pursuit of nuclear weapons, the nuclear weapons states (NWS) offered to share their civilian use nuclear technology. (As previously noted, and noted again below, the Kyoto Protocol likewise includes a technology transfer, in this case for less polluting means of producing energy, for less technologically developed countries.) Though there have been many attempts, both successful and unsuccessful, by NNWS to obtain nuclear weapons technology and nuclear weapons, many observers point to the fact that relatively few nations possess nuclear weapons as a testament to the treaty's overall success.¹¹⁰

Kyoto represents a similar lopsided bargain. In achieving their high standard of living, developed countries have saturated the atmosphere with CO₂. In order to forestall climate change, they would pledge to reduce their carbon emissions, but in exchange would ask developing countries to give up the hope of achieving many of the technological benefits made possible by cheap energy. Developing countries naturally objected to what they considered an unfair proposition. Most developed countries conceded that a more equitable approach to limiting global CO₂ emissions would need to be adopted. In addition to agreeing not to require developing countries make hard quantitative CO₂ emissions reduction commitments in Kyoto, part of the developed countries' "concession" included a transfer of clean energy technology to the developing

¹⁰⁹ Although Israel has maintained a policy of "opacity," neither denying nor confirming, in regard to whether or not it possesses nuclear weapons, there is wide-held assumption that it in fact does. Lodgaard, *Nuclear Disarmament*, 2–3.

¹¹⁰ Lodgaard, *Nuclear Disarmament*, 123.

signatories. Importantly, there was no objective way of precisely weighing the costs and benefits that accrued to the different players in this negotiation. Climate “equity” would remain in the eye of the beholder.

2. Institutional Treaty Advocates and Opponents

Achieving a perception of equity is fundamental to any treaty negotiation. States are likely to recognize the benefits to their survival in meta-outcomes like nonproliferation and climate stability. However, political actors within these states must reconcile their state’s fortunes with their own political survival. Inherently unstable international agreements—because equity is not quantifiable—suggest an inability to reach an equilibrium state. Both the NPT and Kyoto have been plagued by imperfect signatory adherence.

While it is possible for international critics to deride the NPT as too frequently ineffective, some observers find the treaty’s success remarkable. At the time the NPT was established, realist logic suggested future world of nuclear armed countries. As countries acquired the bomb, their neighbors, many felt sure, would feel compelled to seek their own nuclear weapons as well. The reason for the NPT’s success, it has been suggested, is that an international agreement itself represents a strong impediment to movement away from an established status quo. Referring to proponents of nuclear weapons development programs, Jim Walsh notes:

The advocates know that once the bomb is built, it is very difficult—though not impossible—to reverse course. Conversely, opponents push for a terminal commitment such as joining the NPT (i.e., a decision to abandon nuclear weapons once and for all). They know that once such a commitment is made, it is very difficult—though not impossible—to revive a bomb program.¹¹¹

Although it is frequently assumed that the NPT encourages countries to forgo nuclear weapons by assuring them that their potential nuclear adversaries will not obtain nuclear weapons, some analysts suggest that this is not the reason that countries continue to *adhere* to the treaty. An alternative hypothesis is that, in ratifying the treaty, countries alter the dynamics of their own internal politics, undermining the cohesion of those

¹¹¹ Walsh, *Lessons from Success*, 5.

domestic forces who would otherwise continue to pursue nuclear weapons. Typically, for example, the military initially joins with the opponents of signing the treaty. Once the treaty is signed, however, the military no longer has an institutional role in the discussion. Those treaty opponents who might otherwise wait for a more sympathetic regime or a later opportunity to once again advocate for leaving the NPT, have at that point lost the military as an ally, and so the very act of signing the treaty in fact increases the likelihood that the country will continue supporting it.¹¹² Whether or not either of the two above explanations accounts for the NPT's longevity among the majority of the nations of the world, clearly the support or opposition of impacted domestic institutions play an essential role in determining the success of any international agreement. Similarly, by encouraging countries to develop alternative sources of energy, and thus creating and empowering strong advocacy groups for those alternatives, an ICELA with a more aggressive administrative mechanism than Kyoto could undermine the political hegemony of the fossil fuel industry. The fossil fuel industry is likely to take a keen interest in negotiations regarding the country's participation in any future ICELA.¹¹³

As will be discussed in the chapter that follows, U.S. opponents of an ICELA will likely focus attention on the question of equity and suggest that concessions made to other countries would be unfair to Americans. The designers of the ICCME should, at any rate, anticipate a contentious political environment. Nevertheless, properly constituted, the ICCME could serve to forestall the efforts of internal domestic treaty opponents. The ICCME will be able to do so only if its assigned mission unambiguously prioritizes success of the ICELA, and if the ICCME is held accountable for that mission in a highly visible forum, such as the floor of Congress. If, however, the ICCME mission is embedded within an invisible bureaucracy, it is likely that the integrity of its mission will succumb to the influences of other powerful executive branch institutions.

¹¹² Ibid., 42.

¹¹³ Azmat Khan, "The Surprising Way Obama Is Trying to Tackle Climate Change," *Frontline*, February 27, 2013, PBS, accessed March 4, 2013, <http://www.pbs.org/wgbh/pages/frontline/environment/climate-of-doubt/the-surprising-way-obama-is-trying-to-tackle-climate-change/>.

3. Treaty Provisions

Both the NPT and Kyoto Protocol have frequently been criticized for their vague language. Lack of clarity in the NPT elicited protests from non-nuclear weapons countries who accused the nuclear weapons countries of arbitrarily imposing restrictions beyond those to which the NNWS had originally agreed. In some instances, the NPT language was modified during treaty re-negotiations.¹¹⁴

It is likely that negotiators of a future ICELA will benefit from the lessons of Kyoto and that the treaty provisions will be written with greater precision. During negotiations of any future ICELA, the U.S. ICCME should similarly advocate for clear definitions and expectations, as ambiguous language is likely to complicate the task of any monitoring regime, whether that monitoring be overt or covert. In the case of the NPT, vague language could be blamed for encouraging behaviors that clearly violated the intent but not the letter of the treaty. In the case of the ICELA, imprecision is likely to lead to arguments that can only prove corrosive to the sense of shared purpose and trust needed to sustain the treaty. In such an atmosphere of mistrust, the work of the ICCME is more likely to be perceived as partisan.

4. Sovereignty Concerns: The Case of Saddam Hussein and Weapons Inspections

While any treaty elicits concerns regarding national sovereignty, it is treaty monitoring to which countries are most reluctant to submit. Countries' aversion to monitoring was remarkably evident in the aftermath of the events at the Fukushima power plant. Since that event, in three separate major international nuclear summits and despite the concerns raised by the Fukushima disaster, countries refused to grant the IAEA greater power to inspect civilian use nuclear power facilities.¹¹⁵

¹¹⁴ Seema Gahlaut, "Multinational Export Control Regimes: Operations, Successes, Failures and the Challenges Ahead," ed. Daniel Joyner, *Non-Proliferation Export Controls: Origins, Challenges, and Proposals for Strengthening* (Hampshire: Ashgate Publishing Limited, 2006), 18.

¹¹⁵ Mark Hibbs, "The Unspectacular Future of the IAEA Additional Protocol," April 26, 2012, Carnegie Endowment, Proliferation Analysis, accessed November 12, 2012, <http://carnegieendowment.org/2012/04/26/unspectacular-future-of-iaea-additional-protocol>.

The importance of the sovereignty issue cannot be overstated. In the case of Iraq, for example, Saddam Hussein either refused or hindered monitoring efforts long after his regime had abandoned its efforts to build a nuclear weapon. Among many in the international community Saddam's behavior led to an assumption that Saddam's regime continued to conceal illegal weapons—or at least it's illegal weapons production efforts. It is likely Saddam's obstructionism was in fact aimed at impressing his domestic audience with the regime's resolve in refusing to allow their country's sovereignty to be "violated." By refusing or hindering monitoring efforts, Iraq elicited more intense monitoring efforts by the international community, resulting in a "vicious circle" of mistrust.¹¹⁶

The question of sovereignty poses an obstacle for negotiators who might attempt to provide a future ICELA GHGIS with the monitoring authority needed to verify treaty compliance. In some ways the task is even more daunting than the one that confronted NPT negotiators because the types and scope of activities that generate CO₂ include virtually every activity conducted within a country's borders.¹¹⁷ For those inclined to see international monitoring within their country's borders as a violation of their territorial sovereignty, the GHGIS could indeed provoke opposition.

Some countries have already indicated reluctance to submit to any intrusive CO₂ limitation monitoring regime. As reported in the *Economist*, during the Copenhagen Conference of the Parties in 2009 (one of the UNFCCC's annual negotiations), the U.S. representatives suggested that countries be more transparent in regard to their CO₂ emissions. In response, Indian Environment Minister Jairam Ramesh asked, "Are you worried China and India will make up our figures?" The same *Economist* article went on to note that, in 2006 according to the Chinese government, up to a fifth of China's power plants were illegal.¹¹⁸

¹¹⁶ Lodgaard, "Nuclear Disarmament, 134.

¹¹⁷ Daniel Bodansky, "The Durban Platform Negotiations: Goals and Options," *Harvard Project on Climate Agreements Viewpoints* (2012, July), 9, Belfer Center, accessed July 23, 2012, http://belfercenter.hks.harvard.edu/files/bodansky_durban2_vp.pdf.

¹¹⁸ Juliette Eilperin, "MRV-less in Copenhagen." *The Economist* (2009, 16 December), accessed July 1, 2012, http://www.economist.com/blogs/democracyinamerica/2009/12/mrvless_in_copenhagen.

Compounding the challenge of monitoring absent in situ sensors and on-site inspections is the simple inability of many countries to accurately determine their own CO₂ emissions. China's difficulties in this regard will be discussed in due course. Assuming that resistance to on-site inspections persists and such inspections are not incorporated into the final treaty provisions, the existence of a competent U.S. ICCME may play an important role in maintaining confidence in the ICELA among all signatories. Indeed, the sources and methods available to the IC will contribute to the assessment of whether a country's CO₂ limitation efforts are in fact genuine (i.e., reflected in that country's internal communications).

In the context of treaty monitoring, it is instructive also to consider the dispute that arose during negotiations of the Comprehensive Test Ban Treaty (CTBT), which was adopted by the United Nations in 1996. This dispute echoed the same “have” versus “have not” division between nuclear weapons state (NWS) and non-nuclear weapons state (NNWS) discussed earlier. In this case, the U.S. insisted that on-site inspections (OSI) be triggered when “national technical means” (NTM), essentially satellites and aircraft, of any of the signatory states expose evidence of a treaty violation. Because not all signatories had access to this technology, however, many objected. Some viewed this provision as a means for more technologically endowed nations to bully and harass the others.¹¹⁹ The particular case of China's objections, along with the possible motivations for them, will be explored in the next section. Suffice it here to note that these objections suggested the reluctance that developing countries might have to the possibility that evidence collected by the U.S. independently might be used to determine the treaty compliance of other nations. It will be difficult, however, for other countries to refuse U.S. IC support for the ICELA as long as the ICCME is structured so as to inspire international confidence in the transparency of its process, and in the impartiality of its results.

Ultimately, it

¹¹⁹ Federation of American Scientists, “Comprehensive Test Ban Treaty,” Federation of American Scientists, accessed December 12, 2012, <http://www.fas.org/nuke/control/ctbt/>; Frieman, *China, Arms Control, and Nonproliferation*, 43.

will be the subjectively perceived legitimacy of the ICELA monitoring efforts, rather than their objective precision, that will foster trust and willingness within nations to make the sacrifices required to reduce CO2 emissions.

During the negotiations of the CTBT, the U.S. position prevailed and NTM were accepted as one trigger for OSIs.¹²⁰ To date, however, no CTBT OSI has been called for. Should OSIs be included among the provisions of any future ICELA, however, it seems doubtful that countries would submit to inspections based solely on the assertions of a single other treaty signatory. Chinese leaders, for example, would risk being seen to have compromised their country's sovereignty should they allow OSI within China based on U.S. technological superiority—as will be demonstrated more amply in the subsequent discussion of China.

5. Enforcement

Enforcement of the NTP has generally depended to the use of bilateral diplomacy by the most influential treaty signatories, chiefly the U.S. Individual treaty signatories have brought pressure to bear on treaty violators. The enforcement dynamic is contingent on differences between how individual treaty signatories perceive their security relations.¹²¹ In most cases, some quid pro quo accompanies the resolution of the issue, as will later be seen in a more detailed discussion of U.S. efforts to persuade China to respect the NPT provisions. In certain cases, where the perceived threat is particularly acute, NPT signatories have, through their representatives on the IAEA Board of Governors, the ability to refer a treaty violator to the UN Security Council.¹²² Ultimately, referral to the Security Council exposes a recalcitrant nation to possible sanctions or the use of force.

As noted previously, it is likely that any future ICELA will include both clearer language than that found in the Kyoto Protocol and an accompanying monitoring regime, which Kyoto lacked. Whether or not the signatories of a future ICELA will be able to

¹²⁰ Federation of American Scientists, "Comprehensive Test Ban Treaty," Frieman, *China, Arms Control, and Nonproliferation*, 43.

¹²¹ Gahlaut, *Multilateral Export Control Regimes*, 18.

¹²² Walsh, *Lessons from Success*, 17–18.

devise any type of enforcement mechanism is unknown. The NPT benefits from the ability of treaty signatories to bring military action against a treaty violator in an extreme case, something that will never occur in the case of a future ICELA. Nonetheless, to the extent that the ICELA achieves wide international participation and legitimacy, it will be able to exert a degree of moral suasion far beyond that of the NPT. The NPT is only as strong as the will of its most determined member. In this respect, a future ICELA diverges widely from the NPT. It is the global legitimacy of the ICELA that will constitute its most powerful “deterrent” to treaty violation, not the threat of military action by at most a handful of treaty signatories. Therefore, it is essential that in designing the ICCME great care be employed to ensure that ICCME operations enhance rather than undermine trust in the ICELA.

6. But Is It Fair?

Before trust in the treaty regime can be fostered, there must first be a perception that the agreement itself is fair. Establishing and maintaining this perception will be the treaty regime’s most daunting task. Though the analogy between nuclear weapons and CO2 emissions has practical limitations, a comparison of the NPT and Kyoto does highlight a persistent and inescapable division between the “have” countries and the “have not” countries. Because there can be no definitive means of measuring the relative sacrifice made by either side, treaty detractors on both sides can always challenge the legitimacy of the agreement. The negotiations of both the NPT and Kyoto elicited dissention within countries because of what opponents could easily characterized as their underlying inequity. Overcoming these objections was achieved only through a tremendous diplomatic effort. Scott Barrett described Kyoto as, “the most difficult environmental treaty negotiation ever attempted.”¹²³ For a prospective ICCME, the primary challenge will be to identify treaty violations without fueling a perception of inequity that will continue to simmer just below the surface of any future ICELA.

¹²³ Barrett, *Environment and Statecraft*, 358.

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IV. THE EQUITY IMPERATIVE: THE ICCME UNDER THE PUBLIC SPOTLIGHT

The previous section drew attention to the fact that no violator of any future ICELA will ever confront a credible threat of military intervention. This lack of a military enforcement option is perhaps what most distinguishes the ICELA from the NPT. Even in the case of the NPT, no military intervention would be conceivable against other than a non-nuclear weapon state. While sanctions or penalties might be invoked against an ICELA violator, this option runs into a practical roadblock; any impetus to punish a violator presupposes that the violator produces a significant quantity of CO₂ emissions. Any country that produces a significant quantity of CO₂ emissions, however, is unlikely to be easily influenced—if at all—by the threat of sanctions. Moreover, sanctions against any such country are likely to hurt the economies of the very countries that would be called upon to enforce the sanctions. Ensuring ICELA compliance, therefore, must be accomplished by encouraging the willing compliance of treaty signatories and their citizens.

As discussed in the literature review, in identifying the forces involved in the design of government bureaucracies, scholars allocate little attention to the influence of public opinion. Nevertheless, public perceptions and expectations constitute the waters within which the bureaucracy, federal elected officials, and interest groups navigate. In an electoral democracy, public opinion is context. To the degree that public attention is disengaged from an issue, political leaders can pursue many policies without undue concern for public opinion. So long as its behavior is unobtrusive, the bureaucracy can likewise operate with considerable autonomy, since where public attention is lacking, political leaders are loath to invest their limited capital in overcoming bureaucratic willfulness. In areas where the light of public attentiveness shines dimly, interest groups can determine, to a large degree, where politicians focus their attention and likewise impel or constrain bureaucratic activity.¹²⁴ However, increased public attention alters

¹²⁴ Carpenter, *The Forging of Bureaucratic Autonomy*, 356.

any existing equilibrium, and, if sustained, can result in the emergence of new political actors, and potentially initiate a new national trajectory.

This thesis rests on the premise that climate change poses a first order national security concern and that all efforts should be directed at achieving a global agreement on reducing anthropogenic CO₂ emissions. From this it follows that enlisting domestic and international public support for such efforts is essential. Therefore, the ICCME function must be accomplished without undermining the success of the international agreement that it will be designated to monitor. Moreover, given that success of the agreement is essential to U.S. national security, the mission of the ICCME should be understood to be support for the international agreement—not to the exclusion of—but nonetheless above other considerations. Unless this premise is internalized by those enlisted to perform the ICCME function, there is a real danger that, in carrying out its work, the ICCME will undermine U.S. and or international confidence in the equity and viability of the ICELA, and it serve to weaken the very agreement upon which national and global security will depend.

Thus the task of the ICCME will include avoiding actions that will undermine public trust, while pursuing policies that will increase public confidence. For this reason, it is important to consider the forces influencing, or which might influence, public perceptions as they relate to the ICCME mission. Specifically, two essential mutually reinforcing issues deserve consideration: 1) the legitimacy of the link between anthropogenic CO₂ emissions and climate change, and 2) the credibility of international government sponsored efforts to reduce these emissions. Given that reducing the burning of fossil fuels implies economic sacrifice—at the very least during an initial period of transition to alternative energy sources—and that inequitably distributed and/or inadequate sacrifice will have limited impact on the problem, reducing anthropogenic CO₂ emissions presupposes that the public trust both that the problem and its “solution” are credible. If the public believes that the problem or its link to human activity is not real, then it will not sacrifice to solve it. If the sacrifice is un-requited by other important

CO2 contributors, then the sacrifice will be, to a significant extent, for naught and the public will refuse to make the effort.¹²⁵

A. SECURITIZING CLIMATE CHANGE

Well-funded and ingenious interest groups frequently influence public perceptions. In the case of climate change and efforts to limit anthropogenic CO2 emissions, observers have identified the successful stratagems employed by industry to alleviate public concern regarding the phenomenon. These forces have fabricated the myth of a scientific community divided on the question of whether climate change is in fact occurring and, if so, whether human activity is the source of this change. Remarkably, they have succeeded in deceiving the public despite the fact that the level of scientific agreement on climate change is exceptional compared to most other fields of scientific inquiry.¹²⁶ This effort and its success have a significant and well-documented precedent: the doubt seeded by cigarette companies before public acceptance of the link between cigarettes and cancer coalesced.¹²⁷ Most notably, ExxonMobil has been implicated in the climate science disinformation campaign, and analysts consider the company's recent relaxation of those efforts to be prompted by company concerns that it may one day find itself, like the cigarette companies, forced to pay compensation for its willful disregard for the public well-being.¹²⁸

¹²⁵ Valentina Bosetti and Enrica De Cian, , "A good opening: the key to make the most of unilateral action," *The Harvard Project on Climate Agreements*, Harvard Kennedy School, Discussion Paper 12-49, (March 2012): 3-4.

¹²⁶ Kevin Armitage, "State of Denial: The United States and the Politics of Global Warming," *Globalizations*, 2, no. 3 (2005, December): 418; Sharon Begley, "The Truth about Denial," *The Daily Beast* in *Newsweek*, August 12, 2007, accessed November 24, 2012, <http://www.thedailybeast.com/newsweek/2007/08/13/the-truth-about-denial.html>; Mark Lacy, *Security and Climate Change: International Relations and the Limits of Realism* (New York: Routledge, 2005). 28; "Climate of Doubt," *Frontline*, October 23, 2012, PBS, accessed November 20, 2012, <http://www.pbs.org/wgbh/pages/frontline/climate-of-doubt/>.

¹²⁷ "U.S. Supreme Court Upholds Verdict that Tobacco Companies Conspired To Deceive American Public," [statement of Mathew L. Myers] PRNewswire-USNewswire, June, 28, 2010, PRN, accessed November 20, 2012, <http://www.prnewswire.com/news-releases/us-supreme-court-upholds-verdict-that-tobacco-companies-conspired-to-deceive-american-public-and-addict-children-97307939.html>.

¹²⁸ Steve Coll, "ExxonMobil: A 'Private Empire on the World Stage,'" interview by Terry Gross, *Fresh Air*, May 2, 2012, transcript, NPR, accessed May 20, 2012, <http://www.npr.org/templates/transcript/transcript.php?storyId=151842205>.

The reality of the climate change peril has long been recognized by the federal agencies whose areas of expertise encompass elements of the natural sciences, including the National Oceanic and Atmospheric Administration (NOAA), the Environmental Protection Agency (EPA), the Department of Agriculture, the Department of Commerce, the Department of Defense, and the National Aeronautics and Science Administration (NASA)¹²⁹ In order to overcome resistance to climate change mitigation efforts, the Obama Administration, along with many other current and former officials and military officers, declared climate change to be an issue of “national security.”¹³⁰ Hope has been expressed that the national security establishment’s engagement with the issue of climate change will help to highlight the legitimacy of the scientific consensus regarding both the anthropogenic origin and perils posed by the current climate phenomenon.¹³¹

Securitization of environmental and other issues not associated with human adversaries has received attention by scholars. Buzan, Waever, and De Wilde affirm that the idea of a “national security” threat is a social construct whose significance must be considered within its particular set of circumstances. They argue against the notion of any objective set of criteria by which a “national security threat” can be evaluated.¹³² Instead, they suggest that such a declaration is designed to move an issue out of the sphere of normal politics, to a protected area where the state can pursue policies that would normally be subjected to general scrutiny and opposition.¹³³ Such a declaration, which Buzan et al., call a “speech act,” involves a complex alchemy, and, though the state does exercise a tremendous strategic advantage in invoking “national security” in that many of its actions can be hidden behind a cloak of secrecy, such declarations may

¹²⁹ Backlund, Janetos, and Schimel, *The Effects of Climate Change on Agriculture*; DoD, *2010 Quadrennial Defense Review Report*, 87; EPA, “Emissions Climate Change;” NASA, “Climate Change: How Do We Know;” NOAA, “Climate Program Office;” Perry and Andersen, *Dynamics in the Arctic Region*; USGRP, *The U.S. Climate Change Science Program*.

¹³⁰ White House, *2010 National Security Strategy* (Washington, D.C.: White House, 2010), White House, accessed July 28, 2011, http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf.

¹³¹ Captain Wayne Porter (Chair of Systemic Strategy and Complexity, Naval Postgraduate School) in discussion with the author, June, 25, 2012.

¹³² Buzan, Waever, and Wilde, *Security*, 26.

¹³³ Ibid.

nevertheless elicit opposition.¹³⁴ As Buzan et al., explain, “The security act is negotiated between securitizer and audience—that is, internally within the unit—but thereby the securitizing agent can obtain permission to override rules that would otherwise bind it.”¹³⁵

Thus far, the Obama Administration’s attempt to “securitize” climate change has met with tenacious congressional opposition.¹³⁶ The inherent complexity of climate change has meant that any national narrative regarding the phenomenon can be distorted by opponents.¹³⁷ Viewed within this context, it is difficult not to see the closing of the CIA’s Climate Change Center as a capitulation by the current administration. Whether or not the closing will further embolden opponents of action to mitigate climate change, it underscores the efficacy of their tactics. Upon the closing of the Climate Change Center, CIA representatives noted that the activities of the center would be integrated into other agency operations. In fact, closing the center may have simply been a means of reducing the administration’s “exposure” to an issue that resonated among a large number of its opponents.¹³⁸

1. Securitization Opponents

One important difference then between nonproliferation and climate change, in so far as securitization is concerned, is that proliferation of nuclear weapons was successfully securitized, and the state could exercise dominion over entities who would like to be able to sell, for example, the components for making a nuclear bomb to all comers. Thus far, however, although the President has deemed climate change a matter

¹³⁴ Ibid.

¹³⁵ Ibid.

¹³⁶ Alexa Jay, “Republican Deficit Demagogue Threatens to De-fund CIA Climate Monitoring and Analysis,” January 20, 2011, Climate Science Watch, accessed January 2, 2012, <http://www.climatesciencewatch.org/2011/01/20/republican-deficit-demagogue-threatens-to-de-fund-cia-climate-monitoring-and-analysis/>.

¹³⁷ Robert Brulle, Jason Carmichael, and J. Craig Jenkins, “Shifting Public Opinion on Climate Change: an Empirical Assessment of Factors Influencing Concern over Climate Change in the U.S., 2002–2010,” *Climatic Change* (2012) 114: 175; Susanne Moser, “Communicating Climate Change: History, Challenges, Process and Future Directions,” *Wiley Interdisciplinary Reviews*, 1 (2010, January/February): 35, Climate Access, accessed July 1, 2012, http://www.climateaccess.org/sites/default/files/Moser_Communicating%20Climate%20Change.pdf.

¹³⁸ “Climate of Doubt,” *Frontline*; Romm, “Barrasso Seeks to Block Intelligence.”

of national security, this has had no significant practical effect. In addition, it has not permitted the federal government to assume extraordinary powers to regulate CO2 emissions as a national security threat, or for the federal government to yet enter into an international agreement whereby the federal government could limit the use of fossil fuels. Aside from the practical differences in the effect of regulating the components of nuclear weapons as opposed to CO2 emissions, humans react with more intensity to the dangers of deliberate harm posed by other humans than they do to those posed by other “natural” events.¹³⁹ Ultimately, we may be less predisposed to recognize an environmental threat as opposed to, say, one posed by an aggressive rival.¹⁴⁰

Indeed, Buzan et al., note:

One of the difficulties facing those attempting to securitize environmental issues is that the threats are both new (or newly discovered) and controversial regarding their existential urgency. Consequently, they do not (yet) have institutions, and they find themselves operating in a political context dominated by security institutions designed for other types of threat.¹⁴¹

Just as the climate has posed a novel concern for the CIA, it has proven easy for “climate deniers” to deride the CIA’s interest in the phenomenon.¹⁴² What Buzan et al., did not anticipate was that in attempting to securitize an issue, the state can instead provide a target for opponents of the policies the state hopes to promote through the securitization process. It appears that this is what has occurred thus far in the case of climate change and the CIA’s now defunct Climate Change Center.

In fact, the same forces currently most associated with opposition to climate change mitigation initiatives are likewise those which have expressed distrust of the federal government. “Grass roots” organizations, like the Tea Party, have received a

¹³⁹ Douglas Paton, “Terrorism Stress Risk Assessment and Management,” in *Psychology of Terrorism*, ed. Bruce Bongar, Lisa M. Brown, Larry E. Beutler, James N. Breckenridge, Philip G. Zimbardo (New York: Oxford University Press, 2007), 226.

¹⁴⁰ Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York, Penguin Books, 2005).

¹⁴¹ Buzan, Waever, and de Wilde, *Security*, 28–29.

¹⁴² Ben Geman, “Barrasso Attacks CIA Climate Change Works, Calls for Hearings,” January 5, 2012, The Hill, accessed November 23, 2012, <http://thehill.com/blogs/e2-wire/e2-wire/74423-barrasso-attacks-cia-climate-change-work-calls-for-hearings>.

significant part of their funding from interests associated with fossil fuel industries.¹⁴³ These interests have succeeded in conflating climate change mitigation initiatives with the danger of excessive government power. Even outside the U.S., researchers have noted that many of the most ardent climate deniers see their opposition to climate change mitigation efforts as a public service. In their study of Australian climate skeptics, Kersty Hobson and Simon Niemeyer described:

...a profound distrust of a range of authority figures and a somewhat hubristic conviction in their viewpoint, making individuals loaded onto this discourse actively opposed to talk of, and action on, climate change.¹⁴⁴

B. THE CHALLENGE OF CONSOLIDATING MITIGATION EFFORTS

Again the complexity of climate change, including the broad range of conceivable policy actions to mitigate the phenomenon, put advocates of climate change mitigation at a disadvantage to climate deniers. Researchers have postulated that marshaling unified public response to a threat depends on being able to provide three elements:

1. a credible communicator,
2. a specific warning about a specific event, and
3. a concrete course of action for the public to pursue.¹⁴⁵

Tellingly, Ezra Markowitz and Azim Shariff, two researchers who have studied the reasons that climate change “fails to activate people’s moral alarm system,” have

¹⁴³ Stan Adele “Tea Party Inc.: The Big Money and Powerful Elites behind the Right Wing’s Latest Uprising,” October 24, 2010, Alter Net, accessed December 10, 2012, http://www.alternet.org/story/148598/tea_party_inc.%3A_the_big_money_and_powerful_elites_behind_the_right_wing%27s_latest_uprising; Jeff Biggers, “Big Coal Tea Party Extremists Circle Wagons in DC Today: Coalfields Left Behind in Ruins,” *The Huffington Post*, September 15, 2010, accessed December 5, 2012, http://www.huffingtonpost.com/jeff-biggers/big-coal-tea-party-extrem_b_717490.html; John Broder, “Climate Change Doubt is A Tea Party Article of Faith,” *The New York Times*, October 20, 2010, accessed December 5, 2012, http://www.nytimes.com/2010/10/21/us/politics/21climate.html?_r=1&; Frank Rich, “The Billionaires Bankrolling the Tea Party,” *The New York Times*, August 28, 2010, accessed December 5, 2012, <http://www.nytimes.com/2012/08/29/opinion/29rich.html>; Greenpeace, “Koch Industries Secretly Funding the Climate Denial Machine,” Greenpeace, accessed December 5, 2012, <http://www.greenpeace.org/usa/en/campaigns/global-warming-and-energy/polluterwatch/koch-industries/>.

¹⁴⁴ Hobson and Niemeyer, “What Skeptics Believe: The Effects of Information and Deliberation on Climate Change Skepticism,” January 10, 2012, Public Understanding of Science, Sage, accessed November 24, 2012, <http://pus.sagepub.com/content/early/2012/01/09/0963662511430459>.

¹⁴⁵ Rose McDermott and Philip Zimbardo, “The Psychological Consequences of Terrorist Alerts,” ed. Bruce Bongar, Lisa M. Brown, Larry E. Beutler, James N. Breckenridge, Philip G. Zimbardo, *Psychology of Terrorism*. (New York: Oxford University Press, 2007), 358.

found that it is in part because of the issue's "abstract, distal and uncertain outcomes."¹⁴⁶ Given that credibility depends more on the perceiver than the messenger, advocates of climate change mitigation find themselves handicapped in attempting to overcome the appeal of opponents who can offer more specific, albeit fallacious, warnings and more concrete courses of action to their likeminded supporters. Advocates of climate change mitigation efforts can call upon science to support their predictions; however, these predictions are of a slowly unraveling litany of future events likely to occur at unknowable intervals. In the words of Markowitz and Shariff, "Climate change possesses few features that generate rapid, emotional visceral reactions: it is an abstract, temporally and spatially distant phenomenon consisting of many different, disparate and seemingly incongruous events."¹⁴⁷ Climate deniers can, on the other hand, warn fellow skeptics that each coming election could bring draconian environmental laws and higher fuel prices. While advocates of climate change mitigation offer an array of suggestions about altering personnel behaviors and the need for increased international cooperation, a lack of a specific common course of action with any prospect of altering the climate outcome characterizes much of the their rhetoric.

In addition, climate change deniers can, as occasions present themselves, appeal to their supports to simply vote against mitigation initiatives or against politicians who might support such initiatives. Most climate change mitigation strategists recognize that reducing global CO₂ emissions in the quantities required to avoid the worst consequences of climate change can only be achieved by increasing the global cost of carbon based fuels relative to alternative sources of energy.¹⁴⁸ The evidence is that science alone will not persuade members of the public, who will need to be convinced by sources that they consider credible. These sources will likely be many, and members of the public are most likely to follow the example provided by climate change advocates close to them.¹⁴⁹

¹⁴⁶ Ezra Markowitz and Azim Shariff, "Climate Change and Moral Judgment," *Nature Climate Change*, 2 (2012, March): 243.

¹⁴⁷ Ibid.

¹⁴⁸ Al Gore, "Al Gore: Climate of Denial," *Rolling Stone* (2001, June), accessed October 25, 2011, <http://www.rollingstone.com/politics/news/climate-of-denial-20110622?page=6>.

¹⁴⁹ Thomas E. Drabek, "Understanding Disaster Warning Responses," *Social Science Journal*, 36, no. 3 (1999): 515–523.

Though local efforts to reduce carbon dependency are essential, alone they may simply displace the use of fossil fuels to locations where the resultant increase in the availability of carbon based fuels will lower carbon fuel costs. Avoiding “leakage” entails a global concerted effort. Still, if the global community is to heed the “warning” of climate cataclysm, then the global community must be provided a common agenda, like an ICELA, for reducing carbon consumption. This concerted action will hinge on trust—trust that might easily be undermined by injudicious use of the IC. Markowitz and Shariff note,, “psychological research shows the powerful, positive effect of increasing perceived similarity, shared identity and superordinate goals on helping behaviour.”¹⁵⁰ Mitigating climate change will need to be framed as a superordinate goal that can only be attained through global cooperation. Only by supporting an international ICELA monitoring regime in the most transparent fashion possible will the ICCME increase the perception that global efforts to reduce anthropogenic CO₂ emissions is a shared endeavor.

C. THE DRIVERS OF PUBLIC OPINION ON CLIMATE CHANGE

Ultimately, there may be little that scientists or scholars can do to alter the prevailing public opinion regarding climate change. Frequent polling suggests that public opinion, in the aggregate, varies little over time. Confusion, manufactured or otherwise, about the reality and origins of climate change remains relatively constant, although it is subject to moderate influence by the accuracy of media reporting. Overall, however, this reporting has little effect, and what effect it does have is short lived. What seems most to determine public opinion is party affiliation, and, more specifically, the positions adopted by what researchers refer to as “elites.”¹⁵¹

Isolating the factors that influence the public’s opinion about climate change poses a challenge, in part due to a lack of consistent polling methodology over time. When asked to attribute the source of their opinions on climate change, those polled infrequently mention scientific reporting (eight to 10 percent), while nearly half said they

¹⁵⁰ Markowitz and Shariff, “Climate Change and Moral Judgment,” 246.

¹⁵¹ Brulle, CarMichael, and Jenkins, “Shifting Public Opinion on Climate Change,” 185.

had arrived at their conclusions through personal observations about the weather.¹⁵² However, underlying the attitudes of the respondents was a strong correlation with party affiliation, with roughly three quarters of democratic respondents answering that they agreed that there was “solid evidence” climate change was occurring, as opposed to only half of republican respondents.¹⁵³ Polling about climate change has intensified in concert with the intensity of focus on the issue, but consistent long-term polling is generally lacking. To overcome the lack of regularly measured data points, Brulle, Carmichael, and Jenkins devised a time series analysis whereby they isolated the effect of different variables on public opinion during the period from 2002 to 2008. These variables included: “1) extreme weather events, 2) public access to accurate scientific information, 3) media coverage, 4) elite cues,¹⁵⁴ and 5) movement/countermovement advocacy.”¹⁵⁵ Among “elite cues,” the study authors highlighted “Democratic Congressional action statements and Republican roll-call votes.”¹⁵⁶ The study found that elites and group advocacy were what most influenced public opinion.¹⁵⁷

In light of these and other study results underlining the influence that elites have on public opinion, the so called “Climategate scandal” presents a strong cautionary example for advocates of action to mitigate climate change. “Climategate” involved a series of hacked email exchanges between climate researchers at the University of East Anglia over a 13-year period.¹⁵⁸ Though the email exchange demonstrated nothing of significance about the way climate science was conducted, opponents of action to mitigate climate change nevertheless continued to use these hacked emails to great

¹⁵² Borick and Rabe, “Fall 2011 National Survey,” 2.

¹⁵³ Ibid; Kate Sheppard, “Romney Spokeswoman Promoted Climate Change Denial on Behalf of Exxon,” *Mother Jones*, August 8, 2012, accessed November 24, 2012, <http://www.motherjones.com/mojo/2012/08/romney-flack-promoted-climate-denial-behalf-exxon>.

¹⁵⁴ “Elites” as employed by the researchers those individuals, generally politicians, whose opinions influence those of others.

¹⁵⁵ Brulle, CarMichael, and Jenkins, “Shifting Public Opinion on Climate Change,” 169.

¹⁵⁶ Ibid., 185.

¹⁵⁷ Ibid.

¹⁵⁸ FactCheck, “‘Climategate’: Hacked E-mails Show Climate Scientists in a Bad Light but Don’t Change Scientific Consensus on Global Warming,” December 10, 2009, FactCheck, accessed November 24, 2012, <http://www.factcheck.org/2009/12/climategate/>.

effect.¹⁵⁹ The ongoing ramifications of that incident underline the impact that even the suspicion of impropriety can have on public perceptions. “Climategate” was exploited by climate change deniers to suggest that reputable climate scientists were in fact untrustworthy. In so far as an ICCME is concerned, though its sources and methods must remain concealed, the need for transparency and credibility in its operational methodology and target selection criteria cannot be overstated.

D. FAIRNESS, THE NEXT FRONT IN THE CLIMATE WAR

Though a supposed scientific “dispute” as to the anthropogenic origins of climate change has dominated the global narrative for the last two decades, this controversy will not persist into the future. Just as the causal link between cigarette smoking and cancer eventually emerged from the cigarette industry’s disinformation campaign as universally accepted fact, so too will the unhappy marriage between CO₂ and climate change one day be consummated in the public’s mind. In the wake of the devastation wrought by Hurricane Sandy, the declarations of mainstream politicians like New York Mayor Bloomberg affirming the association between the burning of fossil fuels and climate change offered an inkling of how quickly public perceptions might veer, or be steered, from their old course.¹⁶⁰ Forces opposed to meaningful action to reduce global CO₂ emissions will find other justifications for procrastination. Though there are arguments regarding the true economic costs of the measures needed to achieve meaningful reduction in global CO₂ emissions, it is clear that substantial costs would have to be incurred. Although the current global economic situation is particularly unfavorable for measures that would necessarily increase fuel prices, even in the more prosperous late 1990s, economic arguments were already being leveled against U.S. adherence to the

¹⁵⁹ Ibid.

¹⁶⁰ Bloomberg, “A Vote for a President to Lead on Climate Change,” *Bloomberg News*, November 1, 2012, accessed November 27, 2012, <http://www.bloomberg.com/news/2012-11-01/a-vote-for-a-president-to-lead-on-climate-change.html>; Justin Gillis, “Americans Link Global Warming to Extreme Weather Poll Says: N.Y. Times,” *New York Times*, April 17, 2012, accessed November 23, 2012, http://www.nytimes.com/2012/04/18/science/earth/americans-link-global-warming-to-extreme-weather-poll-says.html?_r=0.

Kyoto Protocol.¹⁶¹ Questions regarding the cost of mitigating climate change will not abate.

Without U.S. support and participation, the achievements of the Kyoto Protocol were bound to be limited. While certain observers contend that these accomplishments should not be discounted, it is clear that they are insignificant compared to the gravity of the problem. Still, in order to anticipate the tactics opponents of a future ICELA will adopt, Kyoto provides a strong indicator.

Insufficient attention has been given to the reasons the U.S. failed to ratify Kyoto. Instead of arguing against the need for the treaty, critics, especially those in Congress, justified their stance against ratification by highlighting Kyoto's underlying "unfairness." By exempting developing countries from making proportional reductions in their emissions—regardless of the merits of the actual provisions or the strength of the arguments for differentiating between signatories—Kyoto provided U.S. opponents with an argument that resonated with U.S. elites.

In the summer of 1997, during the negotiations leading up to the Kyoto agreement, the U.S. Senate voted 95-0 in favor of a resolution against U.S. ratification of Kyoto unless the greenhouse gas emissions reductions required of the industrialized countries were similarly imposed on developing countries (including China and India).¹⁶² The *Washington Post* quoted Senator Larry Craig, head of the Republican Policy Committee, as saying that the treaty was "designed to give some nations a free ride, it is designed to raise energy prices in the United States and it is designed to perpetuate a new U.N. bureaucracy to manage global resource allocation."¹⁶³

¹⁶¹ Barrett, *Environment and Statecraft*, 369; United States Senate, "U.S. Senate Roll Call Votes 105th Congress- 1st Session," United States Senate, accessed July 27, 2012, http://www.senate.gov/legislative/LIS/roll_call_lists/roll_call_vote_cfm.cfm?congress=105&session=1&vote=00205.

¹⁶² Barrett, *Environment and Statecraft*, 369; Edward Koch, "Al Gore's Kyoto Hypocrisy," *Newsmax*, September 22, 2004, Newsmax Archives, accessed July 27, 2012, <http://archive.newsmax.com/archives/articles/2004/9/22/92331.shtml>; "U.S. Senate Roll Call Votes 105th Congress- 1st Session."

¹⁶³ Helen Dewar and Kevin Sullivan, "Senate Republicans Call Kyoto Pact Dead," *Washington Post*, December 11, 1997; A37, accessed November 18, 2012, <http://www.washingtonpost.com/wp-srv/inatl/longterm/climate/stories/clim121197b.htm>.

Both within the U.S. and abroad, the problem of differentiating between developed and developing countries in any climate change agreement will persist. The agreement reached in Kyoto did in fact recognize such a differentiation, and this appears to have contributed to the failure of the U.S. to ratify the Kyoto Protocol. Developing countries will continue to argue that equity demands that the countries that have most contributed to the increase in atmospheric CO₂ levels should likewise do more to reduce those levels than countries which have only recently begun to contribute to the problem. Though citizens in many developed countries have been sympathetic to this argument, as greater sacrifices are required it is not unreasonable to expect that there will be an increase in the polarization between the two sides. Behavioral economists have identified the phenomenon of “self-serving bias,” or a strong tendency for individuals to conflate outcomes that, as shown through objective experimentation, disproportionately benefit themselves with equity. This phenomenon has been identified as at least contributing to the paradoxical failure of labor contract negotiations that have resulted in outcomes considerably worse for one or both parties than what might have been achieved had not their self-serving bias distorted each party’s judgment about what was reasonable to expect from the other.¹⁶⁴

While some economists were initially loath to incorporate a “psychological” component to their models of behavior, the evidence for phenomenon like the self-serving bias was too overwhelming to ignore.¹⁶⁵ If the self-serving bias manifests in human behavior absent exogenous encouragement, it can be assumed that the type of concerted opposition already displayed by the “denier” movement will mobilize to provoke and reinforce public suspicion regarding the fairness of any future climate change agreement.

The power of the self-serving bias will complicate the task of future climate treaty diplomats who must remain mindful of the perceptions of their domestic audience when negotiating with their international counterparts. All treaty negotiators will have to

¹⁶⁴ Linda Babcock and George Loewenstein, “Explaining Bargaining Impasse: The Role of Self-Serving Biases,” *Journal of Economic Perspectives*, 11 (1997): 109–126, accessed November 22, 2012, <http://www.sec.gov/rules/proposed/s71300/testimony/loewen1c.pdf>.

¹⁶⁵ Ibid.

contend with their public's willingness to sacrifice a more materially favorable outcome for one that the public perceives to be more equitable.¹⁶⁶ While at first counterintuitive, researchers employing mathematical modeling have demonstrated why in fact this predilection for self-sacrifice makes evolutionary sense. Within groups, the departure of "defectors" from the normative behavior could be punished in order to induce compliance among the remainder of the group members. While the meting out of this punishment by one of the group's "cooperators" might result in injury or death to the punisher, the threat of punishment ensured that defections were rare, and the benefits of group cohesion more than compensated for the very infrequent loss—temporary or otherwise—of the punisher's contribution. Group selection, favoring more cohesive groups, would lead to groups containing more punishers eventually predominating over those with fewer.¹⁶⁷

The equity imperative that reigns over much of human behavior is beneficial under normal conditions. However, it can be a poor guide as nations move from situations where there are few variables for which to account, to highly complex circumstances that are less amenable to routine evaluations of what is "fair." In the case of climate change and the measures required to reduce the risks of further increasing the levels of atmospheric greenhouse gases, equitable distribution of needed sacrifices is bound to remain subjective for individuals and nations. Under such circumstances, it is essential that mechanisms instituted in order to monitor any future agreement reinforce the global perception that agreed upon processes are being scrupulously respected. To do otherwise will provide agreement opponents with opportunities to seed discord within nations and to drive wedges between treaty signatories.

E. THE INVOCATION OF RIGHTS AND DUTIES

Clearly, the human predilection for fairness should not be seen as a negative attribute. This tendency is integral to human existence as cooperative beings and to any hope of successfully confronting the challenge of anthropogenic climate change. However, much the world succeeds in mitigating climate change, the achievement will

¹⁶⁶ Ernst Fehr and Urs Fischbacher, "Social Norms and Human Cooperation," *Trends in Cognitive Science*, 8 no. 4 (2004, April):185–190.

¹⁶⁷ Robert Boyd, Gintis Herbert, Samuel Bowles and, Peter Richerson, "The Evolution of Altruistic Punishment," *Proceedings of the National Academy of Sciences*, 100, no. 6 (March 18, 2003): 3531–3535.

depend on an ability to moderate the instincts that color judgment and to arrive at compromises recommended by reason.

While opponents of action to mitigate climate change may seek advantage by exciting nations' sensitivity to questions of "equity," proponents of action can call upon these same inclinations to support their climate advocacy. Though the risks of climate change bear down on the current age, the real danger they pose is to generations that will follow. In mankind's history, no such responsibility has yet rested on all humans individually and collectively, so there is no formal map to follow. None of those living now will ever know the vast majority who will live with the consequences of the world's current decisions, but few would question that something is owed them. There are indeed commonsense rights and duties implicit in many human behaviors.¹⁶⁸ The efforts of the many who work today to place limits on the damage done to the atmosphere attest to the existence of these duties—just as they confirm the right to demand them on behalf of future generations.

Although some might argue that mitigating climate change can only be achieved through global trust and a commitment to reducing greenhouse gases, Kyoto proved the limits of an approach based solely on words of honor. Human collective dependence on the burning of fossil fuels can only be overcome through substantial sacrifice, and those who are asked to sacrifice will want to know that their contribution will be reciprocated equitably and that, ultimately, their sacrifices will be meaningful. Kyoto, with its flaws, is the model for global greenhouse gas reduction to which the human race seems destined for now. Most observers recognize that any successor to Kyoto must include an effective monitoring regime. As diplomat and nonproliferation expert J. Christian Kessler put it, "Verifying a state's compliance with its treaty commitments has a certain inherent logic and structure common to all situations, regardless of the technical aspects."¹⁶⁹ The human demand for equity can help or hinder in climate change mitigation. As will be discussed in the next chapter, maintaining a perception of treaty equity will be key to

¹⁶⁸ Fathali M. Moghaddam and Cara Riley, "Toward a Cultural Theory of Rights and Duties in Human Development," ed. Norman Finkel and Fathali M. Moghaddam, *The Psychology of Rights and Duties: Empirical Contributions and Normative Commentaries* (Washington D.C.: APA Press, 2005), 75.

¹⁶⁹ J. Christian Kessler, *Verifying Nonproliferation Treaties* (Washington, D.C.: National Defense University Press, 1955), 7.

consolidating a climate partnership with perhaps the most important treaty player—China.

V. THE PIVOTAL ROLE OF CHINA

A. CHINA: U.S. ALLY OR FELLOW PRISONER?

The assumption as to whether China should be a target of U.S. IC ICELA monitoring efforts deserves evaluation. In the previous discussion of the applicability of the NPT experience to ICELA, a distinction was drawn between essentially military treaties, like those encompassing weapons nonproliferation, and environmental treaties, in which agreement enforcement options do not include military force. At least in the short-term, countries must make economic sacrifices in order to reduce their CO₂ emissions. Economic sacrifice can also imply military disadvantage, in that a country's rivals can use an income disparity to increase its relative military readiness. Covert ICELA monitoring might help the U.S. to ensure that rival countries are not deriving a military advantage by continuing to pollute while claiming to be "abate" their CO₂ emissions. Perceptions about the behavior of other countries, particularly potential military rivals, have important implications in determining how countries calculate the utility that they derived from different levels of sacrifice. Unilateral covert monitoring of the treaty by any signatory may fuel a perception of inequity among other treaty participants and increases their perceived sacrifice to utility ratio. If the ICCME increases the Chinese perception that they are locked in a "prisoner's dilemma" engagement with the U.S., rather than in amicable climate collaboration, the Chinese may be less willing to sacrifice to achieve climate change mitigation.

This chapter focuses on whether the findings of the ICCME might be used to increase global cooperation, rather than discourage Chinese ICELA participation. The size of China's population and the amount of CO₂ emissions produced by its population alone earn the country special attention within this thesis. The results of the research demonstrate that just as in considering weapons nonproliferation goals, China's influence over global climate change mitigation efforts is even more outsized than the country's dimensions alone would predict. In the past, the Chinese have portrayed the issue of nonproliferation in a way that undermines U.S. nonproliferation objectives. Much in the same way, they have framed the western countries' approach to climate change

mitigation as unfair to developing countries. China will likely play a key role in shaping treaty perceptions by many other potential participants and, thus, in determining the possibility for achieving any significant climate change mitigation.

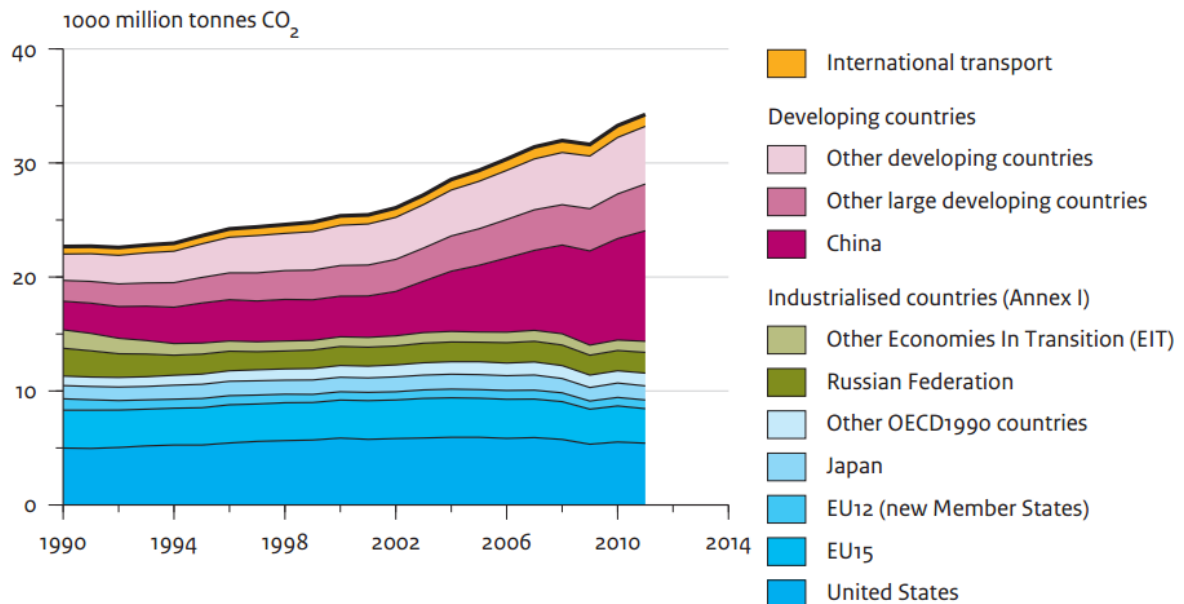


Figure 1. Global CO₂ Emissions per Region from Fossil Fuel Use and Cement Production¹⁷⁰

B. WHAT TO EXPECT FROM CHINA—AMBIGUITY

China has surpassed the U.S. as the greatest emitter of CO₂. Along with this distinction, China's growth, internal contradictions, and its potential for adversarial relations with the U.S. earn the country special attention in regard to U.S. treaty-monitoring efforts. While covert U.S. monitoring would need to encompass the globe, China provides the ultimate yardstick against which to measure monitoring challenges and success. Still, notwithstanding the utility of studying China as a special case, China's CO₂ emissions should by no means monopolize the attention of an operating ICCME. Too narrowly focusing on China's carbon emissions may distract monitoring efforts from

¹⁷⁰ Jos G. J. Olivier, Greet Janssens-Maenhout, Jeroen A.H.W. Peters, *Trends in Global CO₂ Emissions 2012 Report* (The Hague/Bilthoven: PBL Netherlands Environmental Assessment Agency, 2012), 11, accessed February 13, 2013, http://www.pbl.nl/sites/default/files/cms/publicaties/PBL_2012_Trends_in_global_CO2_emissions_500114022.pdf.

other countries that may be substantially less compliant to treaty provisions. In other words, it is important not to focus so intently on China, that we lose sight of India. Traditional security concerns should not trump climate concerns.

Besides being the two greatest emitters of CO₂, China and the U.S. have likewise been the most confrontational in their concerns regarding the equitable distribution of CO₂ emissions limitations. This disharmony echoes a similar diplomatic NPT confrontation that arose during the decade-long period following the NPT's 1970 entrance into force. The long and ongoing arms limitation engagement between the U.S. and China is significant to the current climate change discussion because the success of both the NPT and any future ICELA largely depends on the two countries being able to overcome their differences and act cooperatively. As discussed in the thesis section on game theory, reducing CO₂ emissions entails some and potentially considerable increase in energy costs and subsequent negative implications for any country's relative military standing. It is likely that constituencies within the U.S. and China—countries that perceive one another as potential geopolitical rivals—will oppose any agreement that might, in DeCanio and Fremstad's words, "upset the balance of power between them."¹⁷¹

China's growing presence on the world stage has exposed the Chinese regime to greater scrutiny and increasingly nuanced international evaluations of Chinese behavior. Nevertheless, in large part because of the country's authoritarian form of government, there persists a tendency in the West to attribute greater subterfuge in Chinese diplomatic behavior than the facts might otherwise suggest. In a paper that has been cited by scholars thousands of times, Robert Putnam succinctly describes the provisional reality underlying the national executive's ostensible diplomatic autonomy, noting:

Central executives have a special role in mediating domestic and international pressures precisely because they are directly exposed to both spheres, not because they are united on all issues nor because they are insulated from domestic politics.¹⁷²

¹⁷¹ DeCanio and Fremstad, "Game Theory," 4.

¹⁷² Robert Putnam, "Diplomacy and Domestic Politics: The Logic of Two-Level Games," *International Organization*, 42, no. 3, (1988, summer):432–433.

Though it may be tempting to view Chinese treaty participation—whether NPT in the past or ICELA in the future—as being driven by a unitary will, it will prove more productive to consider the international and domestic constraints within which the Chinese leadership must operate.¹⁷³ Overestimating the range of options available to China’s leadership may result in a misreading their intentions and lost opportunities for achieving maximal CO2 emission reductions from any future ICELA.

China’s ascendance as a world political and economic leader is fundamental to the Chinese’s self-image. This preoccupation has contributed to China’s engagement with the issue of climate change.¹⁷⁴ The Chinese wish to be seen as participating in global efforts to reduce CO2 emissions. Concurrently, however, the Chinese leaders have clearly stated their unwillingness to sacrifice their country’s economic wellbeing to solve a problem created by Western nations. During the Kyoto negotiations, Chinese representatives invoked this argument against the West in an apparent effort to establish themselves as the champions of the world’s less developed economies.

Although other nations may accuse the Chinese of reneging on one or another provision of their treaty obligations, the Chinese strive to ensure that their behavior remains above international reproach. The evidence provided by China’s participation in various international arms limitation agreements suggests that, should the Chinese participate in a future ICELA—even one with much more stringent requirements than those China agreed to under Kyoto—the Chinese leadership would make every effort to ensure that the international community could not easily accuse China of intentionally contravening the agreement’s provisions.¹⁷⁵

C. CHINA’S APPROACH TO CLIMATE CHANGE MITIGATION

As they were in the case of weapons limitations, the Chinese have been slow to embrace the climate change issue. Nevertheless, the Chinese are well aware of their vulnerability to the effects of increasing anthropogenic CO2, and China consistently

¹⁷³ Personnel correspondence with Wendy Frieman, September 5, 2012.

¹⁷⁴ Soren Lutken, “A Grand Chinese Climate Scheme,” *Riso DTU Climate Paper Series*, (November 2010), 3, Capacity Development for the Clean Development Mechanism (CD4CDM), accessed August 8, 2012, <http://cd4cdm.org/publications/grandclimateschemechina.pdf>.

¹⁷⁵ Personnel correspondence with Wendy Frieman, September 5, 2012.

strives to demonstrate leadership in issues of international salience. As the climate comes to dominate the global conversation, the Chinese will want to be among the leaders of that discussion. Because China's contribution to both anthropogenic CO₂ emissions and to any global solution to the climate change dilemma are so important, it is worth examining current Chinese efforts at climate change mitigation.

While pursuing a unilateral approach to their own CO₂ emissions reduction, the Chinese have remained active participants in most international climate change negotiations. Despite China's disagreements with the U.S. at Kyoto and other venues, some would consider China to be among those countries having to date made the most substantial contribution to global CO₂ emissions reductions. In 2006, the Chinese established a "National Leading Group on Climate Change," which included representatives from 10 of their ministries. The group helped to draft a set of domestic mitigation measures. Among their initiatives was the drafting of regulations that would promote the development of clean sources of energy such as the "Energy Law of the People's Republic of China."¹⁷⁶

The Chinese have been heavily involved in the trading of so called "carbon credits." Kyoto's "Clean Development Mechanism," (CDM) allowed for more developed countries to finance clean energy projects in less developed countries in exchange for certified emission reduction (CER) units or "carbon credits" (i.e., the right to emit CO₂ from industries operating elsewhere).¹⁷⁷ Typically, these credits are sought by industries in developed countries where energy production is both more technologically advanced and cleaner, and the incremental costs of reducing CO₂ emissions substantially greater. Initially, China was reluctant to commit to international CO₂ reduction targets, citing its prioritization of economic development for Chinese citizens. Nonetheless, since 2007 China has begun to vigorously pursue cleaner forms of energy. Within its own borders China has devised a domestic form of "cap and trade" (i.e., the allocation of emissions permits), which adheres closely to the Kyoto model.

¹⁷⁶ Lutken, "A Grand Chinese Climate Scheme," 5.

¹⁷⁷ Mark Lynas, "How Do I Know China Wrecked the Copenhagen Deal? I was in the Room," *The Guardian*, December 22, 2009, accessed December 14, 2012, <http://www.guardian.co.uk/environment/2009/dec/22/copenhagen-climate-change-mark-lynas>.

While the fact that China has instituted regulations to reduce the country's CO₂ emissions is encouraging, the form the Chinese actions took is revealing. The new measures ensured that the Chinese would largely remain both the source and beneficiary of the CERs they themselves were generating within their borders through their domestic CDM projects.

Just prior to the 15th International Framework Convention on Climate Change (IFCCC) Conference of the Parties (COP) in Copenhagen in December of 2009, the Chinese adopted domestic initiatives to limit the growth of their CO₂ emissions and proclaimed a unilateral carbon reduction commitment.¹⁷⁸ These internal Chinese actions were timed, it appeared, to suggest that China was serious about climate change mitigation, at a time when the Chinese representatives to the Copenhagen climate negotiations were preparing to stall meaningful international CO₂ emissions reductions commitments. Just prior to Copenhagen, the Chinese promised that, by 2020, they would reduce their “carbon intensity” (i.e., the amount of carbon emitted per unit of energy produced) by 40–45 percent in relation to its 2005 carbon intensity levels.¹⁷⁹

Yet in spite of Chinese CO₂ limitation efforts at home, many in the West blamed China for the weakness of the final agreement at Copenhagen. Documentation of the negotiations largely bears out this assessment.¹⁸⁰ Chinese obstructionism during the Copenhagen talks could be seen as a pre-emptive effort to avoid having their climate policies dictated to them by the international community.¹⁸¹ Already recognized as the foremost global CO₂ contributor, China confronts the prospect of its carbon emissions, along with world attention on these emissions, increasing with time. Currently, the Chinese leadership faces a conundrum. These leaders cannot disappoint their citizens' economic aspirations, but as their country modernizes it becomes more difficult to justify why China should continue to be held to the CO₂ emissions standards of far poorer “developing” countries. Deflecting international criticism is bound to become increasingly difficult for the Chinese.

¹⁷⁸ Lynas, “How Do I Know China?”

¹⁷⁹ Lutken, “A Grand Chinese Climate Scheme,” 7.

¹⁸⁰ *Ibid.*, 3.

¹⁸¹ *Ibid.*, 12.

If a degree of schizophrenia appears to characterize China's behavior in both arms limitation and climate change, it may be because the intensity of China's concern for world opinion—along with suspicion of Western intentions—compels its leaders to shun commitments that it may later regret. By watering down treaty provisions, China's leaders ensure they will be able to meet their international obligations and will not later find themselves having to defend their behavior. This does not mean, however, that the Chinese are indifferent to the perils of climate change.¹⁸²

D. THE HISTORY OF CHINESE NPT PARTICIPATION

Since the Chinese government does not issue policy papers from which an outside observer might draw conclusions, anticipating Chinese behavior in regard to any international agreement involves analyzing past Chinese behavior under analogous circumstances. A comparison between China's NPT compliance and the country's hypothetical behavior under an ICELA should only be undertaken after once again acknowledging the clear differences between a military and an environmental treaty. Most importantly, given its economic implications, an ICELA is bound to elicit far more attention from each country's citizenry than does the NPT.

China's engagement with nonproliferation has received U.S. IC attention for close to three decades. The IC's findings have featured prominently in U.S. attempts to ensure China respects its nonproliferation commitments. These IC findings appear in unclassified IC reports, in statements issued by U.S. politicians—most notably by U.S. congressmen—and in leaks to the press. The contents of these reports have frequently been cited as justification for imposing, or conversely, not imposing sanctions on China for its alleged breaches. This history, necessarily tentative as much of it may be, offers itself as a framework for considering the challenge of managing suspected or identified Chinese ICELA violations.

Initially at least, the Chinese could only be considered non-proliferators of convenience. For the Chinese, nonproliferation long represented a bargaining chip to achieve other diplomatic ends. China's current CO2 emissions reductions efforts suggest

¹⁸² Lynas, "How Do I Know China Wrecked."

that the country's behavior under a future ICELA would be informed by a greater appreciation of its vulnerability to the effects of climate change than it ever was to the perils of nuclear weapons proliferation. Until the early 1980s, while China was still under Mao, the Chinese expressed reservations regarding the legitimacy of the NPT. According to Wendy Frieman:

From China's perspective, it seemed that the United States had developed its own nuclear non-proliferation regime and then assumed that others would adhere to it. This attitude appeared condescending and insulting to a country that wanted to be seen as an equal on the world stage.¹⁸³

According to the Chinese leadership, the NPT represented a double standard whereby those countries with nuclear weapons denied those weapons to the less powerful. China advanced this argument in order to establish its bona fides as a champion and leader of its fellow developing countries. However, since there was wide support among most non-nuclear countries for the NPT, many of whom sought assurance that their neighbors would likewise forego arming themselves with nuclear weapons, China's position failed to win them international sympathy. In her book, *China, Arms Control, and Nonproliferation*, Wendy Frieman notes that in the early 1980s China's anti NPT posture hampered the pursuit of its "open door policy."¹⁸⁴ China found itself subject to international censure as an "irresponsible proliferator of nuclear weapons technology."¹⁸⁵ International criticism proved "an irritant to the Chinese government, and an obstacle to full acceptance of China into the international community."¹⁸⁶

At the outset, Chinese participation in the NPT was informal. Though in pledging to respect NPT provisions the Chinese sought to improve their country's international standing, they were also pursuing a more tangible objective. U.S. law prohibited the sale of nuclear technology to any country that assisted a non-nuclear weapon state to acquire nuclear weapons. Western entreaties that China support international nonproliferation regimes provided China leverage with which to access the West's highly developed

¹⁸³ Frieman, *China, Arms Control, and Nonproliferation*, 36.

¹⁸⁴ *Ibid.*, 7.

¹⁸⁵ *Ibid.*

¹⁸⁶ *Ibid.*, 7–15.

civilian use nuclear technology. For its part, the U.S. energy interests were likewise eager to gain entry to China's promising civilian nuclear energy market. Since that time, the U.S. has frequently accepted both formal and informal Chinese assurances regarding China's voluntary adherence to NPT provisions and has provided the Chinese with access to U.S. nuclear technology. All the while the U.S. IC has continued to identify instances of suspected Chinese NPT violations, leading to ongoing controversy within the U.S. regarding the legality and wisdom of providing nuclear technology to the Chinese. The Chinese have, for their part, responded to U.S. complaints and accusations with denials in some cases, and promises to rectify their behavior in others. Eventually in 1992, very likely in response to the international opprobrium they confronted after the 1989 events in Tiananmen Square, the Chinese formally acceded to the NPT.¹⁸⁷

Frieman offers a taxonomy of China's international nonproliferation agreements that reveals much about how the U.S. and China perceive their mutual interactions.¹⁸⁸ Noting the frequency with which the U.S. has alleged NPT violations, Frieman writes that in fact Chinese have displayed a different attitude towards each of three different types of commitments, and that:

...it is critical to distinguish among Chinese activities which are violations of international law, Chinese activities that violate a bilateral pledge or promise by a Chinese official to a U.S. official, and Chinese activities which do not support U.S. interests.¹⁸⁹

Parties to the NPT gradually increased both the specificity and scope of the treaty language; most notably after 1974 when India exploded a nuclear device. China's involvement with the NPT was likewise progressive. Those countries that were more ambitious about the scope of nonproliferation mechanisms entered into a separate agreement, initially called the Zangger Committee but eventually renamed the "Nuclear Suppliers Group" (NSG). Though China's engagement with these agreements increased—along with the initiatives whereby signatories to the NPT expanded the types of "safeguards" or tracking and inspection mechanisms to be supported by the IAEA—

¹⁸⁷ Frieman, *China, Arms Control, and Nonproliferation*, 14–15.

¹⁸⁸ *Ibid.*, 20.

¹⁸⁹ *Ibid.*

China's growing involvement and level of adherence to these agreements invariably fell short of U.S. expectations and demands. Frieman identifies a pattern in this engagement in which Chinese behavior—particularly their technology exchanges with regimes, including Pakistan, Iran, Iraq, and Libya—reflected an adherence to the *letter* of the NPT, rather than to what the U.S. considered the *substance* of the treaty and associated Sino-American agreements.¹⁹⁰

For its part, the U.S. focused on China's real or alleged treaty shortcomings only sporadically. U.S. attention to China's nonproliferation behavior followed domestic or international cues, and lacked any underlying consistency. Regarding this intermittent U.S. attention to Chinese proliferation, Frieman highlights several "specific instances."¹⁹¹ Two of these are particularly pertinent to the current discussion. The first occurred "during congressional hearings in 1985 on the proposed United States-China bilateral nuclear agreement;" and second, "when the U.S. intelligence community disclosed the Chinese sale of ring magnets (for use in an enrichment centrifuge) to a Pakistani nuclear facility in 1996."¹⁹² Frieman goes on to describe how, from China's perspective, the U.S. appeared to condemn or punish China by selectively invoking the NPT, other ancillary nonproliferation agreements, or U.S. law whenever U.S. leaders suspected China of facilitating weapons proliferation. Frequently, in fact, U.S. criticism was based on criteria that the Chinese may not have clearly understood, nor been to apply in the conduct of their nuclear technology exchanges with their other trading partners

1. Senator Cranston and the Disclosure of Secret Chinese Intelligence

Perhaps the best example of the dynamics involved in the U.S./China nonproliferation negotiations can be found in the 1985 Congressional hearings cited above. These hearings, involving an assessment of intelligence collected by the U.S. IC, formed part of an ongoing debate within a divided U.S. government (the Republican Reagan Administration faced a Democratic Congress) regarding the wisdom of selling nuclear technology to the Chinese. According to U.S. intelligence, whether or not

¹⁹⁰ Ibid., 34.

¹⁹¹ Frieman, *China, Arms Control, and Nonproliferation*, 20.

¹⁹² Ibid.

intentionally, the Chinese appeared to be assisting the Pakistanis, among other countries, in acquiring nuclear technology in contravention of the NPT.¹⁹³ In fact, the Pakistani connection was particularly concerning to many in the U.S. given a prevailing suspicion that the Pakistanis were well on their way to building a nuclear weapon. Some members of Congress contended that the administration was simply bending to pressure from the U.S. energy industry and irresponsibly allowing continued U.S. technology transfers to the Chinese.

Because much of the evidence is classified, Frieman must deduce how intelligence was managed.¹⁹⁴ Regardless, the dynamics of handling intelligence during this period highlight some of the issues that the U.S. might once again confront in employing an ICCME to monitor a future ICELA.

At the time of the 1985 Congressional hearings, though the IC had apparently already identified a Chinese violation of the provisions of the NPT, this information was never shared openly. This observation raises the question of how an ICCME might respond or be required to respond once it had identified a real or suspected violation of an ICELA. Once an ICCME had identified a suspected treaty violation, it would be required, at the very least, to share this information with the Executive—much the way the IC informed President Reagan regarding its nuclear technology transfer suspicions regarding the Chinese in the early 1980s. U.S. presidents have routinely temporized on nonproliferation, ignoring relevant intelligence and concealing it from the legislature or the public. In the 1985 example, the Reagan administration received intelligence suggesting that the Chinese were transferring nuclear technology to the Pakistanis. Concurrently, energy interests in the U.S. were eager to enter a very promising Chinese nuclear energy industry, and the Chinese hoped to benefit from U.S. nuclear energy expertise.

For its part, the U.S. administration appeared to prioritize easing commercial restrictions that would have precluded the sale of U.S. nuclear technology to the Chinese. In its defense, the Reagan administration had ample cause to question whether or not the

¹⁹³ Ibid., 26.

¹⁹⁴ Frieman, *China, Arms Control, and Nonproliferation*, 20.

Chinese had in fact violated the letter of NPT, and could without undue effort justify to itself, if not to all the members of Congress, its willingness to overlook the Chinese exchange with Pakistan. Nevertheless, the administration's willingness to countenance questionable Chinese behavior on matters of significant U.S. or international security cannot be assumed to be a rare phenomenon,¹⁹⁵ or one restricted to questions of nuclear proliferation.

Under analogous circumstances, the current or a future U.S. administration might confront a similarly ambiguous situation, wherein information it received from the ICCME could be interpreted as suggestive of a foreign contravention of the ICELA. Were the administration involved in other bilateral negotiations or attempting to enlist the support of the suspected ICELA violator to achieve some other U.S. objective, the administration might also refrain from taking further action on the suspected violation. What is more, while the NPT language may well have been ambiguous, achieving a reasonable degree of certainty regarding a single NPT violation is nevertheless far easier than establishing an ICELA treaty's violator's culpability. Though a single intercepted telephone communication might uncover the intention to violate either the NPT or an ICELA, establishing the fact of a NPT violation can occur at a single location at a single point in time, while violations of an ICELA can only be confirmed by analysis of a vast amount of data collected over a period measured in months or years. For a U.S. administration so inclined, there could be few alerts easier to ignore than intelligence regarding an ICELA violation which might take two or three years to prove.¹⁹⁶

2. The End of Secrets

Even were the administration to retain authority regarding the release of intelligence related to foreign ICELA violations, this discretion would have limited practical use. Due to the number of IC and administration personnel with access to

¹⁹⁵ Ibid., 35.

¹⁹⁶ As noted previously, treaty provisions would need to account for a substantial degree of uncertainty in the measurements used to determine signatory compliance. While increasing the number (i.e., physical and temporal density) of measurements taken would allow for making determinations more quickly, uncertainty would nevertheless remain and departures from emissions "targets" would always be estimates. GHGIS suggests that detecting with a 50 percent degree of certainty that a country had exceeded its targets could take 3 years or longer depending on the accuracy required for "determinations" under the treaty regime. Dimotakis et al., GHGIS, 2-1 to 2-13.

ICCME intelligence, the opportunities for intentional or inadvertent intelligence leaks would be great. Any such leaks would serve to shake public confidence in the treaty's value and equity.

In the case of the 1985 Congressional hearings, an unknown source within the administration or Defense department apparently had stronger reservations regarding the Chinese sales of nuclear technology to non-nuclear weapons countries like Pakistan and Iran than did the President. Armed with classified information, Democratic Senator Alan Cranston challenged the administration on its intention to allow for the sale of nuclear technology to the Chinese.¹⁹⁷ The source of Cranston's information has not been confirmed; however, for the purpose of considering how intelligence regarding a possible ICELA violation might be processed in the U.S., the identity of Cranston's source of information is less telling than the Senator's willingness to influence administration policy by sharing the information publicly.

Just as importantly, at the time of the Congressional hearings, Cranston accused administration officials of attempting to mislead Congress regarding the extent of Chinese nuclear technology assistance to Iran. As will be discussed subsequently in this thesis' section on legislative oversight of the IC, Congress must often expend considerable effort to remain informed regarding IC activities. Regardless of the degree of certainty it might attach to a suspected ICELA violation, should the administration retain discretion in publicizing or employing this intelligence, individuals within the ICCME could covertly override the administration's decision by forwarding the intelligence to, for example, a member of Congress.

If future ICCME-identified instances of suspected or actual ICELA violation are not to be used as diplomatic currency by current or future administrations, Congress will need to remove such discretion from the executive branch. There is evidence that in doing so, Congress will in fact strengthen the administration's hand in other areas of bilateral diplomacy. A foreign regime can coerce the U.S. administration only on issues over which that administration wields discretion.¹⁹⁸

¹⁹⁷ Frieman, *China, Arms Control, and Nonproliferation*, 24–25.

¹⁹⁸ Putnam, "Diplomacy and Domestic Politics," 440.

3. The Problem of Attribution

In 1996, the Clinton administration found itself in a situation similar to that that confronted Regan in 1985. In this case information collected by U.S. intelligence and leaked to the media revealed the sale by a Chinese corporation of 5,000 ring magnets, whose only use could for the building of nuclear weapons, to Pakistan, in clear contravention of the NPT.¹⁹⁹ This discovery, if pursued by the administration, would have scuttled a \$10 billion loan to China.²⁰⁰ The Clinton administration decided, however, not to release the IC's findings officially.²⁰¹ One element of this apparent NTP violation has characterized many instances of alleged Chinese violations; the question of whether the Chinese government should or can be held responsible for violations purportedly committed by "entities" within China (i.e. not under the direct control of the Chinese government). In the case of the ring magnet sale to Pakistan, the "entity" in question was the China National Nuclear Corporation (CNNC), which was engaged in business dealings with Westinghouse Electric Corporation. Ultimately, the Clinton administration opted to sanction neither the Chinese government nor the CNNC.²⁰²

It might fairly be assumed that the government of any country who has entered into an international agreement has the ability to ensure that its citizens and private industries comply with the provisions of that agreement. Regardless, this is not the standard to which the U.S. has held the Chinese, and frequently the U.S. has imposed sanctions on "entities" within China for weapons proliferation violations rather than on China itself. Instead of insisting that the Chinese government develop the means of effectively policing its industry, the U.S. government has found it either more prudent or more productive to target Chinese industries for criticism and sanctions. In her April 2012 Congressional Research Service review of China's nonproliferation history, Shirley Kan wrote:

Policy debates concerning PRC technology transfers have often centered on the questions of whether to impose unilateral sanctions under U.S.

¹⁹⁹ Frieman, *China, Arms Control, and Nonproliferation*, 29.

²⁰⁰ Ibid.

²⁰¹ Ibid.

²⁰² Kan, *China and Proliferation*, 3.

laws, to enact new legislation to tighten mandates for sanctions or reports, or to integrate the multiple laws. Also, there have been the issues of whether to target the PRC government or PRC “entities” ... and whether the PRC government lacks the will or the capability to enforce its stated nonproliferation policy. Decisions on sanctions impact U.S. credibility and leverage on the non-proliferation issue. While certain PRC transfers might not violate any international treaties, sanctions may be required under U.S. laws that Congress passed to set U.S. nonproliferation policy and shore up nonproliferation treaties and standards.²⁰³

A review of congressionally required reporting on IC nonproliferation findings reveals a tension that existed within George W. Bush’s administration over whether to blame the Chinese government for certain nonproliferation agreement violations, or to instead restrict these indictments, and corresponding sanctions, to implicated Chinese “entities.”²⁰⁴ At times IC or administration representatives indicated in their statements that the Chinese government was knowledgeable about these violations, while other executive branch statements suggested the Chinese government had no prior knowledge of them.²⁰⁵ Similar ambiguity, whether regarding the facts or intelligence reporting of the facts about Chinese or any other nation’s treaty compliance, will complicate the administration of any future ICELA.

E. PROVINCIAL INDEPENDENCE

The issue of Chinese governmental accountability for the actions of Chinese corporate entities is only one dimension of the attribution problem. The Chinese central government has historically struggled to maintain its authority over provincial administrations. Whether or not the Chinese government can effectively enforce the provisions of any future international CO2 limitations agreement should be of concern to anyone interested in the treaty’s prospects. The question will certainly remain foremost in the minds of Chinese treaty negotiators.²⁰⁶

²⁰³ Ibid., 64.

²⁰⁴ Ibid., 5.

²⁰⁵ Ibid., 9, 12, 58, 60.

²⁰⁶ Personnel correspondence with Wendy Frieman, September 5, 2012.

While the Chinese have promulgated laws to reduce CO₂ emissions within China's borders, there is little indication that the Chinese government has the means of ensuring compliance with these restrictions. A 2012 study published by University of Leeds researchers found that statistics collected by the Chinese national government fell 1.4 gigatons of carbon dioxide equivalent (GtCO₂eq) short of the figures they derived by aggregating CO₂ emissions statistics from 30 Chinese provinces and municipalities.²⁰⁷ This 1.4 gigaton disparity represents approximately five percent of total estimated world CO₂ emissions.²⁰⁸ Because the Chinese government does not publish official estimates of national CO₂ emissions, the researchers were forced to derive their own figures by basing their calculations on the Chinese energy consumption data that the government does publish. It is impossible for anyone to know the true level of Chinese CO₂ emissions.

It is in fact that impossibility that underlines the real problem faced by the Chinese government and any future international attempts, whether overt or otherwise, to monitor Chinese CO₂ emissions. Currently, the Chinese central government leaders would like to demonstrate that their efforts to reduce CO₂ emissions are meeting with success. These national leaders are in effect working at cross purposes with local officials who are eager to show how local economies are growing under their leadership. The performance of these local officials is evaluated according to increases in manufacturing, which, in turn, is calculated by using local energy consumption figures.²⁰⁹ Given the Chinese government's inability to assess its country's emissions, independently monitoring China's emissions will present a significant challenge, regardless of whether this independent monitoring is supplemented with clandestine intelligence collection.

²⁰⁷ David Cyranowski, "China's Emissions Estimates Don't Add Up," *Nature* (2012, June), *Nature*, accessed July 14, 2012, <http://www.nature.com/news/china-s-emissions-estimates-don-t-add-up-1.10815>.

²⁰⁸ Ibid.

²⁰⁹ Cyranowski, "China's Emissions Estimates Don't Add Up."

F. CHINESE ECONOMY IS GROWING FASTER THAN REGULATION

Chinese economic growth has been so rapid that even genuine Chinese governmental efforts to measure or regulate it may long remain impossible. It has been suggested that the U.S. IC may have succeeded in identifying Chinese NPT treaty violations that the Chinese government, overwhelmed with the pace of the country's growth, had not yet developed the regulatory infrastructure to discover on its own.²¹⁰ Similarly, in regard to CO₂ emissions, the bookkeeping problem is exacerbated by the rapid rate of Chinese growth. The demand created by this growth is being met by the emergence of small local manufacturers who are not equipped to record accurate records on their own energy consumption.²¹¹ This inability to track their own energy use, and by extension their own CO₂ emissions, could very well contribute to a Chinese reluctance to make treaty commitments they may not be able to fulfill. Just as in the case of nonproliferation, the U.S. and other countries might struggle to determine whether any future Chinese reluctance to support severe treaty provisions, or to adhere to their treaty commitments, is the result of the Chinese government's intransigence or incapacity.²¹²

As in the U.S., it is likely that Chinese attitudes towards the threat of climate change will evolve and respond according to individual and institutional Chinese circumstances. Positions or treaty obligations adopted by the Chinese central government will almost certainly be subject to de facto bureaucratic or provincial overrides. It seems unlikely the Chinese will support a highly invasive GHGIS monitoring regime.²¹³ Conceivably, by augmenting the GHGIS's ability to identify any Chinese treaty violations, the U.S. IC may ultimately reinforce the Chinese central government's treaty provision enforcement by helping to focus international attention on particular Chinese treaty violators. The more exposed potential violators are to discovery, the less inclined local leaders (such as Chinese provincial leaders) will be to allow for violations within their jurisdictions.

²¹⁰ Frieman, *China, Arms Control, and Nonproliferation*, 28.

²¹¹ Cyranowski, "China's Emissions Estimates Don't Add Up"

²¹² Frieman, *China, Arms Control, and Nonproliferation*, 36.

²¹³ Cyranowski, "China's Emissions Estimates Don't Add Up."

G. ALONE THE IC WILL NOT ALTER THE CHINESE CLIMATE BEHAVIOR

Ambiguity in international agreements, particularly multinational agreements, is not uncommon and increases the challenge of ensuring agreement compliance. Analysts of the Kyoto Protocol have contended that Kyoto's vagueness and its lack of an enforcement mechanism have limited the treaty's achievements. These weaknesses stemmed in large part from the Kyoto negotiators' preoccupation with achieving an agreement at all. The fact that the U.S. failed to ratify Kyoto underlines how difficult the treaty negotiations in fact were. It was easier to overcome the resistance of many other countries to make commitments in Kyoto by avoiding, what seemed at the time, overly ambitious treaty provisions.

As described earlier, the initially vague language within the NPT led, at least initially, to some confusion. Though the Chinese played no role in formulating the treaty, they have shown no inclination to openly violate or challenge its provisions. When considering the prospects for an ICELA, it is important to highlight that while China has failed to abide by their pledges to the U.S. on many occasions, it has, according to Frieman, "by any objective standards, lived up to its *international* (original italics) commitments."²¹⁴ In their nonproliferation negotiations, the Chinese have usually demonstrated respect for the letter of the agreement, rather than for the underlying treaty objectives. Typically, disagreements have arisen where the treaty language is unclear. In fact, in many cases where Congress or the executive branch have expressed concerns over Chinese compliance with the NPT, there has been some indication that ambiguity in the terms of the NPT might account for a difference of opinion.²¹⁵

In its pursuit of genuine weapons limitations, the U.S. has found itself virtually alone in its attempt to hold the Chinese to a standard beyond what is clearly expressed in the NPT provisions. As expressed by Frieman, "nonproliferation has effectively been reduced to a bilateral issue between the United States and China."²¹⁶ When combined

²¹⁴ Frieman, *China, Arms Control, and Nonproliferation*, 174.

²¹⁵ *Ibid.*, 23–25.

²¹⁶ Frieman, *China, Arms Control, and Nonproliferation*, 37.

with ambiguity in the NPT language, there has often been an inclination for the Chinese to suspect bias in the way the U.S. was attempting to apply the treaty provisions. As Frieman noted:

Quick to perceive a double standard, the Chinese pointed out that Washington ignored certain nonproliferation “norms” when the situation involved a U.S. ally or a country that was helpful in achieving its other foreign policy objectives (as Pakistan had been in the early 1980s).²¹⁷

Under these circumstances, regardless of whether the Chinese leadership might be inclined to concede to the U.S. position, it had also to consider how these concessions might appear to the Chinese people. As Frieman goes on to note, “The appearance that China is caving in to U.S. pressure can end or substantially weaken the careers of the very Chinese officials who make the commitments in the first place.”²¹⁸

Unclear treaty provisions are the first obstacle to determining the existence of a treaty violation. The success of any future ICELA will depend in great part on how well negotiators are able to eliminate vagueness from the treaty’s provisions. For its part, the ICCME and the GHGIS will benefit from the clearest possible standards against which to measure compliance.²¹⁹

Ultimately, a perception of ambiguity will persist only where there is no clear international consensus regarding the treaty’s meaning. Where there is widespread agreement, it is less likely that treaty signatories will propose their own self-serving interpretations of the treaty language. Whether it be in interpreting the treaty provisions or in leveling accusations against identified treaty violators, it is essential the world appear to speak with one voice.

At the time of the 1985 Congressional hearings on the bilateral agreement for nuclear technology exchange with China, Congress could exert pressure on the Chinese by threatening—along with withholding the technology in question—not to renew China’s Most Favored Nation trading status. Since that time, China has become too important a trading partner for the U.S. to threaten the Chinese with bilateral trade

²¹⁷ Ibid., 36.

²¹⁸ Ibid., 37.

²¹⁹ Personnel correspondence with Wendy Frieman, September 5, 2012.

sanctions. Should there arise a need to pressure the Chinese into compliance with provisions of an ICELA, it is far more likely that the Chinese will only respond favorably from pressure exerted, not by a single nation but rather by the international community as a whole.²²⁰ Should the Chinese require greater incentive than enlightened self-interest to adhere to any future ICELA, that incentive is more likely to come in the form of an appeal from an internationally recognized GHGIS than from the U.S. government. For this, if for no other reason, it is essential the GHGIS benefit from support from the U.S. IC, and that this support be offered in such a way as to preserve the international legitimacy of the GHGIS.

1. China: In Situ Sensors and On Site Inspections

As noted previously, the Chinese will likely be reluctant to permit the installation of internationally controlled and monitored “in situ” sensors throughout their country. Chinese reluctance, however, is not the same as outright refusal. Just as the Chinese have increasingly welcomed more stringent NPT provisions over time, so too has the Chinese attitude toward other international weapons limitation agreements evolved and become more “liberal.” In considering the U.S. adoption of covert monitoring of a future ICELA, this Chinese history is important to bear in mind. Indeed, an open U.S. discussion and implementation of the ICCME option will certainly attract Chinese attention, and the prospect of confronting “covert” monitoring may prompt the Chinese to prefer the “overt” alternative. In the U.S. as elsewhere, there will be little appetite for expending resources to verify information that is open and otherwise uncontested. Less need for spying will likely result in fewer spies. All sides can appreciate those economics.

In regard to the NPT, Chinese behavior has suggested a balancing of interests, and a willingness to trade the achievement of one objective for the attainment of another (e.g., less nuclear weapons’ technology sharing with non-nuclear weapons states in return for or greater international influence, trade concessions, or access to more sophisticated western technology).²²¹

²²⁰ Personnel correspondence with Wendy Frieman, September 5, 2012.

²²¹ Frieman, *China, Arms Control, and Nonproliferation*, 37.

During negotiations of the Comprehensive Test Ban Treaty (CTBT), Western countries were eager to include a provision for the use of satellite technology, primarily U.S. in order to trigger on-site inspections. The Chinese and other developing countries did not have access to similar “national technological means” (NTM), as they had come to be known. The Chinese argued that allowing the unilateral use of this technology would permit Western countries to abuse their technological advantage and unfairly target other countries for inspections. However, instead of rejecting the use of Western NTM, the Chinese instead argued that the proposed International Monitoring System (IMS) should be endowed with similar technology at the expense of the treaty signatories. Such a measure would have provided the Chinese with access to this highly coveted satellite and other sophisticated sensor technology.²²² In any case, it should not simply be assumed that the Chinese cannot be persuaded to support the most transparent possible ICELA monitoring regime. Such Chinese support, however, will likely come at some cost for Western countries.

H. STANDING TOGETHER: PROSPECTS FOR A CHINA-U.S. CLIMATE COLLABORATION

Analysis of relations between the U.S. and China generally assume an inevitable strategic rivalry. This assumption suggests that any cooperation on climate change will be colored by an underlying mistrust between the two countries. Indeed, some American strategists have suggested a zero sum competition between the two countries, and that the U.S. should ever strive to derail Chinese growth.²²³ These anachronistic “realpolitik” arguments fail to take into account the growing difficulty of distinguishing where U.S. interests end and Chinese interests begin. Indeed, important representatives of the Chinese leadership already acknowledge that, given growing international economic interdependencies, lack of trust between the U.S. and China can threaten Chinese

²²² U.S. Department of State, “CTBT International Monitoring System,” U. S. Department of State, accessed February 3, 2013, <http://www.state.gov/t/avc/rls/159267.htm>; Frieman, *China, Arms Control, and Nonproliferation*, 43.

²²³ Lacy, *Security and Climate Change*, 42.

stability.²²⁴ While the U.S. should remain clear eyed regarding the potential for Sino-American conflict, both countries will have to recognize that the global stability they desire cannot be achieved at the expense of one another.

While some in China might have once felt insulated from the threats of nuclear proliferation, many Chinese recognize that no similarly cavalier attitude can be maintained in regard to climate change. The air quality in Beijing has now long been a topic of global discussion. If we in the U.S. have come to appreciate the damage humans can inflict on our atmosphere, we can be sure the Chinese people are every bit as aware.

There is reason to hope that all countries, including the U.S. and China, will recognize their own self-interest in faithfully adhering to the ICCLA. Particularly, in the case of the U.S. and China, there is no reason to assume that they will attempt to contravene the agreement. The CO₂ emitted by either country represents a substantial portion of the global total. The U.S. or China alone can each cause considerable damage to the atmosphere, the consequences of which all will suffer. Ideally, the role of the ICCME will not be to police the treaty, but simply to help confirm to all treaty participants that their efforts are being reciprocated by their treaty partners.

China should be seen, like any other country, as a composite rather than a monolith. There will be forces within China who will strive to achieve climate change mitigation, just as there will be Chinese forces that will prioritize other objectives. Regardless of their interest in climate change mitigation, there are few Chinese who are insensitive to the international image of their nation. There seems little chance the Chinese will knowingly allow their country to be confronted by “incontrovertible evidence of their non-compliance.”²²⁵ By identifying specific instances of treaty violations, and ideally by being able to identify those responsible for those treaty violations, the international treaty monitoring regime may avoid indicting “China” and instead permit those Chinese striving to reduce CO₂ emissions to array their forces against their internal Chinese opponents.

²²⁴ Michael Chase, “China’s Search for a ‘New Type of Great Power Relationship,’” *China Brief*, The Jamestown Foundation, 12, no. 17 (2012): 12, Jamestown, accessed February 18, 2013, http://www.jamestown.org/uploads/media/cb_09_04.pdf.

²²⁵ Personnel correspondence with Wendy Frieman, September 5, 2012.

I. LEVELING COMPLAINTS AGAINST CHINA

China's nonproliferation history has earned it the distrust of the IC. The IC's justified suspicion may, however, fuel an adversarial attitude toward China in regard to ICELA compliance issues. Just as it is preferable that China perceive itself in a cooperative endeavor with the U.S., it is just as important that the U.S. not consider every treaty violation to be a threat to the geopolitical balance of power. Direct U.S. accusations regarding Chinese ICELA violations will only exacerbate tensions between the two countries. Only violation findings endorsed by the international community will prompt a desirable Chinese response. The routing of ICCME findings through the international treaty monitoring regime is the subject of next chapter.

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VI. THE CHALLENGE OF INTEGRATING COVERT AND OVERT MONITORING EFFORTS

At the request of the U.S. Department of Energy, plans for a “Green House Gas Information System” (GHGIS) have been developed by three of the U.S. National Laboratories and the Jet Propulsion Laboratory. The plans anticipate that international CO₂ emissions limitation treaty monitoring will be the primary GHGIS objective.²²⁶ The GHGIS will make possible meaningful treaty validation and verification.²²⁷ The CO₂ monitoring regime will be transparent, and treaty signatories will be allowed to review its methodology and findings.²²⁸ This thesis contemplates the potential benefits of complementing the GHGIS’s treaty monitoring mission with U.S. Intelligence Community resources.

A. MISSION VALUE ADDED BY THE INTELLIGENCE COMMUNITY

Conceivably, the IC could provide a CO₂ limitation treaty monitoring regime with additional technological sensing capabilities, either of higher sensitivity or greater capacity. However, absent an inventory of the technology available to the IC, it is impossible to evaluate any potential technological benefits. In fact, Chapter II, the review of the existing and proposed technologies, suggests that there is little additional technological capacity that the IC could currently offer in this regard. There appears a higher probability that the IC could—using human intelligence, clandestine collection of documentation from foreign industry, the insertion of sensing devices in locations precluded from overt access, and electronic eavesdropping—identify governments who may not intend to adhere to their treaty commitments. This potential early identification of violators by the IC might be used in one of two ways: 1) directly, through open or classified reporting on evidence of intentions to violate international treaty provisions or, 2) indirectly, by providing the GHGIS with information that would permit it to concentrate monitoring efforts on anticipated violations and violators.

²²⁶ Dimotakis et al., GHGIS, 2-7.

²²⁷ Ibid., 1-1.

²²⁸ Ibid., 2-5.

While findings by the IC might be readily accepted by many in the U.S., it is likely that those reports would meet with skepticism or denial by many outside the U.S. Therefore, direct IC reporting would have limited potential influence on violators' behavior. Indirect IC reporting (i.e., to the GHGIS or to the GHGIS through another intermediary) on the other hand, could potentially narrow the enormous scope of the GHGIS's monitoring task. More importantly, it could reduce the time required for the GHGIS to provide compelling evidence of treaty violations. The GHGIS contemplates both remote (satellite) and in situ CO₂ sensors taking vast numbers of measurements that will then be processed in order to inform an "inversion model" or a series of virtual images of relative concentrations of CO₂ in the atmosphere that can be compiled to determine where humans are producing CO₂ and how much they are emitting. The more frequent and the more geographically dense the number of sensor measurements, the higher the image resolution provided by the GHGIS. So long as the image is blurred, conclusions about the specific national sources of anthropogenic CO₂ remain relatively uncertain. Like astronomers searching the vastness of the heavens, knowing where to aim their instruments would accelerate the speed with which CO₂ monitors could produce an adequately resolved image of treaty non-compliance with which to confront a violator.

1. Treaty Monitoring Options: Benefits and Drawbacks—Inevitable Uncertainties

There are various means by which a CO₂ emissions treaty could be framed. The monitoring technology discussion in Chapter II distinguished between "bottom-up" and "top-down" measurements. Bottom-up measurements are what a country declares to be emitting based on an "inventory" of its CO₂ producing activity. "Top-down" measurements are what the GHGIS would take using the sensing technology at its disposal (i.e., "remote" satellites, or "*in situ*" sensors within the atmosphere).²²⁹ As yet

²²⁹ "Within the atmosphere" is adequately descriptive for the purposes of this discussion, though a more precise definition would include sensors below the confines of the atmosphere, but not within it per se. Of further note, the authors of the GHGIS document recommend the regime monitor more than CO₂ alone. Gases other than CO₂ contribute to climate change, and the ability to differentiate between types and sources of greenhouse gas emissions will contribute to greater confidence in GHGIS determinations of treaty compliance. For the purposes of this thesis, however, a focus on CO₂ alone will facilitate discussion without appreciable impact on the findings of the research.

undetermined is whether the GHGIS monitoring would measure a nation's treaty compliance by detected CO₂ concentrations alone (i.e., top-down measurements) or, via the authors' of the GHGIS plan preferred model, by comparing these detected concentrations against each nation's reported emissions (bottom-up measurements).²³⁰ Each alternative comes with its associated benefits and drawbacks, but each would involve some level of uncertainty—the acceptable or understood degree of which the treaty signatories would need to agree upon during treaty negotiations.

The authors of the GHGIS document suggest that only upon exceeding the combined self-declared inventory plus GHGIS remote measurement levels of uncertainty would a penalty be assessed against a country thus having been found to be in treaty non-compliance. In other words, the GHGIS would compare the amount of CO₂ that the country should be permitted to emit under the terms of the ICELA against the GHGIS's model based calculations of that nation's actual emissions. To this second number, the GHGIS calculation, the GHGIS would add an internationally agreed upon margin of error. Only when the emissions of the country in question surpassed the resultant actual emissions plus margin of error number, would the country be found to be in violation of the treaty provisions.

Part of the GHGIS process would likely include verification that countries documented the correct inventory measurement procedures. However documentation could be falsified, inaccurate, or simply incorrect. Ultimately, the GHGIS validation process—top-down measurements used to assess whether the declared inventories corresponded to actual CO₂ emissions—would represent the international judgment on whether countries had appropriately, accurately, and honestly respected their treaty commitments.²³¹

2. The Race against Time

The primary challenge posed by climate change is time. Each day of unrestrained CO₂ production is a day lost in the race to limit the future effects of climate change. This

²³⁰ Dimotakis et al., GHGIS, 2-2.

²³¹ Instead of triggering sanctions, a declaration of non-compliance by the GHGIS could alternatively, trigger another "means of (treaty) validation." Dimotakis et al., GHGIS, 2-9.

race has important implications for any CO₂ limitation treaty and thus for any treaty monitoring regime. If, as is likely, negotiators of a future international CO₂ limitation agreement follow the Kyoto Protocol model, then the agreement will anticipate incremental CO₂ emissions reductions based on incremental changes in signatory nations' CO₂ emissions. A nation's inefficient automobiles or factories cannot be completely replaced by less polluting alternatives in a single, or even several, years. Each country's imposition of restrictions on its own behavior will require the adoption of laws, which in turn may be enforced more or less aggressively. The GHGIS, for its part, will likely initially rely on sophisticated, but as yet relatively limited sensing capacity that will have to be augmented—and emissions modeling that will need to be calibrated and improved upon—over time. From the time the U.S., either alone or in partnership with other nations, commits to building a GHGIS, perhaps a decade will elapse before the GHGIS can be expected to provide measuring precision within its recommended target range of ± 10 percent.²³² Initially, even the most ambitious international agreement will have to accommodate a considerable level of uncertainty both in national inventories and measuring technology sensitivity.

It is during this initial agreement period, however, that countries will confront the challenge of altering their CO₂ emitting behaviors. Even those leaders most committed to combating climate change will face opposition to new restrictions and requirements. The temptation to temporize, particularly given the inevitable initial leniency of any treaty provisions, will be great. However, should leaders succumb to this temptation and fail to aggressively implement the policy required by their treaty commitments, their failure to meet emissions targets might not be discovered until much later when the political circumstances that permitted treaty participation have passed. The failure of any country to meet its treaty obligations will reduce the willingness of other countries to make unreciprocated sacrifices and tend to undermine treaty effectiveness and the prospects for future adherence by other signatories.²³³

²³² Dimotakis et al., GHGIS, 2-2.

²³³ Barrett, "Environment and Statecraft," 4.

Treaty negotiations could lead to a wide variety of treaty provisions, each with different implications for the timeliness with which the GHGIS could arrive at compliance determinations. In any case, likely delays between current national behaviors and GHGIS conclusions regarding those behaviors would be measured in years rather than in months²³⁴. It is conceivable that the GHGIS might only confirm a government's, or set of leaders', intentional or inadvertent circumvention of the treaty after that government had been succeeded by another, who would then have to be relied upon to appropriately amend its predecessor's behavior. Years might pass again before the GHGIS would be able to adequately assess the new government's treaty compliance. Long delays would undermine the current national leadership's incentives to respect treaties that might impose immediate economic burdens on those they govern. These long delays could therefore undermine the global will to aggressively combat the perils of continued unrestrained human CO₂ production.

3. IC Findings Plus GHGIS Legitimacy

By assessing the intentions of leaders and the authenticity of their efforts to ensure national compliance with treaty provisions, the U.S. IC could considerably accelerate process of identifying treaty violators. However, because revealing the sources of this information might preclude future intelligence collection efforts, it is unlikely that evidence of treaty non-compliance collected by the IC could alone be used to compel countries to adhere to their treaty commitments. World opinion is unlikely to be swayed by unsubstantiated claims made by any nation's intelligence agency. On the other hand, IC claims that can subsequently be confirmed or refuted by an internationally recognized monitoring regime, e.g. the GHGIS, would represent internationally compelling evidence. By confronting potential violators with the prospect of exposure early while they are more likely to suffer political costs for their treaty breaches, the IC and the GHGIS might complement one another and encourage treaty adherence.

²³⁴ Dimotakis et al., GHGIS, 2-4. The authors of the GHGIS plan recommend the GHGIS be able to provide periodic emissions estimates, as frequently, perhaps, as each quarter. These estimates, however, would not carry the implications of binding determinations. GHGIS estimates supported by IC findings, however, might be articulated with more confidence and more force and might likewise carry greater impact. See especially Dimotakis et al., GHGIS, 2-13.

For its part, the GHGIS will remain sensitive to treaty signatory concerns regarding biased or unfair treaty administration. Over time, the GHGIS will only continue to heed ICCME findings if they are borne out through the GHGIS's own analysis.

4. Multiple Violation Indicators Informing One Integrated Model

In the estimation of the authors of the GHGIS plan, the benefits of multiple opportunities to detect “departures from target emissions” is that one flashing indicator among many can serve to focus attention on a possible or likely treaty violator. For this reason, the authors opt for “precision” in identifying relative changes in emissions, rather than attempt to build a system that could account for anthropogenic CO₂ in absolute terms. Multiple indicators would ultimately narrow the task presented to treaty monitors.²³⁵ In the words of the GHGIS document:

An advantage of such a framing of GHGIS would be its incorporation of external information to constrain the detection problem...to confirm inferences from other means of detection, or to focus further investigation to a particular sector, region, or time period. Verification methods of bottom-up inventories, e.g., audits of economic data, could be triggered by measurements of high emissions in a particular area. Thus, this framing provides substantially more flexibility and potential for integration with other methods, somewhat reducing thereby the burden on GHGIS of high precision.²³⁶

The authors' preferred “integrated” GHGIS model suggests an important role for the U.S. IC in providing an additional indicator with which to focus monitoring efforts. As noted by the GHGIS authors, each increase in treaty monitors' ability to identify treaty violations contributes to the establishment of an international “culture of (treaty) compliance.”²³⁷

²³⁵ Dimotakis et al., GHGIS, 2-15.

²³⁶ Dimotakis et al., GHGIS, 2-18.

²³⁷ Ibid., 2-11.

B. THE COMPLEX TASK OF PROVIDING INTELLIGENCE TO THE GHGIS

The details of any intelligence sharing arrangement between the IC and the GHGIS will be determined in large part by the governance structure of the GHGIS. It is to be expected that members of the international community of nations will organize the monitoring regime so as to achieve the widest possible international consensus. Kyoto's lack of any monitoring regime can be seen as an acknowledgement of the problems inherent in trying to impose requirements on sovereign nations, who must, in turn, maintain domestic adherence to potentially economically disruptive treaty provisions.

In this light, Canada's inability to achieve its Kyoto commitments and the country's ultimate withdrawal from Kyoto, are symptomatic of the challenge facing all treaty signatories. The Canadian government could not attempt to maintain domestic support for Kyoto among Canadians who increasingly saw the treaty as both unfair and ineffective.²³⁸ Although there is wide acknowledgement of the need for more formalized treaty monitoring than Kyoto, any future international treaty regime will have to be structured so as to satisfy international demands for equitable treaty administration. No future GHGIS could withhold information from any of the treaty signatories without undermining the treaty support those signatories rely on from their own constituencies.

Conversely, should any country uncover evidence of another's treaty signatory's non-compliance, that information would eventually become an issue of contention. As demonstrated in this thesis' proceeding section on other governments, while a U.S. administration might attempt to withhold or discretely manage intelligence regarding another country's ICELA non-compliance, it is unlikely such information would long remain secret. Should the U.S. collect intelligence on treaty compliance, that evidence should be disseminated internationally. In order to assure the international public of the strength and viability of the ICELA monitoring regime, any intelligence gathered by the intelligence agencies of any of the treaty signatories should be shared first with the

²³⁸ David Ljunggren, "Analysis Canada's Kyoto Withdrawal Began When Bush Bolted," *Reuters*, December 13, 2011, Reuters, accessed January, 12, 2013, <http://www.reuters.com/article/2011/12/13/us-kyoto-withdrawal-idUSTRE7BB1X420111213>.

GHGIS, which would, in turn, process that intelligence in conformity with its own internationally agreed upon protocols.

1. IC Intel Sharing with the IAEA: Success and Failures

Under the provisions of the NPT, the IAEA was tasked with monitoring treaty signatory compliance. Article VIII of the IAEA statute provides for the initiation of monitoring of a signatory in response to intelligence received from any of the other signatories.²³⁹ This important provision has been implemented frequently by the U.S. in attempts to forestall the efforts of nonnuclear weapons states (NNWSs) to arm themselves with nuclear weapons. The NPT provides an instructive example of treaty evolution, and, more particularly, of how the U.S. has applied its intelligence resources in support of national security objectives pursued through U.S. treaty participation.

a. The Treaty Learning Curve

The Kyoto Protocol's lack of a monitoring mechanism is now widely considered to be an important failing. This realization mirrored an analogous evolution in the treaty signatory thinking about the NPT. The NPT signatories' eventually recognized that existing treaty provisions did not adequately empower the IAEA to conduct the types of monitoring that would identify, for example, the diversion of nuclear technology from civilian use to military projects. The U.S. led efforts to extend the authority of the IAEA to perform more invasive inspections, most notably, through the "safeguard" and later "comprehensive safeguard" NPT provisions.²⁴⁰ Inevitably, and not unexpectedly, the U.S. IC participated in supplementing the IAEA inspection regime. An examination of how intelligence collected by the U.S. IC was employed to overcome IAEA limitations, along with the political controversies occasioned by that often unhappy collaboration, provides important lessons about how the U.S. IC might best support an international GHGIS.

²³⁹ Hibbs, "The Unspectacular Future."

²⁴⁰ International Atomic Energy Agency, "Factsheets IAEA Safeguards Overview," International Atomic Energy Association, accessed October 15, 2012, http://www.iaea.org/Publications/Factsheets/English/sg_overview.html.

b. *The Case of Iraq*

Among the most remarkable achievements of the U.S. IC is its long record of providing intelligence that has made nonproliferation more than just an aspiration. Along with uncovering clandestine attempts to contravene international nonproliferation agreements, these IC successes have unquestionably discouraged other nations from committing similar violations. Likewise, U.S. IC vigilance increases confidence among other nations that they can continue to entrust a part of their security to those agreements and forego developing nuclear weapons themselves. It is, in fact, the contributions of the U.S. IC to nonproliferation that should most persuade proponents of climate change mitigation to welcome U.S. IC support for any future ICELA. With that observation made, important lessons about this type of intelligence collaboration can be drawn from the failures the IC/IAEA association has also occasioned.

Undoubtedly, the most significant of these failures occurred during the lead-up to the war in Iraq. The global attention focused on this period has provided researchers with a wealth of relevant documentation and analysis. The U.S. invasion was predicated on the existence of weapons of mass destruction within Iraq. The administration's poorly supported assertion directly contradicted declarations made by, among others, the IAEA leadership. A contemporary question posed by a reporter for the *Los Angeles Times* expressed the problem prophetically, asking, "On the eve of a possible war in Iraq, a question looms increasingly large: If U.S. intelligence is so good, why are United Nations experts still unable to confirm whether Saddam Hussein is actively concealing and producing illegal weapons?"²⁴¹ The U.S. administration's distortion of the intelligence provided to it by the IC, along with the administration's attempts to undermine the credibility of the IAEA, highlights the need for Congressional oversight of ICCME collaboration with any future international GHGIS.

Among the best sources of information regarding the U.S. IC/IAEA relationship is the then head of the U.N. Monitoring, Verification and Inspection

²⁴¹ Bob Drogin and Greg Miller, "Top Inspectors Criticize CIA Data on Iraqi Sites," *Los Angeles Times* (2003, March 8), accessed October 14, 2012, <http://articles.latimes.com/2003/mar/08/world/fg-intel8>.

Commission, Hans Blix. Blix, who also served as the IAEA Director General from 1981 to 1997, welcomed good intelligence, stating, “I would rather have twice the amount of high-quality information about sites to inspect than twice the number of expert inspectors to send.”²⁴²

Prior to the war, the IC identified sites where Saddam Hussein was suspected to have concealed illegal weapons. The CIA conveyed these suspicions to Blix through a Canadian official at the U.N.²⁴³ Eventually, it would become apparent that Saddam was not in fact hiding weapons. In the meantime, U.N. inspectors were following up on unproductive “leads” received from the CIA. For his part, Mohamed ElBaradei, who succeeded Blix as head of the International Atomic Energy Agency, expressed suspicions that the classified evidence he had been presented by “unidentified states” regarding the sale of Nigerian uranium to Iraq had in fact been faked.²⁴⁴ It was not difficult to infer the provenance of the “intelligence” was the U.S. and that the U.S. administration was attempting to fabricate a stronger case against Saddam Hussein.

c. The Administration’s Shifting Agenda and Long-term Treaty Stability

While the U.S. engagement in Iraq presented a particularly egregious instance of intelligence manipulation, a similarly distorted trilateral relationship between the U.S. administration, the IC, and the international CO₂ emissions monitoring effort could likewise develop should the U.S. administration impose itself as gatekeeper over the information the ICCME shares with the GHGIS. In the case of Iraq, the inevitable result of this administration attempt to manipulate the evidence was the loss of trust between the U.S. and the monitoring entity (i.e., the IAEA). Regardless, in Iraq, the administration could pursue what it determined were U.S. vital interests without the endorsement it nevertheless sought from the international monitoring effort. In the case of any future ICELA, however, protecting the U.S. national interest by reducing international CO₂ emissions, will be dependent on the legitimacy (i.e., the autonomy) of the GHGIS. Congress will need to ensure that the ICCME is structured so as to

²⁴² Drogin and Miller, “Top Inspectors Criticize CIA Data on Iraqi Sites.”

²⁴³ Ibid.

²⁴⁴ Ibid.

incentivize the agency's close cooperation with the GHGIS. Trust between the two entities must be maintained.

As amply illustrated by Iraq, intelligence sharing is a complicated endeavor, made more so when one of the two parties to the exchange can neither reciprocate nor withhold intelligence from the other. In the case of Iraq, the IAEA had no leverage with which to compel greater cooperation or trustworthiness from U.S. intelligence. Under normal circumstances, absent the conditions specially imposed on Iraq by the Security Council, the IAEA has been statutorily precluded from sharing the information it collects in the conduct of its "safeguards" inspections. In countries other than Iraq, breaches of this restriction would have been seen as risking the compromise of commercial secrets.²⁴⁵ Typically, then, the IAEA would have no leverage with which to influence the IC. The IAEA could in no way "punish" the IC for disingenuous intelligence sharing, and thus the IAEA could have no assurance that the information it received from the IC was of any intrinsic value. The problem of incentivizing the IC's genuine support for an international treaty monitoring entity will be returned to briefly.

2. National Intelligence and the Loss of International Monitoring Legitimacy

Given Iraqi aggression in Kuwait, U.N. Security Council Resolution 687 anticipated collaboration between member intelligence agencies and IAEA and United Nations Special Commission (UNSCOM) (biological, chemical, and long-range missile) inspectors. The IAEA certainly did receive intelligence from national intelligence agencies regarding Iraq, and, in due course, Iraq claimed that IAEA inspectors were, in fact, working for the U.S.²⁴⁶ In fact, it is widely assumed the IC went beyond simply providing inspectors with information, as allowed by Resolution 687, and there is evidence that intelligence officers participated directly in UNSCOM inspection teams.²⁴⁷ News stories to this effect appeared and, ultimately, they served to undermine the

²⁴⁵ Hans Blix, *Disarming Iraq* (New York: Pantheon Books, 2004), 21–22.

²⁴⁶ *Ibid.*, 26–27.

²⁴⁷ Thomas Graham and Keith Hansen, *Preventing Catastrophe: The Use and Misuse of Intelligence in Efforts to Halt the Proliferation of Weapons of Mass Destruction* (Stanford: Stanford University Press, 2009), 107.

legitimacy of UNSCOM. Blix himself believed the reports, and, as he put it, “The publicity about the intelligence affairs critically damaged UNSCOM, which was seen by many as an instrument in large measure controlled by the U.S., rather than as a tool of the Security Council.”²⁴⁸ These revelations undermined the cohesion within the monitoring nations. Blix maintained, “There was no agreement between the five permanent members of the Security Council on where to go. Many considered UNSCOM so discredited that it should be discontinued.”²⁴⁹ Regardless, whatever sympathy the regime’s appeals might have won it among the international community, Iraqi protestations ultimately proved futile.

a. *Bad in Iraq: Worse for an ICELA*

The IC/IAEA relationship in Iraq is fundamentally different than one involving a country who had not been roundly ostracized from the international community. It seems likely that any similar type of IC association with a future GHGIS would compromise the legitimacy of the international monitoring regime and damage the ICELA’s prospects for success. In any disagreement regarding suspected treaty violations, most individual signatories to an ICELA will be able to rely on at least some degree of support from countries with which they have a longstanding affinity and shared interests. These countries will have few qualms about ignoring claims made by any single intelligence agency. This would be very unlike the circumstances confronting the Iraqi regime who had few international supporters in 2003.

There is another lesson to be drawn from Iraq’s protests regarding the intelligence agencies’ participation in UNSCOM’s inspections. The Iraq invasion was propelled by a series of miscalculations. Without sympathizing with Saddam, it is possible to nevertheless wonder what might have transpired if the regime had not been able to indulge its self-righteous indignation. As Blix put it, “The Iraqi regime, which had long accused UNSCOM of espionage, felt vindicated.”²⁵⁰ The UNSCOM inspections proved nothing about Iraqi weapons that in fact did not exist. Indeed

²⁴⁸ Blix, *Disarming Iraq*, 37.

²⁴⁹ Ibid.

²⁵⁰ Ibid., 37.

intelligence agency participation in the inspections only served to worsen the existing diplomatic crisis. Morally justified as intelligence agency participation in the UNSCOM inspections might have been, strategically it proved counterproductive. Transposed into the ICELA environment, such conflation of intelligence and overt monitoring activities would unquestionably violate the treaty provisions, and undermine the legitimacy of the treaty itself.

b. Ongoing Iranian Criticism of the IAEA

Iraq's diplomatic assault on the IAEA was not unusual. Attempts to discredit the IAEA through criticism of the agency's reliance on intelligence services are a perennial issue. Currently, the world's attention has been drawn to alleged Iranian attempts to build a nuclear weapon. In April of 2012, a group of Iranian students released a letter accusing the IAEA Director General Yukiya Amano of too readily lending credence to Western intelligence sources. In their letter, the students asked, "Don't you think that one of your weak points as the head of the IAEA is overreliance on unverified and suspicious intelligence documents of the West(ern countries) which is moving against Iran stealthily?" More interesting, perhaps, is the criticism Amano has received from former American IAEA official Robert Kelly, who drew parallels with the period before the Iraq invasion, stating:

Amano is falling into the Cheney trap. What we learned back in 2002 and 2003, when we were in the runup to the war, was that peer review was very important, and that the analysis should not be left to a small group of people.²⁵¹

Regardless of the legitimacy of these criticisms, they seemed destined to increase nationalist sentiment within Iran, and ultimately to undermine efforts to dissuade Iran from pursuing its nuclear weapons ambitions. In the case of a future ICELA, whether or not some regimes feel compelled to respect their treaty commitments could hinge on similar perceptions of GHGIS bias.

²⁵¹ Julian Borger "Nuclear Watchdog Chief Accused of Pro-Western Bias over Iran," *The Guardian*, March 22, 2012, accessed January 16, 2013, <http://www.guardian.co.uk/world/2012/mar/22/nuclear-watchdog-iran-iaea>.

3. IAEA Inspectors: Damned if They Trust the IC, Damned if They Don't—The Problem of Defection

The 2003 *Los Angeles Times* article referenced earlier includes what the author describes as a “serious criticism” of Blix’s insistence on distancing the IAEA from Western intelligence sources.²⁵² The *Times* writer noted that in his memoirs Blix, “doesn’t seem aware of the price to be paid for keeping at arm’s length from the spooks. His independence left him baffled at what the Americans and British knew about Hussein’s programs.” This criticism is unfair on at least four different counts. First, Blix does, in fact, acknowledge the benefits of intelligence resources when, describing the successes of one of his fellow inspectors and longtime detractors, he wrote:

The rich caches of documents which [David] Kay seized that year showed that such a search could be highly rewarding—provided you had good intelligence on where to look. The documents did not lead to any weapons stores, or for that matter, to any weapons at all, but they were crucial and conclusive evidence about Iraq’s nuclear weapons program.²⁵³

Second, as noted previously, Blix did indeed follow leads provided to him by Western intelligence. Third, and perhaps most importantly, had Blix in fact bent to U.S. pressure, he could have irreparably damaged the reputation of an agency that is integral to the success of the NPT. Fourth, and as made plain in the *L.A. Times* article, Blix had every reason to distrust the intelligence he was being fed. Regardless of the quality of the evidence, the Bush administration was intent on building a case for military action against Iraq.²⁵⁴ This last point is especially relevant to this thesis, and moreover to the question of intelligence sharing generally. As described by James Walsh in his book, *The International Politics of Intelligence Sharing*, in any intelligence sharing relationship, the recipient of the intelligence typically does not have access to the source and method of the intelligence collected and must rely on the integrity of their intelligence sharing partner. At any time this partner may “defect” from that partnership and distort or

²⁵² Drogin and Miller, “Top Inspectors Criticize CIA Data on Iraqi Sites.”

²⁵³ Blix, *Disarming Iraq*, 26.

²⁵⁴ Paul R. Pillar, “Intelligence, Policy, and the War in Iraq,” *Foreign Affairs*, 85, no. 2 (2006, March/April): 15–27).

fabricate intelligence for its own purposes.²⁵⁵ Walsh notes the importance of ensuring that partners to an intelligence sharing arrangement have incentives to abide by their commitments.²⁵⁶ In the case of the ICCME, it is essential that the GHGIS and the world more generally be confident that the ICCME will provide relevant and unbiased intelligence regarding ICELA signatory compliance. By exposing the ICCME to rigorous and transparent oversight, Congress can incentivize ICCME adherence to the mission set out for it and instill confidence in the GHGIS that it can rely on information it receives from the ICCME.

Just as signatories to the various international nonproliferation agreements have conceded the benefits of receiving support from member intelligence agencies, it seems likely ICELA signatories will acknowledge the advantages of accepting intelligence support for their own monitoring regime. Inevitably, in accepting support from the ICCME, the GHGIS will risk provoking accusations that it is working for the U.S. So long as ICCME support is provided through a transparent process, which can be reviewed and validated independently, these accusations are not likely to win sympathy for identified treaty violators. So long as the U.S. IC recognizes the need to uphold the legitimacy of the GHGIS, it is likely that the GHGIS will strive to ensure the ICCME's continued support for their shared objectives.

C. REPLACING EXECUTIVE JUDGMENT WITH IC PROCEDURE

This thesis has focused on some notable examples of how intelligence collection has been predicated on the desire to support nonproliferation goals championed by Congress. These examples, however, demonstrate how the discretion exercised by the executive branch frequently distorts the intelligence findings, undermines confidence in the IC, and—albeit inadvertently—subverts the purpose of the treaty. Congress has in the past imposed constraints on intelligence activities. There are measures Congress could take to discourage executive branch and IC actions that run contrary to the treaty objectives.

²⁵⁵ James Walsh, *The International Politics of Intelligence Sharing* (New York: Columbia University Press, 2010), 8–12.

²⁵⁶ *Ibid.*, 15–16.

1. Incentivizing Trustworthiness: Congressional Reporting Requirements

In considering how the U.S. IC could best support a future ICELA, an essential question is how the intelligence the U.S. collects should be managed. So far the research collected for this thesis demonstrates the risks of allowing the administration discretion in releasing information. In the case of the NPT, there seems to be little evidence to suggest that such discretion serves the treaty goals. In fact, through its imposition of IC nonproliferation reporting requirements, Congress has indicated its judgment that such executive branch discretion has not served the country well.

a. *The Release of Intelligence Findings of Treaty Violation, Section 721 Reports*

Section 721 of the FY 1997 *Intelligence Authorization Act* provides a particularly relevant precedent for the type of oversight regime Congress may consider for the ICCME. This legislation created a requirement for semi-annual unclassified IC reporting on “the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions.”²⁵⁷ Subsequently, in the FY 2004 *Intelligence Authorization Act*, the frequency of this reporting was increased so it is now an annual requirement. The 2012 Congressional Research Service’s *China and Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues* publication makes dozens of references to these reports in describing suspected and confirmed nuclear and missile technology transfers from China or from “entities” within China that violate the NPT, other weapons limitations treaties, or bilateral agreements between the U.S. and China.²⁵⁸ Frequently, the information within these “Section 721 Reports” only confirms previous newspaper reports based on unnamed “intelligence sources.” In others, however, this reporting contradicts previous administration statements.

Although it would be helpful to be able to assert that the release of these reports ensures that the Administration does not withhold negative IC findings, no such categorical declaration is possible. Frequently, the language within these reports is vague

²⁵⁷ Kan, *China and Proliferation*, 2.

²⁵⁸ *Ibid.*, 3–59.

and, as the reports are unclassified, they do not reveal sensitive information regarding methods and sources. Nevertheless, the contents of these congressionally required reports must be taken seriously within the administration and the IC. Any intentional distortion or obfuscations contained within these reports could easily be discovered through other disclosures or revelations. Members of the IC and the administration must exercise caution when considering withholding evidence from Congress for fear that misleading reports might later expose members of the federal bureaucracy to legal or political sanctions. Foreign leaders must likewise be attentive to the release of these reports, as they can complicate ongoing international negotiations and potentially expose proliferators to sanctions or loss of political influence at home.

The complexity of the diplomatic issues raised by these required reports can be astounding. In 2002 North Korea was once again escalating nuclear weapons tensions and had expelled IAEA inspectors. The Bush administration pressured China to employ its influence over North Korea to achieve a peaceful resolution to the dispute. In 2003, the People's Republic of China (PRC) was eventually able to convince the Democratic People's Republic of Korea (DPRK) to participate in "Trilateral Talks" with the U.S. in China. Subsequently, Secretary of State Colin Powell praised the Chinese for their assistance. Clearly, the administration sought to foster a perception that the meeting had been successful. However, the following year, in releasing the unclassified Section 721 report, the DCI noted that North Korea had in fact during the meeting threatened to "'transfer' or 'demonstrate' its nuclear weapons."²⁵⁹ There are a variety of ways of interpreting what amounted to a diametrically opposed characterization of the results of those talks. The administration may simply have wished to persuade its U.S. audience that its efforts had met with success. Alternatively, it may have desired to reward the Chinese for their assistance.

Regardless, due to what Robert Putnam described as the "logic of two-level games," the release of the Section 721 Report may have absolved the administration of having to itself publicly criticize its Chinese negotiating partners, while maintaining, nevertheless, U.S. and international pressure on the PCR to exert greater pressure on the

²⁵⁹ Kan, *China and Proliferation*, 34.

North Koreans.²⁶⁰ Likewise, by requiring the ICCME to report its findings routinely, whether directly through unclassified reports to Congress, or alternatively by using the GHGIS as a conduit for that information, Congress would alleviate the administration from having to itself issue a negative report on an ally or negotiating partner. This type of mandatory reporting could greatly reduce an Administration's inclination to conceal or otherwise distort the ICCME findings. Most importantly, from the perspective of the ICELA, encouraging full and truthful ICCME reporting will increase the agency's domestic and international credibility.

In 2001, Congress received a Section 721 Report that rectified a previous, more encouraging assessment of China's adherence to its pledge to the U.S. regarding questionable nuclear technology interactions with Iran. While it is impossible to determine whether the content of either report was influenced by the administration or by contemporary events, the fact of the change suggests that the IC's reporting was ultimately truthful and possibly independent. In any case, in 2002 the *Washington Post* reported that an Iranian opposition group had divulged information regarding Chinese material assistance to a secret Iranian nuclear weapons facility at Natanz. In issuing any of these required unclassified Section 721 Reports, the DCI will remain mindful that information withheld from Congress might well become public through other channels.²⁶¹

Congress has not, however, been uniformly successful in encouraging IC candor through the imposition of the Section 721 reporting requirement. As noted previously, the administration has allowed ambiguity to reign by characterizing suspected or confirmed proliferation violations as either having been committed by "the Chinese" or by Chinese "entities." The DCI has likewise exercised this same discretion when issuing some Section 721 Reports. In 2001, the Pentagon reported that the Syrians had received missile development assistance by "Chinese firms." Not until 2010, however, did a Section 721 Report reveal that this assistance was in fact supplied by the Chinese

²⁶⁰ Putnam, "Diplomacy and Domestic Politics," 440.

²⁶¹ Kan, *China and Proliferation*, 12.

government.²⁶² Intentional or not, reporting ambiguity by a future ICCME will likely result in undesirable diplomatic outcomes. In empowering an ICCME, Congress will want to reduce, to the extent possible, the agency's incentives or opportunities to exercise reporting "discretion" that may easily be perceived at home and abroad as deception.

2. Routing of ICCME Reports

Congress' preference for routine IC nonproliferation reporting coincides with the research findings presented thus far within this thesis. Those findings highlight the desirability of transparent ICCME engagement with the GHGIS. Congress has not yet defined or imposed any requirements regarding the intelligence the IC shares with the IAEA. In order to build a strong collaborative relationship between the ICCME and the GHGIS, Congress should consider statutorily defining how intelligence collected by the ICCME will be shared with the GHGIS. Only in so far as the ICCME is held to a clear set of operational standards will the U.S. and international public develop confidence in the ICCME's findings.

ICELA signatories will have committed to the provisions of the treaty, and it seems highly probable that among these will be support for, and adherence to, GHGIS determinations. Thus, while Congress should exercise close ICCME operations oversight to ensure that the ICCME makes the most appropriate use of its resources, it is most important that ICCME findings be shared with the GHGIS. While this model of intelligence sharing is predicated on the same logic that drove IC intelligence support for the IAEA monitoring efforts, the two should not be seen as identical. Just as the Bush administration found itself at odds with and ultimately sought to discredit the IAEA's (negative) Iraq findings, a future U.S. administration might pursue an agenda contrary to the work of the GHGIS. It is essential that the ICCME operations—to the extent possible—be insulated from pressures emanating from within the IC or any other part of the executive branch. In order to foster international confidence in the impartiality of ICCME findings, these findings should be arrived at through a process that is transparent and void, to the extent possible, of human discretion.

²⁶² Ibid., 58.

Examples from IAEA monitoring operations highlight the pitfalls of allowing outside entities, up to and including the IAEA's own governing body, to exercise discretion in the administration of treaty provisions. Once the IAEA had been empowered by the NPT signatories to monitor treaty compliance, the world's perception was that the IAEA would act impartially. Nonetheless, the IAEA Secretary General worked under tremendous pressure in issuing findings that could raise the ire of entire nations. In different instances involving Iranian and Libyan violations, the IAEA Secretary General purposefully opted against employing the treaty language in his declarations.²⁶³ Instead of using the words "non-compliance" in statements regarding those two countries, the Secretary General employed alternative language, leaving it to the IAEA's Board of Governors to formalize the finding.²⁶⁴ Pierre Goldschmidt, who previously served as the IAEA Deputy Director General and Head of the Department of Safeguards, described the unfortunate result of this ambiguity, writing, "This may have contributed to the politicization of the issue and, from 2003 onwards, to the collapse of the widely praised "Vienna spirit."²⁶⁵

While the Secretary General's reticence to provoke the anger of implicated countries is understandable, succumbing to that temptation undermines not only the IAEA's reputation, it also corrodes the treaty's ability to constrain potential violators. A mechanistic rather than a discretionary response to treaty violations serves to discourage that violations be committed by leaders who, rightly or wrongly, believe that they can employ political stratagems to avoid sanctions or condemnations. A strong treaty regime can encourage individual or group avoidance of choices that will result in widely anticipated results (e.g., being called to task for nonproliferation or CO2 emissions violations). Once those outcomes become less certain (i.e., contingent on choices being made by other political agents), bad actors may begin to rationalize their behavior or

²⁶³ Pierre Goldschmidt, "The Future of the NPT: Should it Be Enhanced, Changed or Replaced?" Paper presented at the Rio de Janeiro International Seminar on Nuclear Disarmament and Nonproliferation, Rio de Janeiro, Brazil, October 29–30, 2009, 9, Carnegie Endowment, accessed November 12, 2012, carnegieendowment.org/files/goldschmidt_riopaper.pdf.

²⁶⁴ Ibid.

²⁶⁵ Ibid.

weigh the likelihood of being caught against the benefits they hope to derive by flouting treaty provisions.

As Goldschmidt does remind his readers, “The IAEA Secretariat is expected to act as a technical and totally apolitical body in order to maintain its reputation of objectivity and impartiality.”²⁶⁶ If countries, their representatives, or their industries believe they can exert political influence on those entities involved in treaty monitoring, they will have less incentive to respect treaty provisions or to expect that other treaty signatories will respect their own commitments. While there are undoubtedly circumstances that might benefit from greater ICCME discretion in sharing its findings, these occasional exceptions will doubtless confirm the long-term value of basing ICCME decision making on the most mechanistic and invariable standard operating procedures possible.

a. *The Herzberg Solution*

Students of the NPT have recommended measures to improve the sharing of intelligence with the IAEA. Some of these suggestions may help in devising a means of sharing intelligence with the GHGIS. In a white paper on improving intelligence sharing with the IAEA, Michael Hertzberg has examined similar sharing conducted by NATO members.²⁶⁷ Countries which are members of NATO direct intelligence to NATO which then, after consideration by NATO personnel, distributes this intelligence to member countries as deemed appropriate by NATO. Adopting a similar additional layer of bureaucracy between the IC and the international GHGIS could have the unfortunate effect of retarding the identification of treaty violators, but this additional encumbrance might be justified. Creating or employing an intermediary between national intelligence agencies and the GHGIS would help reduce the potential for the GHGIS to be seen as an extension of the U.S. IC. As Hertzberg puts it:

²⁶⁶ Goldschmidt, “The Future of the NPT.”

²⁶⁷ Michael Hertzberg, “Shining a Brighter Light on Dark Places: Improving the IAEA’s Use of Intelligence through Cooperation with NATO,” December 21, 2010, Center for Strategic and International Studies, accessed February 18, 2012, <http://csis.org/publication/shining-brighter-light-dark-places-improving-iaeas-use-intelligence-through-cooperation->.

Funneling intelligence coordination through a multilateral security organization with its own distinct preferences and interests would provide an internal check on the ability of one national government to use the IAEA as a vehicle for promoting its own interests, as the CIA did in Iraq.²⁶⁸

The same might also hold true for the GHGIS.

Another potential advantage of employing Herzberg's intermediary international agency is that the GHGIS could direct requests for information back through that intermediary, rather than making requests directly to the U.S. IC. Given that GHGIS suspicions regarding signatory non-compliance might take many months to years to confirm, there may frequently be instances when the GHGIS would benefit from the ability to compare its own suspicions against intelligence that an intelligence agency might have the means to gather but to which it had not yet devoted attention. In such cases, being able to route such requests through an international intelligence clearinghouse like NATO, could be of great benefit. The drawback to such a strategy, as Herzberg is careful to note, is that, in the case of the IAEA:

...non-NATO IAEA members may view any association of the agency with NATO as a threat to the IAEA's impartiality. In particular, they may see any agreement with NATO as a first step towards greater manipulation of the agency by Western nuclear powers, and could consider withdrawing from the IAEA.²⁶⁹

Hertzberg illuminates an area of intelligence activity that has received too little attention. Given the secret aspect in the IC mission, there is a tendency to defer to the IC regarding the need for secrecy in all matters, whether this is justified by the need to protect sources and methods or not. As will be described later in the "Congressional Oversight" section of this thesis, under normal circumstances, the harm of too little IC oversight is insidious and only reveals itself when the resulting damage becomes far too costly to ignore.

In considering how the IC might best monitor a future international CO2 emissions limitation agreement, Congress will have an opportunity to ensure that IC

²⁶⁸ Ibid. 4–5.

²⁶⁹ Hertzberg, "Shining a Brighter Light on Dark Places," 13–14.

resources are employed optimally and that the structural causes of past intelligence sharing failures do not imperil an international climate change mitigation effort. Hertzberg's suggestions are worthy of consideration. Whether or not Hertzberg's suggestions form part of a future intelligence sharing process is less important, however, than ensuring that whatever process is adopted can be readily modified to overcome the unforeseeable challenges that are certain to arise. A strong Congressional oversight role will be essential in encouraging appropriate and timely ICCME adaptation to changing circumstances.

3. Breaking with Precedent: The Need for Ongoing Congressional Oversight

Treaty provisions will ultimately determine the best use of national assets to promote treaty success. Depending on the actual regime adopted by future ICELA signatories, Congress should establish mechanisms to ensure that the uses of IC resources are aligned with the treaty. Regardless of the ICELA adopted, Congress should not assume that either the political or institutional objectives of either the executive branch, generally, or the IC, specifically, will faithfully reflect those of the treaty absent close Congressional oversight. This oversight is the subject of chapter that follows.

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VII. ACHIEVING TRANSPARENCY THE LEGISLATURE IN THE INTELLIGENCE OVERSIGHT “CYCLE”

Not until 1996 did the British government even acknowledge the existence of their foreign intelligence service, the MI6.²⁷⁰ The cloak and dagger ethos that ruled intelligence activities has in Britain, like in the U.S., given way to a more practical approach to intelligence collection. Governments in democratic nations, including their intelligence services, have become more transparent and accountable. The legitimacy of all democratic institutions depends on the credibility of their leaders, which in turn can only be sustained transparent governmental processes.

Nations will only feel compelled to respect the provisions of a future ICELA so long as the treaty retains legitimacy among its signatories. Like that of all democratic institutions, the legitimacy of any ICELA can only be sustained if the international public trusts the processes established to administer the agreement. If the actions of the IC undermine the ICELA’s legitimacy, U.S. interests will not have been served. Should the U.S pursue climate change mitigation through an international agreement, it will be up to Congress to ensure that independent IC monitoring of the treaty is conducted in conformity with international norms. While the idea of “transparency” may appear to be an oxymoron when discussing intelligence agency activities, the two should not be considered mutually exclusive. “Transparency” is not the exposure of secret sources and methods. “Transparency,” in terms of intelligence activity, has to do with accountability to the legislature for process integrity.

The executive branch’s reluctance to pursue some NPT and other bilateral and international weapons nonproliferation treaty violations has prompted Congress to expand its oversight of the nation’s efforts to limit the proliferation of weapons of mass destruction, most notably through the imposition of routine reporting requirements on the IC. More generally, the progressive expansion of Congressional oversight of the IC reflects an underlying dynamic that should be considered when designing an IC entity

²⁷⁰ Jennifer Whitehead, “MI6 to Boost Recruitment Prospects with Launch of First Website,” October, 13, 2005, BrandRepublic, accessed March 15, 2013, <http://www.brandrepublic.com/news/521906/mi6-boost-recruitment-prospects-launch-first-website/>.

(ICCME) to monitor a future international CO2 emissions limitation agreement (ICELA). Because the success of any future ICELA will rely so heavily on the legitimacy of the international treaty monitoring regime, and because of the likelihood that the U.S. will seek to supplement these monitoring efforts with intelligence collected by the IC, Congress would do well to consider the roots of the issues that have led to its own increasing efforts to constrain and direct IC activities. Such a consideration will highlight the dangers of excessive intelligence agency discretion, and the benefits of ensuring the IC monitoring effort remains transparent.

A. LEGISLATIVE OVERSIGHT OF INTELLIGENCE AGENCIES: ORIGINS AND OBSTACLES

Having recognized a need and acknowledged its competency to address it, Congress empowers an agent to pursue goals and objectives identified with meeting that need. Ensuring that the agent carries out its mandate appropriately, however, requires a sustained focus at odds with Congress's ever-increasing oversight demands.²⁷¹ Though this dilemma is one Congress confronts in all realms of its activity, when dealing with matters of national intelligence, the need for secrecy compounds Congress's challenge.²⁷²

U.S. intelligence agencies are ultimately the creatures of our legislative process, and, as such, they must be answerable to it.²⁷³ Congress invests extraordinary powers in the IC, powers that may easily be abused if left un-monitored. The legitimacy of our government rests on adherence to the precepts of our Nation's founding documents. Should our intelligence agencies be seen as acting without the legal and fiscal bounds described by those documents, the public has a right to question the lawfulness of our government as a whole. The powers and secrecy afforded our intelligence agencies have

²⁷¹ McCubbins, Noll, and Weingast, "Administrative Procedures," 255; Julian Sanchez, "Why the Intelligence Community Needs GAO Oversight," July 29, 2010, Cato Institute, accessed August 9, 2012, <http://www.cato.org/publications/commentary/why-intelligence-community-needs-gao-oversight>.

²⁷² Elaine Halchin and Frederick Kaiser, *Congressional Oversight of Intelligence: Current Structure and Alternatives* (Washington, D.C.: Congressional Research Service, 2012):36, Federation of American Scientists, accessed February 18, 2013, <http://www.fas.org/sgp/crs/intel/RL32525.pdf>; Amy Zegart, "The Domestic Politics of Irrational Intelligence Oversight," *Political Science Quarterly*, 126, no. 1 (2011):1.

²⁷³ Lowenthal, *Intelligence*, 217; Kate Martin, "Parliamentary and Specialized Oversight of Security and Intelligence Agencies in the United States," in Aidan Wills and Mathias Vermeulen, *Parliamentary Oversight of Security and Intelligence, Directorate General for Internal Policies, Policy Department C: Citizens' Rights and Constitutional Affairs* (Brussels: European Parliament, 2011), 333.

been used to undermine civil liberties, provide partisan advantage in the political arena, and misuse public funds. Because they are hidden from public scrutiny, left unmonitored, our intelligence agencies may perform sub-optimally and fail in the mission for which they were created—protecting our citizens and democratic institutions from domestic and foreign threats.²⁷⁴ U.S. intelligence abuses in the 1970s and 1980s, the missed intelligence opportunities that might have altered events on 9/11, and the perceived or real intelligence failures noted in the lead up to the war in Iraq are just a few of the events that focused public attention and motivated Congressional efforts to better monitor activities of the IC. ²⁷⁵

Intelligence oversight challenges are not unique to the United States. Congress' predicament is shared by legislatures in all democratic countries that endeavor to ensure their security in accordance with their democratic principles. As an example, members of Parliament in Britain, like their American counterparts in Congress, respond most aggressively to issues important to the constituencies that elect them and reserve relatively less of their time for matters, such as national security, that are of less acute local importance. As in the U.S., in Britain, the development of clandestine national security agencies reflected the exigencies of a particular set of historical circumstances. Measures to mitigate the potential for mismanagement or abuse of the special powers vested in these agencies were pursued with less energy than were those to ensure these agencies could protect the nation against foreign threats. That the peacetime burning of fossil fuels would create a new national security threat was an unimagined contingency at the time. Now Congress and the nation will be faced with the challenge of employing bureaucratic institutions established for human conflicts to instead aid in overcoming a challenge that we can only confront in collaboration with both our allies and our rivals.

²⁷⁴ European Commission for Democracy through Law, "Report on the Democratic Oversight of the Security Services," (Strasbourg, Venice Commission, 2007), 4. Aidan Wills and Mathias Vermeulen, *Parliamentary Oversight of Security and Intelligence, Directorate General for Internal Policies, Policy Department C: Citizens' Rights and Constitutional Affairs* (Brussels: European Parliament, 2011), 85–87.

²⁷⁵ Robert Jervis, "Reports, Politics and Intelligence Failures: The Case of Iraq," *The Journal of Strategic Studies*, 29, no. 1 (2006, February): 7; Jon Moran, "State Power in the War on Terror: A Comparative Analysis of the UK and USA," *Crime, Law & Social Change*, 44 (2005): 339.

B. HOW LACK OF OVERSIGHT RESULTS IN LOSS OF INTELLIGENCE AGENCY LEGITIMACY

Efforts to integrate government activities within the European Union and the advent of new democracies throughout the world have fostered broad studies of parliamentary intelligence oversight.²⁷⁶ Though the intent of these studies is not to demonstrate the causal relationship between lax or absent intelligence oversight and intelligence abuse and failure, they do indeed highlight a correlation. Whether in the U.S. or abroad, countries' legislative efforts to institute effective oversight of their intelligence agencies routinely follow incidents that have raised public concerns that these agencies had failed in their mission or had exceeded their authority.²⁷⁷

The naissance of U.S. intelligence has been traced to different historical moments.²⁷⁸ Whether it be deemed the 1947 creation of the CIA, of the Office of Naval Intelligence in the 1880s, Washington's Revolutionary War deceptions of the British, or some other point in U.S. history, the essential fact is that the establishment of U.S. intelligence is the result of events rather than the culmination of a progressively identified need or a national epiphany regarding an intrinsic state requirement. Like any institution, once established, intelligence agencies have an interest in preserving their resources and prerogatives. Justified or not, it is expected that intelligence agencies will insist that their operations require insulation from outside review. However, reference to these assertions should only be accorded as justified by the IC's operational needs. Failure to overcome IC resistance to ICCME oversight will ultimately ensure the ICCME's irrelevance.

Within a democracy, the public's perception of events generally constrains their leaders' range of policy options. Unless events raise questions regarding an intelligence agency's behavior, there is little motivation and less ability for members of Congress to

²⁷⁶ See for instance the following reports cited previously within this policy memo: European Commission, "Report on the Democratic Oversight," 4; Wills and Vermeulen, *Parliamentary Oversight of Security*, 85.

²⁷⁷ European Commission, "Report on the Democratic Oversight of the Security Services," 4; Peter Gill, "Democratic and Parliamentary Accountability of Intelligence Services after September 11th," Paper presented at the Workshop on Democratic and Parliamentary Oversight of Intelligence Services, Geneva Centre for Democratic Control of Armed Forces (DCAF) Geneva, October 3–5, 2002, 297; Wills and Vermeulen, *Parliamentary Oversight of Security*, 85.

²⁷⁸ Imtiaz Hussain, "Post-9/11 Canada-US Security Integration: Of the Butcher, the Baker, and the Intelligence-Policy Maker," *American Review of Canadian Studies*, 39, no. 1 (2009, March): 45.

overcome the I.C.'s resistance to oversight or reform. Congressional oversight can be undermined or improved, but it can never be wholly satisfactory because its aggressive implementation is dependent on the public revelation of intelligence missteps. Under most circumstances the cycle cannot be circumvented. Generally, all that can be altered is the frequency and timeliness with which problems within the IC are identified and rectified. Because public perceptions will be integral to the success of an ICELA, Congress must pre-emptively reduce the likelihood of problems regarding the ICCME escalating to a degree that undermines the ICCME's domestic or international legitimacy.

1. Different Legislative Models: The Same Intelligence Oversight Outcome

In considering any adjustment to Congressional oversight of the IC, care should be taken to adopt changes that recognize and address the underlying oversight dynamic. To confirm that missteps are features rather than aberrancies of intelligence institutions, it is instructive to consider how intelligence failures manifest equally in legislative systems alien to our own. Increasing British legislative intelligence oversight over the last three decades has provided a window into the British intelligence system unavailable in most other countries. This visibility has made it possible to observe that, though the difference between the U.S. and British legislative systems are vast, both have followed remarkably similar paths in adopting greater intelligence agency oversight responsibility. An assessment of intelligence agency abuses in the two countries reveals nearly identical cyclical patterns.

In the U.S. and Britain, as in other democracies, the intelligence agencies function as part of the executive branch. In the U.S. independent oversight of our intelligence agencies is conducted primarily by a select committee on intelligence in each house of congress. In addition to these intelligence specific committees, budgetary oversight is conducted by subcommittees of the defense appropriations committees in each house. Additionally, the Judiciary Committees and Homeland Security Committees exercise their own oversight responsibilities.²⁷⁹

²⁷⁹ Martin, "Parliamentary and Specialized Oversight," 333.

Early in the 1970s, allegations of IC involvement in the Watergate break-in led to the establishment of the Senate Select Committee to Study Governmental Operations with Respect to Intelligence Activities, better known as the “Church Committee.” The committee’s investigation led to the discovery of three decades of intelligence abuses. Prior to these revelations, Congress and the nation vested their trust in the patriotism of the intelligence agencies. In great part due to Church Committee’s findings of intelligence abuses by the FBI and CIA, Congress came to the realization that the IC oversight provided by its intelligence subcommittees of the Armed Services and Appropriations Committees needed to be more focused. Ultimately, this realization led to the establishment of an oversight committee specific to intelligence in each chamber.²⁸⁰ Only revelations of pervasive abuse within the IC overcame external resistance, and Congress’s own reticence to assume a more prominent intelligence oversight role. Among the many lessons of the Church Committee was that without effective oversight, intelligence agencies will undermine not only the nation’s democratic values but also their own missions.²⁸¹

2. The Genesis of Intelligence Agency Oversight in Britain

While British intelligence services are also directed by the executive, in the form of the Prime Minister, oversight of these services is exercised from within a more ambiguous structure. The British public was content to remain in the dark regarding the country’s intelligence activities until the 1970s, when civil strife began to erode Parliamentary collegiality on matters of national security. The social and economic changes brought about by Margaret Thatcher’s neo-liberal policies exacerbated the partisan divide. Spy scandals became fodder for partisan electioneering.²⁸²

What propelled actual legislation regarding legislative intelligence oversight was a 1984 ruling by the European Court of Human Rights (ECHR) that found Britain’s

²⁸⁰ Johnson, “Congressional Supervision of America’s Secret Agencies,” 395–401.

²⁸¹ *Ibid.*, 403.

²⁸² Gill, Peter, “Evaluating Intelligence Oversight Committees: The UK Intelligence and Security Committee on the ‘War on Terror,’” *Intelligence and National Security*, 22, no.1 (2007): 19; Robert Jervis, “Reports, Politics and Intelligence Failures: The Case of Iraq,” *The Journal of Strategic Studies*, 29, no. 1 (2006, February): 7.

policies regarding domestic wiretapping in contravention of the country's treaty obligations. During this period, a former MI5 official disclosed that the agency's activities had included surveillance of two former members of the National Council for Civil Liberties who would soon become government ministers. As the two prepared to submit their case to the ECHR, the prospect of continued unfavorable ECHR findings and additional negative publicity prompted legislative actions within Britain, culminating in the 1989 *Security Services Act* that established a legal framework within which Britain's Security Service (MI5) would subsequently operate.²⁸³

That British Parliamentary oversight mechanisms were in large part instituted in response to the requirements of its international treaty obligations suggests a potential long-term motor for increased oversight and greater intelligence transparency internationally. This British experience is particularly relevant to the ICCME, since only if international ICELA signatories feel confident that U.S. ICCME operations conform to international standards will they allow those findings to be integrated into the international GHGIS monitoring regime. By ensuring the ICCME adheres to practices consistent with international collaboration, Congress will help foster international trust in the ICCME.

Succeeding Margret Thatcher, John Major's government finally promised legislation to place Britain's intelligence agencies under Parliamentary oversight. The deal was sealed when another scandal—this one involving the sale of British military equipment to Iraq in the 1980s against the then British government's stated position—broke in the media. The story involved three British businessmen who were put on trial for selling arms to Iraq during the Iran-Iraq war when such sales had been forbidden by British law. In fact, the British government had secretly been supporting Iraq and had been receiving information from one of the defendants. Ultimately, in 1994, the public outcry over the government's hypocrisy forced the Prime Minister to support the passing of the *Intelligence Services Act* (ISA), which included the creation of the Intelligence and Security Committee (ISC).

²⁸³ Ibid., 20. Johnson, "Congressional Supervision of America's Secret Agencies," 68.

In consultation with Parliament, the Prime Minister selects the members of the ISC. The ISC is comprised of nine members chosen from the House of Commons and House of Lords. Unlike in the U.S., where Congress has theoretical purview over all federal agencies and thus the ability to determine the structure and scope of its oversight committees' responsibilities, the ISC derives its authority from the act under which it was created.²⁸⁴ Thus, the ISC is a "committee of Parliamentarians" rather than, as in the case of Congressional investigatory committees, a "committee of Parliament" with independence from the executive.

In creating the ISC, the British government did not forego an ability to restrict the amount of information it releases either to the ISC or to the public. All in all, the history of the ISC has been of a continual public discussion regarding the extent and limits of its investigatory powers, as much as of the substance of its inquiries. Generally, the ISC provides the executive branch with a pseudo-independent affirmation of the integrity of the government's intelligence collection activities.

If the ISC has frequently described as "window dressing" for the British government, there have been instances in its investigations where it has been able to amplify its investigatory power by presenting the government with an ultimatum. In 1999, at the government's request, the ISC initiated an inquiry into past Soviet spying referred to as the "Mitrokhin Affair." Initially, this ISC investigation widely perceived as another government attempt to create the illusion of a genuine investigation. If this supposition was correct, the stratagem revealed a miscalculation on the part of the government. Prior to agreeing to take on the investigation, the ISC publicly insisted on full access to a relevant documentation, including the MI5's ministerial level recommendations. In this case, the government conceded, once again demonstrating the degree to which the prospect of further public focus on an issue determines the power that investigators will ultimately wield in overseeing intelligence agencies.²⁸⁵

²⁸⁴ Ian Leigh, "Parliamentary and Specialized Oversight of Security and Intelligence Agencies in the United Kingdom," in Aidan Wills and Mathias Vermeulen, *Parliamentary Oversight of Security and Intelligence*, Directorate General for Internal Policies, Policy Department C: Citizens' Rights and Constitutional Affairs (Brussels: European Parliament, 2011), 290.

²⁸⁵ Leigh, "Parliamentary and Specialized Oversight of Security," 78.

Interestingly, the treatment of the British citizen held in Guantanamo by the U.S. prompted demands among the British public that their government release relevant information. U.S. officials warned the British that the release of this information threatened intelligence relations between the two countries. Ultimately, the British government yielded to its constituents' outcry and released the information.²⁸⁶ The event revealed how unfavorable public attention among an U.S. ally's public can trump that government's concerns regarding the preservation of even their most important international intelligence sharing partnership.

C. A NEW THREAT: NEW INTELLIGENCE EXIGENCIES

It is only recently that national security resources have been asked to consider and perhaps confront threats that do not arise from competition between nations. In the case of climate change, the adversary is a byproduct of peaceful modern human activity. This is important to keep in mind when designing an intelligence effort for treaty monitoring activities. While a military adversary will invest heavily in counter-intelligence efforts, it is extremely unlikely that a rival will divert its own intelligence resources to undermine the operations of a U.S. ICCME. IC resistance to oversight is frequently predicated on the fear of enemy infiltration. However, concerns which are legitimate in the case of nuclear weapons should not preclude Congressional insistence on ICCME transparency when the fundamental threat is CO2. As will be argued in this thesis' consideration ICCME "Goals and Structure," the more circumscribed the ICCME mission, the less concern there should be within and without the IC that measures undertaken to increase ICCME transparency will compromise other more traditional IC objectives.

In considering measures to monitor any international agreement, whether involving weapons proliferation or CO2 emissions, there must be a recognition that the ultimate purpose of monitoring is to legitimize rather than to indict the treaty. Particularly, in the case of a future ICELA, the U.S. should less fear that another country is failing to respect the treaty, than it should be concerned that that country's behavior will undermine the world's commitment to work together to solve the problem. By framing the nation's objective in this way, it follows that the U.S. should focus on

²⁸⁶ Lowenthal, *Intelligence*, 350.

supporting the international monitoring regime, rather than directly confronting individual international violators with U.S. IC findings.

1. “The Fire Alarm”: The Missing Link to IC Oversight

The forces involved in establishing Congressional oversight of the IC do not parallel those of other areas of Congressional responsibility. In domains other than national security, a considerable amount of Congressional oversight relies on what has been called the “fire alarm” model, whereby Congress is alerted to potential problems by attentive interest groups.²⁸⁷ While Congressional oversight of federal agencies may appear to respect a straightforward client/agent relationship, as already described in the literature review, the truth is more complicated. It is in fact disproportionately impacted societal sub-groups that prompt Congressional intervention. These groups exercise an even more disproportionate influence on the substance of congressional intervention.²⁸⁸ Secrecy and the issues inherent to intelligence activity, however, diffuse, mute, or more generally nullify the influence of those disproportionately impacted by secret intelligence activity.

In other spheres, the federal bureaucracy must yield to the wishes of those who can influence members of Congress’s electoral prospects. Not so in matters of intelligence, where elections are usually not won or lost. The only “natural constituency” for the IC is the executive branch itself. Thus, relative to other bureaucracies, our intelligence agencies have far greater influence over their own fate. Historically, because the IC has typically operated beyond public scrutiny, the “fire alarm” model of congressional oversight of the bureaucracy has proved irrelevant as it applies to national security. It is typically only upon the discovery of “catastrophic failures or scandals” within the nation’s national security institutions that underlying chronic problems have been identified.²⁸⁹

²⁸⁷ Moe, “The Politics of Structural Choice,” 116–117.

²⁸⁸ Peltzman, “Toward a More General theory of Regulation,” 212–213; Stigler, “The Theory of Regulation.”

²⁸⁹ Zegart, “The Domestic Politics of Irrational Intelligence Oversight,” 7–8.

The intensity of legislative oversight inevitably follows a cyclical pattern driven by the public's attention. Without the "fire alarm" mechanism provided by interest groups, Congress is unable to exercise the same level of scrutiny over the IC that it can over other bureaucracies. Recognizing that it operates from a unique structural disadvantage in matters regarding the IC, in designing an ICCME Congress should seek to rectify this imbalance.

Should the ICCME remain cloaked in secrecy within the IC, it will be subject to the same irresistible forces that lead to IC excesses or excessive institutional loyalty. Because the ICCME mission is unique and because the entity's influence will be subject to such intense international scrutiny, it is imperative that Congress harness this wide public interest to ensure that any distortion in the ICCME's mission is discovered before it can lead to public censure. The fact of the ICCME's existence, regardless of the entity's constituent parts, will be impossible to hide. Moreover, as has been demonstrated in previous sections, there is reason to hope that knowledge of the ICCME's engagement in ICELA monitoring will improve the prospects of wide international treaty participation and compliance. Only if initial international suspicion of the ICCME is allowed to fester will the ICCME's potential contribution instead become an ICELA liability.

D. ICCME TRANSPARENCY AND ICELA SUCCESS

Some will argue that there are areas of national security in which we must allow intelligence agencies and the executive branch wide discretion in spite of the risks of insufficient IC oversight leading to public relations complications. Regardless of their merits under other circumstances, such arguments ring hollow in the case of international climate change mitigation where even a small ICCME misstep might imperil ICELA success. Given the stakes involved in our efforts to mitigate climate change, in empowering an ICCME Congress should adopt—and the executive and IC should embrace—mechanisms that promote sustained Congressional expertise and awareness regarding all aspects of the ICCME's activities.

The public's short historical perspective means that most institutional failures, whether related to government intelligence collection or not, are discussed in relative

isolation and underlying trends are neither sought nor identified. In fact, lack of scrutiny in any domain results in unfavorable outcomes. Frank Partnoy, the author of *Wait: The Art and Science of Delay*, and a law and finance professor at the University of San Diego School, and Jesse Eisinger, a Pulitzer Prize winning ProPublica and *New York Times* writer, published an article on the 2008 financial meltdown in the January/February issue of the Atlantic.²⁹⁰ They began their article with the following observation:

The financial crisis had many causes—too much borrowing, foolish investments, misguided regulation—but at its core, the panic resulted from a lack of transparency. The reason no one wanted to lend to or trade with the banks during the fall of 2008, when Lehman Brothers collapsed, was that no one could understand the banks’ risks. It was impossible to tell, from looking at a particular bank’s disclosures, whether it might suddenly implode.²⁹¹

Intelligence agencies and banks both have legitimate needs for secrecy, which they will go to great lengths to preserve. But, just as depositors need not know every bank transaction in order to understand whether a bank’s practices are sound, through its elected representatives the public can remain confident in the reliability of its intelligence agencies without knowing the name of each source or the details of each method. The ICCME can make an important contribution to international confidence in the monitoring regime of a future ICELA so long as the ICCME’s routines and procedures are widely understood.

Intelligence deviations from standard operating procedures are an inevitable feature of agencies like the CIA and the FBI, as well as of their international counterparts. Effective oversight of the ICCME will depend on legislators’ collective ability to remain versed in the issues surrounding the ICCME’s operations. By adopting measures designed to expose ICCME operational protocols to the widest possible scrutiny, Congress can help ensure that inevitable problems are identified prospectively, rather than once they have reached the headlines. Figure 2 is a simplified representation of the self-correcting intelligence cycle envisioned by this thesis.

²⁹⁰ Frank Partnoy and Jesse Eisinger, “What’s Inside America’s Banks?” *The Atlantic* (2013, January/February), 60.

²⁹¹ Ibid.

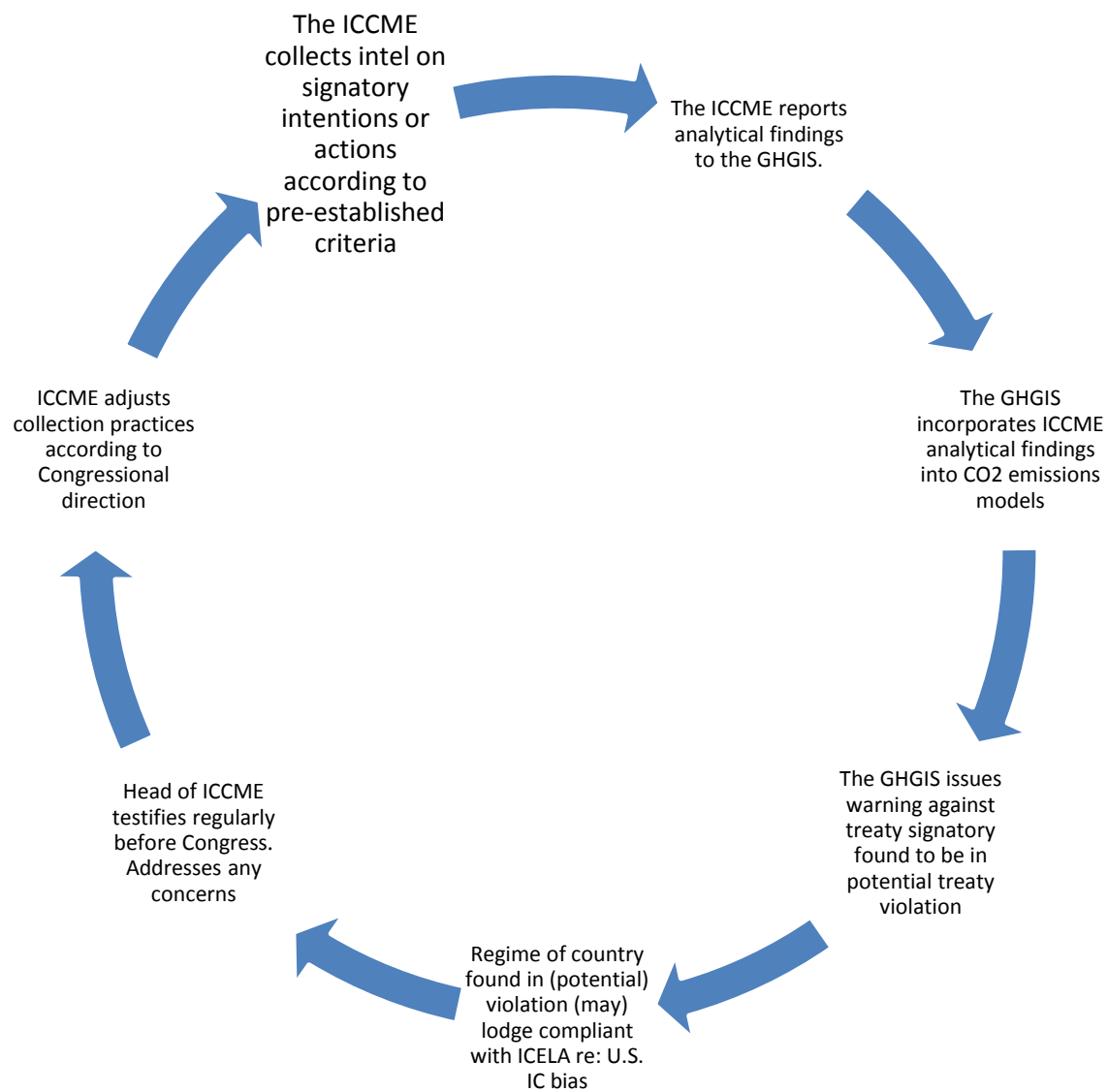


Figure 2. A Conceptual Model For ICCME Intelligence Routing

GHGIS is the Greenhouse Gas Information System, a Department of Energy sponsored proposal for a greenhouse gas emissions monitoring regime develop jointly by four U.S. National Laboratories. This thesis assumes that the regime will be either internationally run, or internationally recognized as the monitoring authority by the CO2 emissions limitation agreement signatories.

ICCME is the Intelligence Community international CO2 emissions monitoring entity (a hypothetical agency contemplated by this thesis).

ICELA is an international CO2 emissions limitation agreement (a hypothetical successor to the Kyoto Protocol).

Congress could establish this cycle by defining the ICCME's target selection and intelligence collection criteria. While the IC's sources and methods would only be accessible to Congressional Intelligence Committees in closed session, questions about the allocation of IC resources, weighting of intelligence findings, and analytical methodologies employed would be subject to open Congressional discussion. Treaty signatories could formally or informally express misgivings or objections regarding the ICCME's actions. The international public would make its own determinations about how much credence to lend the protests of an accused regime. But by providing the international public with this, albeit partial, window in the covert monitoring process, the U.S. would clearly demonstrate good faith and commitment to the treaty goals. The frivolous objections of any non-compliant country would not alleviate that agreement violator of internal and external pressure to come into treaty compliance. For its part the GHGIS would shun unreliable or clearly biased intelligence, or risk undermining the legitimacy of the international monitoring effort. And, though no other country's complaints regarding the IC's actions would have legal standing in the U.S., open Congressional debate or discussion would encourage ICCME conformity with the agency's congressionally pre-established criteria. Over time, Congress could modify these criteria in order to align the ICCME's mission with domestic and international expectations regarding unbiased covert and overt treaty monitoring.

VIII. ICCME DESIGN OBJECTIVES

The ICCME will confront two potentially conflicting challenges. The first is to identify treaty violations; the second is to accomplish this first objective while encouraging the ICELA violator to comply with the agreement. While it is not up to the ICCME to remediate violators, unless covert sources and methods are employed in conformity with ICELA signatory expectations and within treaty provisions, findings based on covert resources will elicit violator resistance and potentially undermine the legitimacy of the treaty itself. Based on the discussion in preceding chapters, this section outlines thirteen goals and objectives the ICCME will need to fulfill if it is to meet the wider dual challenge of identifying and correcting signatory non-compliance.

This section will elaborate on the following design objectives:

- Prioritize the identification and reporting of treaty non-compliance
- Identify violators quickly and reliably
- Use all available means to accomplish the mission
- Adapt quickly to a non-traditional mission
- Respond to identified potential violations
- Select targets to optimize global CO2 emissions reduction
- Maintain credibility
- Maintain the confidence and support of the legislature
- Maintain credibility among domestic and international public and institutions
- Make speedy assessments
- Quickly establish the ICCME within the IC
- Collaborate Effectively with the GHGIS
- Assist in developing a treaty that can be monitored effectively
- Determine the optimal use of resources

A. PRIORITIZING THE IDENTIFICATION AND REPORTING OF TREATY NON-COMPLIANCE

In the idealized model of intelligence agencies or any other bureaucracy, the agency's agenda is set by popularly elected political leaders. The previous chapters on bureaucratic agency design and on legislative oversight of intelligence agencies revealed that the will of political leaders is only one of the drivers of bureaucratic behavior. Though the agencies that comprise the IC are under the direction of the executive branch, the President's ability to alter these agencies' priorities is limited by his or her need to focus on many issues and his or her inability to devote unlimited energy to overcoming bureaucratic inertia.²⁹²

Given that this thesis seeks to determine whether the resource of the IC can be employed to support an ICELA, the suggestion that the IC should strive towards accurately identifying instances of non-compliance might appear self-evident. As discussed previously, however, there are many instances where competing administration or IC priorities ensured that information collected by the IC regarding NPT non-compliance was not employed in the furtherance of NPT objectives.

Just as there were sober high level discussions contemplating the means of surviving nuclear winter, there are currently writers who propose to weigh the cost/benefits of attempting to halt the anthropogenic contribution to climate change. Nevertheless, national security cannot be based on best case scenarios, particular when even moderately optimistic projections suggests long-term environmental devastation should humans continue to saturate the atmosphere with CO₂ at current rates.²⁹³

²⁹² Christopher Lamb, and Edward Marks, "Chief of Mission Authority as a Model for National Security Integration" (Washington D.C.: National Defense University Press, 2010), 6, Institute for National Security Studies, accessed October 29, 2012, <http://www.ndu.edu/press/lib/pdf/strategic-perspectives/StrategicPerspectives-2.pdf>.

²⁹³ Miguel Llanos, "Storm over Pentagon Climate Scenario," *NBC News*, February 26, 2012, MSNBC, accessed October 18, 2012, http://www.msnbc.msn.com/id/4379905/ns/us_news-environment/t/storm-over-pentagon-climate-scenario/#.UH_ZJL_bXoB; Bill McKibbin, "Resisting Climate Reality," April 7, 2011, *New York Review of Books*, October 17, 2012, <http://www.nybooks.com/articles/archives/2011/apr/07/resisting-climate-reality/?pagination=false>. Peter Schwartz and Doug Randall, "An Abrupt Climate Change Scenario and Its Implications for United States National Security," October 2003, Defense Technical Information Center, accessed February 19, 2013, <http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA469325>.

In his book, *Security and Climate Change: International Relations and the Limits of Realism* Mark Lacy poses the question: “How do we act in a condition of uncertainty?”²⁹⁴ This thesis assumes the answer to be that, in the face of uncertainty, where there is abundant credible evidence of a threat that might ultimately undermine the political and economic viability of our nation, we must adopt the “precautionary principle.” Under such circumstances, there can be no legitimate argument, absent a superior threat, to adopting other than a conservative view regarding the urgency of preserving, to the extent possible, the climate in a state which we know to be compatible with our national security.

There is ample discussion regarding the challenge of reducing international CO₂ emissions. The scope of the problem, both in environmental and political impact and in the time—measured in centuries—over which the repercussions will endure, will in turn require a unique level of persistence on behalf of those engage in climate change mitigation, as opposed to climate change adaptation.

The overall goal of those engaged in monitoring an ICELA must remain on the achievement of optimal participation (the optimal number of signatories to the agreement) and the optimal level of signatory compliance. “Optimal,” rather than “maximal,” is employed here in recognition of the vast differences in emissions between individual countries, and the fact that many smaller countries may together emit far less CO₂ than one large heavily industrialized country.²⁹⁵ This consideration is essential, since, according to the evidence collected for this thesis, finesse in exercising its mandate will be integral to ICCME mission success.

The assumption of ICCME mission primacy is essential to any effort at marshaling the resources of the IC in reducing future climate change. It is likely that certain consequences of climate change, such as conflicts over diminishing natural resources, may take immediate precedence over the need for mitigation, with the result

²⁹⁴ Lacy, *Security and Climate Change*, 37.

²⁹⁵ Email correspondence with Karl Jonietz, co-author GHGIS, June 19, 2012. An intriguing discussion of the possible paradox of less treaty participation leading to greater CO₂ emissions reductions given countries demonstrating a preference for equity is found in Lange and Carsten Vogt, “Cooperation in International Environmental Negotiations,” 87.

that the effort to address these immediate threats may divert the IC from the long-term goal of avoiding further climate change. Within the IC, then, individuals or individual departments may argue that, in the interest of ensuring success at combating one aspect of climate change, the more temporally remote concerns of continued climate change must be subordinated. Such balancing of interests is typical and inevitable within any institution confronting so many discrete and interconnected challenges. While under most circumstances, the integration of a new mission among existing projects would disrupt any single institution—frequently, it is already difficult to get agencies within the IC to cooperate—the challenge of incorporating the novel ICCME mission appears especially daunting.²⁹⁶ The recognized difficulties of achieving IC coordination in the achievement of the novel and unprecedented ICCME mission suggest that Congress will need to structure the ICCME so as to ensure its mission receives the highest possible IC priority.

Along with the many science based arguments for elevating ICCME mission success to a “first order,” national security concern (i.e., trumping, though not obviating, other national security priorities) is the long-term, low-acuity nature of the threat in relationship to other national security threats. A terrorist incident or a reported diversion of fissile materials will always focus public and IC attention. These issues have significant institutional ramifications for the IC. Mark Lowenthal describes a phenomenon known to intelligence agencies as “swarm ball,” where intelligence collectors collectively focus on a single high visibility target “to show that they are working on high-value issues, regardless of their contribution, which will be important for their continued success in the next round of budget allocations.”²⁹⁷

Once the ICCME begins operations, it will be difficult to sustain IC attention on ICCME needs in the face of other more acute IC concerns. Vesting the ICCME responsibility in an entity whose responsibility is exclusively CO2 monitoring will reduce mission discretion.

²⁹⁶ Philip Davies, “Intelligence and the Machinery of Government: Conceptualizing the Intelligence Community,” *Public Policy and Administration*, 25, no 1 (2010): 38–39.

²⁹⁷ Lowenthal, *Intelligence*, 77.

B. IDENTIFY VIOLATORS QUICKLY AND RELIABLY

The effects of CO₂ emissions are cumulative, and regardless of the uncertainty inherent in a phenomenon as complex as climate change, it must be assumed that less emissions are always preferable to more.²⁹⁸

The dynamics of identifying treaty violators and bringing them into compliance is likewise complex; yet, again, it must be assumed that delay or imprecision in the identification of treaty violators will lead to either greater emissions or less overall compliance, and likely both.

C. USE ALL AVAILABLE MEANS TO ACCOMPLISH THE MISSION

Given the perils of climate change, it is imperative that those institutions most directly engaged in its mitigation not be encumbered with potentially conflicting obligations. To the extent possible, they must be granted the resources needed to accomplish their mission.

Because the ICCME mission requires a sustained, long-term commitment, an IC agency for which the ICCME function is not indeed the exclusive mission may be asked too often to prioritize and advocate for other objectives and to invest its credibility and prestige in the service of other, potentially conflicting ends.

D. ADAPT QUICKLY TO A NON-TRADITIONAL MISSION

Institutional inertia within the IC may discourage the adoption of novel means of accomplishing the monitoring task. While the IC has evolved to identify discrete incidents of rival threat or malfeasance, whether or not a country complies with its CO₂ limitation treaty obligations is a question that can only be answered in thousands, if not millions of distinct locations. Awareness of anthropogenic contributors to climate change continues to grow, and multitudes may collectively, rather than individually, know whether or not their governments' declarations can be trusted or not.

Should, as seems likely, an overt international treaty monitoring regime be reluctant or unable to collect, investigate, or publicize citizen reporting against treaty

²⁹⁸ DeCanio and Fremstad, "Game Theory," 3.

signatories, task of building a process to identify or capture non-traditional sources of intelligence may very well fall to the U.S. IC.²⁹⁹

E. RESPOND TO IDENTIFIED POTENTIAL VIOLATIONS

Any future international CO₂ emissions limitation agreement will have been negotiated with certain emissions targets and/or limits. Likewise, it will have to set levels of certainty for the findings of any instituted overt treaty monitoring regime whereby penalties to be levied against treaty violators would be triggered. Similarly, the ICCME would have to work within an operational framework to be established either by the executive branch and/or Congress. In other words, the ICCME would not only reach findings, it will need to share these findings in a way that will most encourage participation and compliance with the international agreement.

Practical questions regarding the identification of potential violations include how to establish and limit the degree of discretion exercised by the ICCME. Policymakers may or may not find it desirable to allow the ICCME to weigh the extent of any violation and balance the benefits of identifying all violations against the dangers of eliciting a withdrawal from the treaty or a reinterpretation of the treaty's meaning by a country or countries that will be inclined to contest unfavorable monitoring findings.

F. SELECT TARGETS TO OPTIMIZE GLOBAL CO₂ EMISSIONS REDUCTION

If the ICCME is to support the efforts of a regime established to monitor an ICELA (e.g., the GHGIS), it must focus its monitoring efforts in such a way as to help ensure those countries that emit the greatest amount of CO₂ do not exceed the limits of the agreement provisions. Importantly, such focus need not necessarily include the most important CO₂ emitters. The ICCME must employ finesse in ensuring that comprehensive or aggressive monitoring does not lead to a suboptimal level of CO₂ emissions reductions. In order to achieve the objective that follows the target selection objective (i.e., "maintain credibility"), target selection must be seen by all the treaty signatories to be conducted on the basis of maximizing CO₂ emissions reductions.

²⁹⁹ Graham and Hansen, *Preventing Catastrophe*, 203.

Should targeting be seen as politically biased, there is a danger that countries may question the fairness of the monitoring regime generally and feel justified in violating its provisions.

Transparent criteria must be employed in committing ICCME resources, and the fact that U.S. IC resources are distributed according to previously established national security prioritization should not unduly influence which countries or regions receive ICCME attention. In empowering an ICCME, Congress will confront the need to establish a mechanism for ICCME target selection that is both restrictive enough to promote international credibility but flexible enough that it does not hamper the ICCME's ability to direct attention at suspected "high value targets." To achieve the proper balance, it may be necessary to permit the internationally recognized GHGIS to participate in or influence decisions regarding the ICCME's target selection.

G. MAINTAIN CREDIBILITY

1. Maintain the Support of the Legislature

Intelligence is collected in order to ensure governmental policies have the greatest possibility of success. Intelligence activities are conducted to support policymakers. It follows, then, policymakers must trust their intelligence advisors. Intelligence is a continual struggle to turn limited information into the basis for sound policy. Intelligence agents must not be so timid in their assessments as to provide only useless Generalities. They must, however, not be so cavalier in their prognostications as to undermine the confidence Policymakers have in their usefulness.

2. Maintain Credibility among Domestic and International Public and Institutions

While the loss of public trust may compromise the operational latitude of an intelligence agency in a liberal democracy, intelligence agency credibility is a prerequisite for agency participation in the monitoring of an international CO₂ emissions limitation agreement. Limiting anthropogenic CO₂ emissions requires a unity of global effort that could easily erode should the legitimacy or fairness of the monitoring regime

be called into question.³⁰⁰ Most notably, the ICCME will need to work closely with the GHGIS. The GHGIS will have the same or greater interest in preserving public trust in order to optimize the likelihood of treaty success. If the GHGIS is to focus its monitoring attention based in part on ICCME intelligence, it must first trust that the intelligence it is receiving is accurate, unbiased, and unlikely to provoke international distrust.

a. Make Intelligence Collection Target Determinations on Predetermined Criteria

Possibly the greatest among the many daunting challenges that confronted the negotiators of the Kyoto Protocol was the issue of how to equitably distribute responsibility for reducing CO₂ emissions among countries in very different stages of economic development. They arrived at compromise—dividing countries into two groups with distinctly different treaty obligations—that ultimately proved unsatisfactory to U.S. lawmakers. This was at least in large part the reason the treaty was never ratified by the U.S.³⁰¹

Countries not only contribute CO₂ emissions to the atmosphere in widely different quantities, they also have vastly different development, and thus CO₂ emissions, trajectories into the future. Any future international CO₂ emissions limitation agreement is certain to discriminate between individual countries, and so too must any treaty monitoring regime, overt or covert, be able to allocate monitoring resources based on the need to optimize the global potential for emissions reductions. Should these allocation decisions be made on an ad hoc basis, it is likely these decisions will elicit accusations of monitoring regime bias. Therefore, careful consideration must be made as to how best to pre-empt any such accusations while ensuring that monitoring efforts are nonetheless pursued efficiently.

Because China and India contribute such a disproportionate portion of anthropogenic CO₂, ensuring they abide by their treaty obligations will be a high priority for any treaty-monitoring regime. Given, however, that relations between India and the

³⁰⁰ National Research Council, *Informing an Effective Response to Climate Change* (Washington, D.C.: National Academy of Science, 2010), 130.

³⁰¹ CNN, “Clinton Hails Global Warming Pact,” All Politics, December, 11, 1997, CNN, accessed November 5, 2012, <http://www.cnn.com/ALLPOLITICS/1997/12/11/kyoto/>.

U.S. are generally more harmonious than between the U.S. and China, it is important that there be no question that the U.S. IC is preferentially disregarding Indian treaty violations.

Because treaty adherence will rest largely on the fragile basis of mutual trust, it is especially important that no important incidents of treaty non-compliance go undetected. In the late 1980s, Iraq successfully concealed its attempts at developing nuclear weapons, thanks in great part because to the world's preoccupation with Iran. Hans Blix asked, rhetorically, "Could the Secretariat have done more?"³⁰² He went on to answer his own question, writing:

Yes, it could have performed inspections at Iraq's declared installations more often than it did. (Fewer inspections were done, in order to save resources.) It could have systematically scanned media for information and found a few suspicious items regarding Iraqi imports. Could states have been more alert? Yes, they might have had sharper export controls and better intelligence. However, during the Iran-Iraq War many states were more concerned about fundamentalist Iran and were probably not keen to ask questions and possibly rock the Iraqi boat.³⁰³

If the ICCME is allowed too much discretion in focusing its resources, the fact of the discretion alone is likely to raise concerns among U.S. geopolitical rivals, whether or not such bias in fact exists.

H. MAINTAIN THE CONFIDENCE AND SUPPORT OF THE LEGISLATURE

If the agency loses the support of the legislature that empowered it, then it may be eliminated. It cannot become a creature of the GHGIS. It must be seen as protecting U.S. interests within the U.S.³⁰⁴

The ICCME will ultimately be answerable to the U.S. legislature, and as such, must be seen as protecting U.S. interests. Members of Congress have demonstrated considerable discord regarding the urgency or even the need to reduce global CO₂

³⁰² Blix, *Disarming Iraq*, 19.

³⁰³ Blix, *Disarming Iraq*, 19–20.

³⁰⁴ Walsh, *The International Politics of Intelligence Sharing*, 18.

emissions. Just as the ICCME must be seen to provide unbiased support to the GHGIS, it cannot be seen to prioritize foreign interests over those of the U.S.

I. MAKE SPEEDY ASSESSMENTS

Any ICELA that imposes significant sacrifices on signatories will receive increasing resistance as the costs of those sacrifices become more apparent. As treaty provisions require progressively greater changes in signatory behavior (i.e., a transition to energy sources that emit less CO₂), there will be greater temptation to violate the treaty. The longer any violations persist, the more internal political resistance will mount against measures to correct those violations. Identifying violations quickly is essential to encouraging treaty adherence among all treaty signatories.

J. QUICKLY ESTABLISH THE ICCME WITHIN THE IC

The sooner an ICCME is established within the IC, the more prepared it will be to help frame the U.S. negotiating position on the terms of a verifiable future international CO₂ limitation agreement. As discussed above, under the best of circumstances, the GHGIS will initially be extremely limited in its ability to precisely assess the treaty compliance of any country, much less that of countries that may restrict overt in situ monitoring. In the years during which the GHGIS will be developing its monitoring capacity, the ICCME may provide the best hope of reassuring treaty signatories of their mutual adherence to the treaty's provisions.

K. COLLABORATE EFFECTIVELY WITH THE GHGIS

Though the International Atomic Energy Agency (IAEA) is tasked by the NPT signatories with this responsibility under the treaty's provisions, the U.S. IC has been engaged in monitoring signatory compliance to the NPT since it entered into force in 1970.³⁰⁵ The IAEA and the U.S. share an interest in discouraging the proliferation of nuclear weapons. Nevertheless, there have been disagreements between the two regarding the best means by which to accomplish this mutual goal. Their public

³⁰⁵ International Atomic Energy Agency, "Treaty on the Non-Proliferation of Nuclear Weapons (NPT)," International Atomic Energy Agency, accessed October 20, 2012, <http://www.iaea.org/Publications/Documents/Treaties/npt.html>.

differences likely served to undermine their credibility. In fact, in his book, *Disarming Iraq*, Hans Blix offers evidence that the Bush administration made repeated efforts to undermine the credibility of the IAEA, going so far as to suggest that the U.S.'s failure to find illegal weapons should have been blamed on the IAEA.³⁰⁶ Given the need for broad long-term global cooperation on the issue of climate change, the ICCME and the GHGIS will benefit from a collaborative working relationship.

L. ASSIST IN DEVELOPING A TREATY THAT CAN BE MONITORED EFFECTIVELY

The choice of how to, perhaps even whether to, employ the IC to support GHGIS efforts will likely depend on how the treaty is structured. Still, regardless of whether the IC is used to support monitoring, during ICELA negotiations the IC will be called upon to help assess the issue of climate change, the negotiations, and the treaty provisions. For instance, according to Hans Blix, in 1991 members of the UN Security council anticipated that members would render intelligence assistance to the IAEA's Iraq inspection team, and in order "to prevent the budgetary committee of the General Assembly from poking its nose into the new system, its financing was removed from the regular UN budget."³⁰⁷ During future international negotiations to empower a monitoring regime like the GHGIS, the ICCME should help assess and recommend similar measures to facilitate collaboration between the ICCME and the GHGIS. Again, however, in the case of the ICCME, any anticipated cooperation with an internationally recognized treaty monitoring regime should be predicated on international support for that collaboration.

Only the IC has the knowledge of its own resources needed to determine how specific treaty provision will facilitate or hamper IC monitoring efforts. Nevertheless, the IC has its own institutional preferences and predilections formed largely through long conflicts with U.S. adversaries. This thesis adopts, as a premise, the need to prioritize global CO₂ emissions reductions over other national security concerns. The support that the IC brings to U.S. participation in future ICELA negotiations must be informed first by

³⁰⁶ Blix, *Disarming Iraq*, 234–235.

³⁰⁷ Blix, *Disarming Iraq*, 21.

a recognition of the need for the treaty to succeed and in no way by a preoccupation with potential opportunities to gain advantage over global rivals.

M. DETERMINE THE OPTIMAL USE OF RESOURCES

As noted previously, the GHGIS and the JASON papers on the challenge of monitoring an ICELA describe different potential CO₂ sensing constellations including existing and future technologies. It is likely that both remote and in situ sensors would be employed. In any scenario, it can be assumed that the more sensors, the better, but that there will be a diminishing aggregate return on increased investment. It can also be assumed that the decisions regarding the use and deployment of sensors will considerably influence the utility of the data collected. The GHGIS paper notes:

An important characteristic of spaceborne sensors is that of cross-calibration and traceability to standards. Comparing the cost of spaceborne sensors relative to hundreds, or perhaps thousands, of less-costly land-based sensors, for example, can only be realized in the context of operations and maintenance (O&M) costs to sustain calibration and stability of many independent sensors to a single stable standard, versus the cost of more costly but many fewer independent spaceborne sensors that incorporate means of on-board National Institute of Standards and Technology (NIST)-traceable calibration.³⁰⁸

Regardless of the resources allocated to the monitoring task, they will be limited. With its knowledge of and access to covert means of intelligence collection, the ICCME should be involved in determining the optimal use of limited monitoring funding.

³⁰⁸ Dimotakis et al., GHGIS, 3-1.

IX. STRUCTURAL OPTIONS

The preceding chapter discussed the goals and objectives of the ICCME derived from relevant historical precedent, especially those cases involving covert weapons nonproliferation monitoring and circumstances surrounding the negotiation and implementation of the Kyoto Protocol. That research also revealed that specialized or focused IC missions can be organized according to three different models: the IC can be allowed to select its own approach, an executive with authority to marshal IC resources can be assigned, or a dedicated entity within the IC, a “center,” can be empowered by statute. In fact, many variations on these basic structures have been employed in the furtherance of national security objectives. To these three, this thesis proposes a fourth that combines attributes of the second and third options. A policy analysis is then conducted in which each of the four described options is subjected to an evaluation based on the previously case-study-derived ICCME objectives. Table 1 summarizes these findings.

Table 1. Assessment of Four Policy Options Considered For Structuring the ICCME*

ICCME Design Objectives	Prioritize identification and reporting of treaty non-compliance	Identify violators quickly and reliably	Use all available means to accomplish mission	Adapt quickly to a non-traditional mission	Respond to identified potential violations	Select targets to optimize global CO2 emissions reduction	<i>Maintain credibility</i>	Make speedy assessments	Quickly establish ICCME within the IC	Collaborate Effectively with the GHGIS	Assist in developing a treaty that can be monitored effectively	Determine optimal use of resources
Option:												
1												
2												
3												
4												

Option 1: Give mission to existing agency (e.g., CIA, DOE) with limited Congressional involvement

Option 2: Subdivision of existing agency (the “center” model)

Option 3: Appoint upper level IC coordinator (Chief of Mission, Mission Manager)

Option 4: Create “Hybrid” CIA Sub-agency or other IC Dept, but with a separate head who would be statutorily answerable directly to Congress

	Poor	The research suggests that the costs of this option to mission success outweigh the benefits
	Neutral	The research is inconclusive
	Good	The research suggests that the benefits of this option to mission success outweigh the costs

* This representation provides a highly truncated summation of four complex policy options considered as a means to structure an IC CO2 emission monitoring entity (ICCME). The determination of how each option rates (poor, neutral or good) in achieving each of the 12 individual ICCME mission goals listed is based on the analysis presented in Chapter IX, “Structural

Options.” The analysis is intended to highlight the goals that policymakers should consider in building the ICCME. While the analysis cannot represent a definitive evaluation, it will help policymakers anticipate the obstacles and opportunities they will likely encounter in designing the ICCME. Of the 12 goals listed, the goal to “maintain credibility” is the most essential; while building credibility will be achieved through the successful attainment of the other goals, unless credibility is maintained over the long term, the overall ICCME mission cannot succeed.

A. THE DOMESTIC NUCLEAR DETECTION OFFICE: EXPERIENCE AND ANALYSIS REGARDING INTERNAL IC ORGANIZATIONAL CONSIDERATIONS

The following discussion of the ICCME's structural options draws heavily on a March 2009 analysis of the Domestic Nuclear Detection Office (DNDO) done by Congressional Research Service specialist Dana Shea. The U.S. has spent decades building and refining a nuclear detection capability. In 2005, President Bush established the DNDO under the Department of Homeland Security in order to coordinate a multi-layered global "detection architecture." There are significant differences between the DNDO and ICCME mission requirements, but there are also lessons to be drawn from the DNDO challenge. As noted in a 2009 Congressional Research Service assessment:

The global nuclear detection architecture has broad, international scope, so implementing it is difficult. Multiple agency initiatives and programs must be relied on to achieve the architecture's goals, and its effectiveness is dependent on many factors outside of DNDO's direct authority and control.³⁰⁹

Enlisting a broad range of IC and other federal agencies in an effort to achieve an optimal ICCME collaboration and ultimately support of an internationally recognized GHGIS poses many of the same challenges.

In the aftermath of 9/11, far greater attention was focused on past failures to optimize and integrate the gamut of IC resources to achieve national security objectives.³¹⁰ These needs had been recognized even prior to 9/11. In a report released in January of 2001, the U.S. Commission on National Security/21st Century, more commonly known as the Hart-Rudman Commission, declared:

The intelligence community should place new emphasis on collection and analysis of economic and science/technology security concerns, and incorporate more open source intelligence into analytical products.

³⁰⁹ Dana Shea, *The Global Nuclear Detection Architecture: Issues for Congress* (Washington, D.C.: Congressional Research Service, 2009), 5, accessed February 19, 2013, <http://www.fas.org/sgp/crs/nuke/RL34574.pdf>.

³¹⁰ Richard Grimmett, *Terrorism: Key Recommendations of the 9/11 Commission and Recent Major Commissions and Inquiries* (Washington, D.C.: Congressional Research Service, 2004), accessed February 19, 2013, <http://www.au.af.mil/au/awc/awcgate/crs/rl32519.pdf>.

Congress should support this new emphasis by increasing significantly the National Foreign Intelligence Program (NFIP) budget for collection and analysis.³¹¹

These same intelligence considerations will encompass the fundamental ICCME challenges. The cooperation of a range of national security assets, including those of the Department of the Treasury and the Department of State, will be required to achieve the ICCME mission.³¹² In determining how the ICCME mission will be structured within the IC, Congress should anticipate the ICCME's need to effectively lead a collaborative IC effort. Congress need look no further than the National Counterterrorism Center's struggle to integrate different elements of the IC to achieve a focused mission—in this case protecting the nation from foreign terrorists—for a reminder of the challenge that ensuring such an integrated effort represents.³¹³

1. A Narrow, Credible Mission

In considering the governance architecture required to accomplish the ICCME mission, an important aspect of the undertaking must include narrowing the scope of that mission to its essential goal: impartially identifying suspected instances of treaty violation. While it may be tempting to combine the ICCME function under a broader climate change, environmental, or national security architecture, the ICCME must remain as unencumbered by either real or perceived bias or conflict of interests (both domestically and abroad), if it is to secure the support of the federal institutions on which it will rely for support and the international credibility on which its mission depends.

For the reasons described in the earlier comparison of nonproliferation and ICELA monitoring, the fundamental difference between the DNDO and the ICCME objectives involves the issue of international perception. Whereas international opinions may impact the DNDO's operational environment, public perceptions are not critical to the ultimate achievement of the DNDO's mission. The ICCME will best accomplish its

³¹¹ Grimmett, *Terrorism*, 28–29

³¹² Email correspondence with Karl Jonietz, co-author GHGIS, November 19, 2012.

³¹³ Richard Best, *The National Counterterrorism Center (NCTC)—Responsibilities and Potential Congressional Concerns* (Washington, D.C.: Congressional Research Service, 2011), 7, accessed February 19, 2013, <http://www.fas.org/sgp/crs/intel/R41022.pdf>.

objectives not by detection of violations, clearly important, but by helping to foster an international atmosphere of trust. If the ICCME is unsuccessful in maintaining its international credibility, it may win the detection battle but lose the mitigation war. ICCME form, then, must closely mirror the ICCME's trust building function. The DNDO's multifaceted mission is a reflection of the complexity of the agency's threat environment. The ICCME need not contend with the same adversarial diversity. By narrowing the ICCME's task to that of covert treaty monitoring, Congress will reduce the secrecy considerations involved in protecting IC sources and methods, and thereby facilitate the achievement of agency mission transparency.

B. THE OPTIONS

In considering the structure of the ICCME functions within the IC, the primary consideration will remain ICCME influence over other entities, including but not limited to the public, other governments, and other international institutions who will themselves determine the levels of CO2 reduction achieved. There are too many possible variations on how its monitoring function could be organized within the IC to attempt a comprehensive evaluation of them all. Instead an evaluation will be conducted of some of the general structural options suggested by the scope and technical demands of the ICCME functions. These are:

1. Entrust the Mission to an Existing Agency within the IC

The most obvious choices in this case are the CIA and the DOE. While the technical expertise of the DOE is likely more in line with the ICCME technical requirements, the CIA is endowed with many unique resources, most particularly foreign human assets, that virtually ensure the agency's participation in many of the ICCME activities envisioned by the thesis.³¹⁴ Though reference will be made to the DOE, as an alternative to the CIA, the CIA will be most closely considered in recognition of the agency's dominance within the IC.

³¹⁴ Maurice Greenburg and Richard Haass, "Making Intelligence Smarter: The Future of U.S. Intelligence," 1996, Federation of American Scientists, accessed July 24, 2012, <http://www.fas.org/irp/cfr.html#clandestine>.

2. Create a New Agency within an Existing Agency to Perform the ICCME Function

The CIA's Climate Change Center represented the U.S. government's attempt to create an agency that roughly fits this description. Since its establishment in 2009, little information about the center was ever made public. A cursory press release and then Director of Central Intelligence (DCI) Leon Panetta's terse 2009 accompanying statement were available for consideration.³¹⁵ As low a profile as it maintained, the center nevertheless invited attention among opponents of action on climate change, which in November of 2012 ultimately led, it appears, to the center's closing.³¹⁶ Elsewhere there have been discussions of the strengths and weaknesses of the "center" concept, particularly as it applies to the National Counterterrorism Center (NCTC)³¹⁷ and the National Counterproliferation Center (NCPC) against which to consider the concept of the CIA's Climate Change or some similarly conceived center.³¹⁸

3. Empower High Level Official with Authority

Empower a high level official with authority to coordinate the personnel and material resources of different governmental departments and agencies in the service of the ICCME mission. Several examples of is type of high level official exist within and without the IC. One particularly interesting example that has recently been promoted as a potential solution to the increasing need to coordinate the efforts of multiple federal agencies for missions of narrower scope than those requiring an entire governmental department is the ambassadorial "Chief of Mission" function.

4. Create a Hybrid of the "Center" and the "Mission Manager" Models

Evidence collected in researching this thesis suggests the hybrid model as the most promising of the four discussed below.

³¹⁵ CIA, "CIA Opens Center on Climate Change."

³¹⁶ Broder, "CIA Closes its Climate Change Center."

³¹⁷ Best, *The National Counterterrorism Center*.

³¹⁸ Permanent Select Committee on Intelligence, "IC21 The Intelligence Community in the 21st Century," 1996, Government Printing Office, accessed July 24, 2012, <http://www.gpo.gov/fdsys/pkg/GPO-IC21/content-detail.html> Accessed December 20.

C. OPTION 1: GIVE MISSION TO EXISTING AGENCY (CIA, DOE)

At least two federal agencies have devoted attention to the clandestine monitoring function, the CIA and the DOE. In 2009, then DCI Leon Panetta indicated that this was a natural fit for the CIA's Climate Change Center, while the DOE commissioned the GHGIS design work done by the three National Laboratories and the Jet Propulsion Laboratory mentioned previously.³¹⁹ Given the closing of the CIA's Climate Change Center in November of 2012, it is unclear whether the CIA would adopt a role of even higher profile and potential controversy like the ICCME function.

Two fundamental challenges posed by tasking an existing IC agency with the ICCME function are ensuring that adequate institutional focus and resources are applied to the mission over time and that the various resources needed to accomplish the mission are effectively coordinated. There are reasons to question how well a large federal department could sustain focus on the ICCME mission without ultimately neglecting or undermining that mission's success. A 2008 report by the Office of the Inspector General described many governance problems within the Office of the Director of National Intelligence (ODNI), most notably those concerning lines of authority, of reliance on personal relationships, of turf battles, of information sharing within the IC, and with communications generally.³²⁰ The ICCME function requires close collaboration with other agencies within the IC and, more particularly, with an international monitoring regime like that envisioned by the authors of the GHGIS paper. Such collaboration will rely on overcoming existing institutional impediments to information sharing that continue to challenge the IC.

Should the ICCME function be delegated to an existing department, the challenges of the ICCME would remain the same, and it would be necessary to apply a set of selection criteria analogous to that used here to evaluate different structural options. More narrowly, should the choice be between the CIA and the DOE, Congress is likely to

³¹⁹ CIA, "CIA Opens Center on Climate Change."

³²⁰ Edward Maguire, "Critical Intelligence Community Management Challenges," November 12, 2008, 2–7, Federation of American Scientists, accessed October 20, 2012, www.fas.org/irp/news/2009/04/odni-ig-1108.pdf.

discover that the strengths of one are largely the weakness of the other.³²¹ For instance, the expertise residing within the DOE is clearly suited to the technical aspects of the ICCME mission. Nevertheless, the CIA's sources and methods are likely to complement, rather than duplicate, the monitoring resources of an internationally recognized monitoring regime. Ultimately, both the CIA and the DOE will face challenges passing the high "credibility" bar imposed by the need to collaborate with an internationally recognized ICELA monitoring regime.

Since the establishment of the previously discussed Church Committee in 1975, the CIA has frequently been embroiled in controversial activities and issues that have undermined its credibility in the U.S. and abroad. Should the CIA assume the ICCME mission, it will nevertheless retain its other responsibilities and, if history is any indication, there is a strong likelihood the CIA may again come under criticism for engaging in actions of questionable legality—or of serving as the agent of a particular political agenda. Regardless of how justified, such criticisms may call into question the veracity or objectivity of the CIA's ICCME findings. Once established public distrust of particular politicians or political institutions are among the most resistant to modification.³²² Under such circumstances, the GHGIS might be forced to disavow any reliance on CIA intelligence, and may nevertheless lose international credibility for any past association with the Agency.

More recently, the CIA has come under criticism by the Federation of American Scientists for failing to be more forthcoming regarding information generated by its Climate Change Center.³²³ After the CIA's Information and Privacy Coordinator, Susan Viscuso categorically refused a Freedom of Information Act request for information

³²¹ Upon commissioning the three U.S. National Laboratories and the Jet Propulsion Laboratory with evaluating the GHGIS initiative, the DOE made clear to the study's authors the expectation that the CIA would ultimately assume the lead on any clandestine monitoring activity. Email correspondence with Karl Jonietz, co-author GHGIS November 19, 2012.

³²² Paul Slovic, "Perceived Risk, Trust, and Democracy," *Risk Analysis*, 13, no. 6 (1993): 677.

³²³ Steven Aftergood, "At CIA, Climate Change is a Secret," *Secrecy News*, September 22, 2011, Federation of American Scientists, accessed February 19, 2013, http://www.fas.org/blog/secrecy/2011/09/cia_climate.html.

regarding any information related to the CIA's Climate Center.³²⁴ Steven Aftergood, Director of the FAS's Project on Government Secrecy, wrote bluntly:

The CIA response indicates a fundamental lack of discernment that calls into question the integrity of the Center on Climate Change, if not the Agency as a whole. If the CIA really thinks (or pretends to think) that every document produced by the Center constitutes a potential threat to national security, who can expect the Center to say anything intelligent or useful about climate change? Security robots cannot help us navigate the environmental challenges ahead. Better to allocate the scarce resources to others who can.³²⁵

Aftergood's criticism speaks to the possibility that the CIA may indeed be institutionally unsuitable for the ICCME mission, which will depend on a substantial degree of transparency.

While less pointed, the CIA's engagement with the climate change issue has elicited elliptical criticism from the Department of Defense. A year prior to the closing of the CIA's Climate Change Center the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics recommended that the Director of National Intelligence, "establish, within an appropriate agency of the Intelligence Community, an intelligence group to concentrate on the effects of climate change on political and economic developments and their implications for U.S. national security."³²⁶ The substance of this language, in fact, differed not at all from that that heralded the opening of the CIA's Climate Change Center whose charter was "the national security impact of phenomena such as desertification, rising sea levels, population shifts, and heightened competition for natural resources."³²⁷ Clearly, the Department of Defense found the CIA somehow remiss in fulfilling this role. Though not stated explicitly, it seems clear that what was lacking in the CIA was an open discussion of its findings. The DoD paper

³²⁴ Susan Viscuso, "CIA Information and Privacy Coordinator," September 13, 2011 letter to Jeffrey T. Richelson, Federation of American Scientists, accessed November 20, 2012, <http://www.fas.org/sgp/news/2011/09/cia091311.pdf>.

³²⁵ Aftergood, "At CIA, Climate Change is a Secret."

³²⁶ Defense Science Board Task Force, *Report of the Defense Science Board Task Force on Trends and Implications of Climate Change for National and International Security* (Washington, D.C.: Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, 2011), 87.

³²⁷ CIA, "CIA Opens Center on Climate Change."

recommended that the IC group it was proposing “should make extensive use of open sources, seek to cooperate with other domestic and international intelligence efforts, and report most of its products broadly within government and nongovernment communities.”³²⁸

Whether or not the DoD paper was intended to challenge the CIA to demonstrate a more transparent approach on the issue of climate change, it is clear that the authors recognized a need for broader collaboration.³²⁹ In fact, they followed their previous recommendation with another that, once created, the new IC climate change group “should commission the Central Intelligence Agency’s (CIA) Center for Climate Change and Security to produce an assessment of regional climate change hotspots that threaten human security and governmental legitimacy and exacerbate existing tensions.”³³⁰ To an outside observer, it could only appear that the DOD was suggesting that someone be empowered to tell the CIA’s Climate Change Center to do its job. Most importantly, the authors of the Defense Science Task Force report recommend that this group then, “use this assessment as a confidence-building measure to promote communication between antagonistic peoples or states. This document should be the basis for interagency cooperation at the strategic and regional levels.”³³¹ The authors of the Defense paper clearly recognized what the CIA appeared not to—that the issue of climate change could only be effectively addressed through open dialogue.

For its part, since its establishment in 1977, the DOE has struggled with security issues that have shaken Congress’ confidence in the DOE’s ability to secure its facilities and its secrets. There have in fact been some high profiles cases involving the possible loss of highly sensitive nuclear secrets that may have been shared with foreign governments by employees of the department. Part of the department’s internal struggle can be attributed to the diversity of agencies from which it was assembled and a variety

³²⁸ Defense Science Board Task Force, *Report of the Defense Science Board*, 87.

³²⁹ *Ibid.*, 87–88.

³³⁰ *Ibid.*

³³¹ *Ibid.*, xvii.

of missions, many of which require little if any secrecy, and others, particularly where the department is involved in research, dependent on open inquiry and discussion.³³²

Indeed the DOE's sometimes troubled experience balancing security with the need for information sharing may actually recommend it for the ICCME function. So long as such prior experience effectively informs department reforms, the DOE could possess both the required appreciation for the needs and the limits of both cooperation and prudence in the achievement of the ICCME mission. Nevertheless, Congress as a whole may have reservations entrusting the ICCME function to the DOE. Particularly where CIA sources and methods may need to be enlisted, it may prove challenging for the DOE to assuage Congressional reservations or to overcome the resistance it could very well encounter from the CIA.

Congress's and the President's own difficulties in determining how best to organize the counterintelligence effort required to protect sensitive DOE information is particularly telling. In 1998, President Clinton required the DOE to establish an independent counterintelligence office, the Office of Counterintelligence (OCI). After spying allegations were raised in a highly publicized case against Wen Ho Lee, Congress sought council from different quarters, including from the DOE itself and from the President's Foreign Intelligence Advisory Board (PFIAB), which released a scathing report on the DOE's security failures. Against the wishes of the executive branch, the result was the creation of another, semi-autonomous agency, the National Nuclear Security Agency (NNSA). NNSA did not replace but rather shared nuclear counterintelligence responsibility with the OCI.³³³ More Congressional restructuring of the DOE's counterintelligence has ensued, suggesting the complexity of attempting to evaluate, much less reform the security measures of a department within the IC.

³³² Alfred Cumming, *Intelligence Reform at the Department of Energy: Policy Issues and Organizational Alternatives* (Washington, D.C.: Congressional Research Service, 2009), 1–2, accessed February 19, 2013, <http://www.fas.org/sgp/crs/intel/RL34595.pdf>.

³³³ Cumming, *Intelligence Reform at the Department of Energy*, 2–3.

Should Congress entrust the ICCME function to a department within the IC, the determination of which department is most suited to this task will need to be conducted by individuals with high level security clearances and in depth knowledge of the ICCME intelligence collection needs.

1. Prioritize the Identification and Reporting Of Treaty Non-Compliance

Both the CIA and DOE engage in broad mandates which at times would temper the zeal or undermine the impartiality required to successfully engage in the narrow monitoring function. For example, with significant commitments on the part of the CIA and the DOE, the U.S. has long pursued policies aimed at securing and exploiting the world's petroleum reserves. As evidenced by the world's reliance on petroleum, there are important current economic benefits derived from petroleum as opposed to forms of energy that contribute less or no CO₂ to the atmosphere. Even during a transition to low carbon economy, petroleum exploitation will continue. The CIA and DOE will be expected to ensure that real or potential U.S. rivals do not gain any economic, and thus strategic, advantage as the nation shift its focus to developing cleaner sources of energy.

Should one of the U.S.'s allies receive less CIA ICCME attention than one of its rivals, already likely due to the current allocation of U.S. intelligence resources, there is a possibility that a treaty violator might go undetected. The period during the late 1980s, during which Iraq successfully hid its nuclear weapons program while the world focused attention on Iran, has already been discussed. In his book, *Intelligence: From Secrets to Policy*, Mark Lowenthal describes another case involving India, when for all intents and purposes the IC should have been able to anticipate the country's 1998 nuclear test preparations, but it failed to in part because, "collection assets that might have picked up indication of the impending tests were focused on the Korean demilitarization zone."³³⁴

More generally, the DOE fulfills the various aspects of mission through a wide range of activities that, over time, are likely to shift the department's focus. Within either

³³⁴ Lowenthal, *Intelligence*, 77.

of these large organizations, the ICCME function is likely to see its prioritization vary according to domestic or global political and economic events.

Additionally, though the resources of the CIA are particularly extensive, there is no guarantee that they would be ideally suited or located for the monitoring mission. According to Lowenthal:

One does not simply tap a clandestine services officer and send him or her off to a new assignment. Cover stories need to be created, along with their inevitable paraphernalia; training may be necessary; and a host of other preparation must be made. Inelasticity of resource makes the prioritization system difficult at best.³³⁵

Finally, in considering whether to entrust the ICCME mission to an existing IC department in general, or the CIA in particular, the CIA's past history of interest in the climate change issue should be considered. In the past, not surprisingly or inappropriately, the CIA has demonstrated an inclination to evaluate the prospect of climate change from a strategic, rather than from an existential perspective, and has suggested that the U.S. might be the strategic beneficiary from climate change.³³⁶ Increasingly, the notion of any long-term strategic or national benefits to be derived by any nation from the effects of climate change have been found to be ill-founded and imprudent.³³⁷

2. Identify Violators Quickly and Reliably

Among civilian bureaucracies, none is more experienced or can focus greater human intelligence resources to its mission than the CIA. While conceivably the NSA might identify some violations through signals intelligence, it is more likely that human operatives would be able to collect sensor or human intelligence more readily. Signals intelligence, at any rate, would likely be put to best advantage once targets had been established through physical collection.

³³⁵ Lowenthal, *Intelligence*, 76.

³³⁶ Armitage, "State of Denial," 419–420.

³³⁷ DeCanio and Fremstad, "Game Theory," 2.

Though the technical and scientific focus of the DOE—and its underwriting of the design of the GHGIS—would seem to better suit it to the monitoring task, its expertise and institutional focus would tend to replicate, rather than supplement, the tools available to a functioning GHGIS.

3. Use All Available Means to Accomplish the Mission

The DCI is able to command greater civilian intelligence resources than the head of any other single national bureaucracy. Nevertheless, for the reasons stated previously, within any intelligence agency “some issues inevitably get shorter shrift, or may be ignored altogether, in favor of those that are seen as more pressing.”³³⁸

4. Adapt Quickly to a Non-Traditional Mission

The CIA has been the focus of criticism for its insularity and resistance to change. However, these criticisms have been forcefully refuted by CIA veteran and intelligence scholar, Paul Pillar.³³⁹ This is an important dispute that seems at least to leave open some question as to whether or not the CIA is indeed as unyielding to evolving security demands as its detractors suggest. The DOE, with its preponderance of technological expertise, would likely demonstrate a willingness to embrace innovation, but the required innovations will more likely be found in the political and social spheres than in the laboratory. While the global climate represents a highly complex system, the interplay of human motivations and institutions that will determine the success of CO2 limitation efforts is every bit as resistant to comprehensive quantification.

5. Respond to Identified Potential Violations

Most descriptions of the CIA note the agency’s reticence to make unequivocal declarations. According to Pillar:

The Intelligence Community needs to be pushed. It will not do its best unless it is pressed by policymakers-sometimes to the point of discomfort.

³³⁸ Lowenthal, *Intelligence*, 76.

³³⁹ Paul Pillar, *Intelligence and U.S. Foreign Policy: Iraq, 9/11, and Misguided Reform* (New York: Columbia University Press, 2011).

Analysts must be pressed to explain how much they don't know; the collection agencies must be pressed to explain why they don't have better information on key topics.³⁴⁰

The CIA assesses likelihoods, and routinely qualifies even these “estimations.” The ICCME task will require not only an estimation of the likelihood that a treaty signatory is violating a treaty, but enough conviction or confidence in that estimation to share it with an international monitoring regime. This may prove an awkward fit for the CIA. Likewise, the CIA was established as a means of providing the President and NSA with intelligence. Sharing information with other agencies, domestic or international, is a role that runs counter to its original intent and enduring ethos.³⁴¹

6. Select Targets to Optimize Global CO2 Emissions Reduction

A perennial problem for intelligence agencies is the difficulty of reassigning collection resources and analysts.³⁴² The U.S. has focused intelligence resources on its real and potential strategic adversaries. Ultimately, there is reason to suspect that the U.S.'s current allies will be less inclined to violate an international CO2 limitation agreement because their societies are, generally, more open than those of U.S. rivals, and treaty violations and violators would be at any rate more subject to discovery. There is a danger, nevertheless, that this political compatibility will undermine U.S. objectivity, and that the nation will focus insufficient resources on countries with which it currently enjoys amicable relations. Any bureaucracy as massive as the CIA is likely to display considerable inertia and a disinclination to refocus its attention.

7. Maintain Credibility

As noted previously, should an existing agency within the IC be selected to lead the ICCME effort, the CIA's resources—particularly its ability to collect the type of human intelligence that would complement the technological data collected by the

³⁴⁰ Laurence H. Silberman and Charles S. Robb, *The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction* (Washington, D.C.: Government Printing Office, 2005):18, Government Printing Office, accessed October 29, 2012, www.gpoaccess.gov/wmd/pdf/full_wmd_report.pdf.

³⁴¹ Graham and Hansen, *Preventing Catastrophe*, 89–90.

³⁴² Lowenthal, *Intelligence*, 126.

GHGIS—would recommend them for the role. Nevertheless, the CIA’s long history in this area has exposed it to more opportunities to run afoul of domestic and world opinion.

The challenge of overcoming the CIA’s international credibility deficit is likely to be compounded by the CIA’s aversion to exposing any part of its operations to outside scrutiny. The CIA has demonstrated reluctance in collaborating with other U.S. institutions, much less with international ones.

Should an existing agency, such as the CIA, assume the ICCME function, the head of the agency will represent the ICCME publicly. While the agency’s director may sincerely advocate for the ICCME, the director’s responsibilities will extend far beyond the ICCME mission, and his or her ICCME advocacy will likely remain suspect.

To maintain credibility, the GHGIS will need to be seen as, at the very least, an equal partner in determining monitoring priorities. If no one outside the agency is privy to the criteria upon which the CIA bases its ICCME decisions, it is unlikely that the international community would endorse the findings of any monitoring regime that worked too closely with the agency. Domestically, however, the CIA’s clear association with conventional national security could be seen as an asset. Assigning the ICCME task to the CIA would likely help to legitimize the issue of climate change among current U.S. skeptics and reassure them that the U.S. is not simply placing its faith in the word of foreign governments or of an international organization not under direct U.S. control.³⁴³

8. Make Speedy Assessments

Given the CIA’s unparalleled intelligence resources, the agency would be most able to overwhelm a target with intelligence resources, and possibly make more assessments quickly. Only sporadically, however, is it likely that the CIA would have the discretion to prioritize climate issues. The presidential four-year election cycle ultimately drives the intelligence cycle and dictates in large part the CIA’s agenda. The sustained

³⁴³ Author interview with Porter.

effort required for the ICCME mission coincides poorly with the relatively narrow window that Presidents have to achieve the short-term policy objectives on which their political success depends.³⁴⁴

The size of the CIA similarly suggests that the leadership focus needed to accelerate the process of identifying targets, marshaling resources, collecting intelligence, and applying analytic expertise to finally report findings would prove challenging.

9. Quickly Establish the ICCME within the IC

Both the CIA and the DOE have considerable experience in monitoring NPT compliance and though the technical requirements of NTP and CO2 emissions monitoring are distinct, both agencies could likely draw on institutional memory and standard operating procedures to establish the administrative backbone for the monitoring function. The CIA already has a vast international presence, including personnel and contractors abroad and domestic administrative support for these foreign assets.³⁴⁵

10. Collaborate Effectively with the GHGIS

Information collected by the ICCME, whether this be the CIA or another entity, must ultimately be shared with an international monitoring regime. International intelligence sharing poses fundamental challenges for any government or intelligence agency. The problem can be summed up in one word, “defection.” By failing to respect the confidential nature of the information, the government or agency receiving the intelligence may cause damage to the entity or government collecting the information.³⁴⁶ The CIA has been reluctant to share information within the federal government, and it has gone so far as to encourage other agencies within the IC to resist Congress’ initiatives

³⁴⁴ Lowenthal, *Intelligence*. 123.

³⁴⁵ Central Intelligence Agency, “Overview of the CIA,” Central Intelligence Agency, accessed October 26, 2012, <https://www.cia.gov/library/publications/additional-publications/cia-at-a-glance/overview-of-the-cia.html>.

³⁴⁶ Walsh, *The International Politics of Intelligence Sharing*, 8–12.

at increasing its own oversight of the IC.³⁴⁷ Given the CIA's past history and current reluctance to share information with agencies established by Congress, it is fair to question whether or not the CIA would be able to work closely with an international treaty monitoring regime.

11. Assist in Developing a Treaty That can be Monitored Effectively

The potential economic impact of any ICELA will insure CIA involvement in any treaty negotiations. In part, the establishment of the CIA's Climate Change Center anticipated such involvement.

More difficult to predict are the priorities that will be reflected in the CIA's recommendations to the U.S. negotiating team. The wide range of CIA objectives may make it difficult for the agency to advocate treaty provisions that might complicate one or more of its other missions. Nevertheless, as the repository of the U.S.'s most extensive intelligence resources, the agency is best suited to considering the type of treaty provisions that would facilitate its own ICCME efforts.

12. Determine the Optimal Use of Resources

The IC has developed vast technological resources to accomplish its varied missions with a correspondingly enormous expenditure of U.S. treasure. Criticism has long been leveled against the IC for the way that its dependence on technology and on the industries that supply the sophisticated technologies it employs determine rather than proceed from its mission.³⁴⁸ A study published in 2009 suggested that "as much as sixty percent of the Central Intelligence Agency's (CIA) core activities are supported by contractor personnel."³⁴⁹ Given that the ICCME presents a novel mission requiring a mix of technologies that have only been preliminarily assessed, there is a danger that, during

³⁴⁷ Halchin and Kaiser, *Congressional Oversight of Intelligence*, 25–32; House of Representative, *Is the CIA's Refusal to Cooperate with Congressional Inquiries a Threat to Effective Oversight of the Operations of the Federal Government?* (Washington, D.C.: House of Representatives, 2001).

³⁴⁸ Silberman and Robb, *The Commission on the Intelligence Capabilities*, 16.

³⁴⁹ Priest and Arkin, "National Security Inc.," Voelz. "Contractors and Intelligence," 587.

the evaluation process, the CIA may once again rely too heavily on vendor expertise rather than considering the real demands required for successful ICCME support of an ICELA.³⁵⁰

D. OPTION 2: SUBDIVISION OF EXISTING AGENCY

The unique requirements of the ICCME function may merit the development of a specialized agency or semi-autonomous sub-agency within one of the existing IC agencies. Essential to the “center” concept considered here is the entity’s segregation from the wider agency, some degree of which is essential to ensure that the center’s unique mission is not subsumed by the needs and operations of other, more long-time established, agency objectives.³⁵¹

To a limited degree, the CIA’s Climate Change Center offered an example of this type of arrangement, although to what extent the center could have been considered at all “autonomous” is not publicly known. The degree of secrecy surrounding the center was such that its governance structure was unknown—itself a suggestion that the center was fully integrated into the wider CIA. Low as the CIA Climate Center’s profile might have been, it nevertheless invited the attention of opponents of action on climate change. It seems certain this unwelcome attention is what led to the center’s closing, as no other explanation seems plausible. Recent CIA statements suggest that the center’s work is to be integrated into the routine CIA operations.³⁵² Still, there is ever interplay of form and function, it is likely that attention to those aspects of the center’s focus which represented a departure from the CIA’s previous specialization, such as the ICCME mission, will be more difficult to sustain.

According to the CIA’s 2009 press release regarding the establishment of the center, it would “provide support to American policymakers as they negotiate, implement, and verify international agreements on environmental issues.”³⁵³ The

³⁵⁰ Email correspondence with Karl Jonietz, co-author GHGIS.

³⁵¹ Cumming, *Intelligence Reform at the Department of Energy*, 7.

³⁵² Broder, “CIA Closes its Climate Change Center.”

³⁵³ CIA, “CIA Opens Center on Climate Change.”

establishment of the CIA's Climate Change Center was an important practical and symbolic step towards a fuller recognition of the perils of climate change by the nation's national security establishment. Likewise, it provided a venue from which to contemplate the ICCME function. The disappearance of the center is to be lamented.

The "center" idea was not new, and in fact had been employed for other issues since the mid-1990s³⁵⁴ and promoted by the 9/11 Commission as a means of organizing analysis. The National Counterterrorism Center (NCTC), created in 2004, and the National Counterproliferation Center (NCPC), created in 2005, were results. "Centers" are not without their own challenges, however. Like other institutions within the IC, they suffer from inflexibility and an institutional unwillingness to share resources and intelligence.³⁵⁵ Particularly significant in terms of the ICCME function, the analysis produced by these centers is, as Mark Lowenthal notes, "divorced from its political context."³⁵⁶ Analysts in these centers tend to know more about their particular area of technical expertise, than they do about the context of the intelligence they are collecting. As Lowenthal puts it:

Analyzing the state of WMD development in a nation is not enough. One should also analyze the international or regional political factors driving the program, as these will give important indicators as to its purpose and scope. Being housed in a center does not preclude a functional analyst from seeking out his or her regional counterparts. Analysts do this on a regular basis. But it requires some efforts and can be dropped during the press of the day's work. The center concept can serve to make collaboration beyond the bounds of the center itself more difficult.³⁵⁷

While the disappearance of the Climate Change Center represents a setback in terms of national attention to the climate change issue the declared roles of the center were extremely varied and perhaps less compatible than a cursory evaluation might suggest. Climate change will likely exacerbate existing and create new zones and domains of global conflict for which national security establishment must be prepared.

³⁵⁴ Permanent Select Committee on Intelligence "IC21 the Intelligence Community."

³⁵⁵ Best, *The National Counterterrorism Center*, 7.

³⁵⁶ Lowenthal, *Intelligence*, 138.

³⁵⁷ Ibid.

The ICCME function, however, has no obvious correlation with the IC's traditional national security priorities, which have long focused on adversarial relations with other state and non-state actors. Confronting climate change presupposes collegial relations with all nations, and the work of the ICCME must be seen as fostering trust, not preempting or countering aggression.

Despite the lack of primary source information from the CIA on the Climate Change Center's activities and focus, media reports identifying individuals outside the agency with whom the CIA had been in consultation suggested that the ICCME function has received meaningful CIA attention. In particular, the National Academy of Sciences has brought together a group of climate scientists and former National Security Officials from whom the CIA has been able to draw a wide range of climate relevant expert advice. The group is headed by National Academy of Sciences president Ralph Cicerone, who has declared:

If some future president calls up the secretary of state or the director of Central Intelligence, and says, 'Gee, I have this draft treaty on my desk, should I sign it? Can we verify it?' and one of them were to say to the president, 'Gee, we never thought of that,' that's not an acceptable answer.³⁵⁸

Given his association with the CIA, Cicerone's statement suggests that ICCME function received attention within the agency's Climate Change Center, though whether it will continue to receive such attention in the immediate future is unclear.

1. Prioritize the Identification and Reporting of Treaty Non-Compliance

By combining several missions among which treaty verification is only one part, an entity like the CIA's Climate Change Center would confront the need to balance priorities. As mentioned previously, the various missions of the Climate Change Center have little in common. Because the center's other missions—evaluating climate change science and the potential for the effects of climate change to generate human conflict—

³⁵⁸ Mead and Snider, "Why the CIA is Spying on a Changing Climate."

differed little from the CIA's conventional responsibilities, it would likely require a strong commitment on the part of the center's leadership to ensure the ICCME function received the considerable sustained attention it requires.

2. Identify Violators Quickly and Reliably

Nestled within the CIA, the Climate Change Center may have had more ready access to intelligence collection, particularly human intelligence, than would an agency outside the CIA. Much depends on how lines of authority and communication are threaded through the center within the wider agency, and on the authority wielded by the center's leadership. An understanding of and access to the CIA's international collection assets would be essential to a center fulfilling the ICCME role. To fulfill its mission, a designated center might need to develop its own cadre of foreign based analysts. Regardless, even under normal circumstances, intelligence agency analysts remain largely ignorant of the collection side of the CIA's operations and, given the unique requirements of the ICCME mission, ensuring analysts can solicit and receive the intelligence they need will pose a significant challenge.³⁵⁹

3. Use All Available Means to Accomplish the Mission

An entity like the CIA's Climate Change Center may not be able to achieve or sustain unequivocal dedication to the ICCME mission for the same reasons it may find it difficult to prioritize the mission and optimize the use of its available resources to the monitoring "end." A 1996 evaluation of the seven then existing IC "centers" described them as either being directly under the control of the DCI, or in other instances (such as in the case of the NPC) under the director of one of the four CIA directorates.³⁶⁰ The report suggested that, in times of penury, there were advantages to being subordinate to a directorate, where the center could be cushioned when resources were scarce.³⁶¹ Those centers directly under the DCI, found them in those instances to be more exposed to funding cutbacks. Nevertheless, any center is at the mercy of the agency which oversees

³⁵⁹ Lowenthal, *Intelligence*, 138.

³⁶⁰ Permanent Select Committee on Intelligence, "IC21 the Intelligence Community."

³⁶¹ *Ibid.*

its funding. The center could find itself in competition for resources within the larger agency and ultimately not be able to call upon the resources it needs to perform its mission.³⁶² Although the evaluated centers were all under and characterized as creatures of the CIA, they could be situated within a different department, or even set up independently.³⁶³

The 1996 Congressional review of the IC centers noted that the centers had had mixed success in forming an effective intelligence sharing “community,” that with time and effective leadership, they did tend to perform well. The evaluators suggested that being “creatures of the CIA” had both benefits and drawbacks for the centers in that they had generally good access to the abundant resources of the CIA, but they enjoyed less success cooperating with agencies outside of the agency.³⁶⁴

4. Adapt Quickly to a Non-Traditional Mission

The comments made by DCI Leon Panetta upon the establishment of the CIA’s Climate Change Center³⁶⁵ attested to an understanding within the CIA of the unique challenges posed by climate change. Whether, however, a center simply attempts to confront the challenge with the same IC tools employed in the IC’s conventional approach to human adversaries, or whether it can develop new approaches to the challenge and opportunity of preserving public trust while enlisting the support of “citizen sensors,” for instance, is an open question.

5. Respond to Identified Potential Violations

By investing the Climate Change Center with responsibility for climate change related issues, the CIA created an entity that could have, conceivably, broken with the agency’s historic reluctance to share information and developed mechanisms to report identified or suspected treaty violations, or violators to a GHGIS, or to intermediaries within the U.S. government (e.g., the executive branch or Congress). Relying on what

³⁶² Lowenthal, *Intelligence*, 136.

³⁶³ Permanent Select Committee on Intelligence, “IC21 the Intelligence Community.”

³⁶⁴ *Ibid.*

³⁶⁵ *Ibid.*, 26.

amounts to a metamorphosis in the CIA's ethos of protecting "sources and methods," without past evidence of any ability to engage in such uncharacteristic behavior seems, nevertheless, imprudent. If the CIA or any ancillary center were to adhere to its hermetic operational discretion, then at best the outside recipient of the center's intelligence would have to evaluate the relevance and impartiality of that intelligence without firsthand knowledge of the methodology employed and of its provenance. How, for instance given two violators, one a U.S. ally and the other a U.S. rival, would one know that the CIA had correctly prioritized—identified—the most egregious treaty violator? Such a determination would be impossible for any outside observer.

6. Select Targets to Optimize Global CO2 Emissions Reduction

The same reasoning that suggested the CIA as a whole might confront difficulties basing its country target selection solely on the desire to minimize aggregate global CO2 emissions holds likewise for its parts. The CIA focuses the preponderance of its attention on U.S. rivals and retargeting and more "equitably" distributing its global presence will present a practical hurdle, regardless of whether it can overcome past political or institutional encumbrances.

7. Maintain Credibility

The Congressional criticism prompted by the establishment of the Climate Change Center suggested that the agency's engagement with the issue is likely to remain controversial for the foreseeable future. Nevertheless, as the legitimacy of climate science is increasingly accepted by the public, controversy over the CIA's role may abate. Or, it may shift to questions of whether and how an agency (such as the CIA's Climate Change Center) established to anticipate adversarial threats generated by climate change can in good faith be expected to serve as an impartial referee for an ICELA. Already the characterization of climate change as a potential source of unrest within developing countries has provoked the ire of some representatives of these countries. In U.N. Security Council discussion, protests from less developed countries have to do with the developed country's characterization of them as potential threats, rather than as the most

susceptible victims of climate change for which the U.S. is disproportionately responsible. According to the Security Council's website:

The representative of Pakistan, speaking on behalf of the 'Group of 77' developing countries and China, agreed, saying that the Council's primary duty was to maintain international peace and security. Other issues, including those related to economic and social development, were assigned to the Economic and Social Council and the General Assembly. The ever-increasing encroachment of the Security Council on the roles and responsibilities of the other main organs of the United Nations represented a 'distortion' of the principles and purposes of the Charter, infringed on the authority of the other bodies and compromised the rights of the Organization's wider membership.³⁶⁶

The argument could be levied that the purpose of the CIA Climate Center's ICCME function is to reassure the U.S. and not other countries about signatory adherence to the treaty. This parochial perspective, however, would ignore the need to derive maximal benefit from the U.S. ICCME expertise and investment, which will be in achieving the highest possible level of treaty participation and compliance. Unless the U.S. ICCME effort is seen as unbiased, then it will not be accepted by the international community, and its findings will prove valueless to an internationally recognized monitoring regime (i.e., the GHGIS).

8. Make Speedy Assessments

Again the CIA can draw on unparalleled resources to accomplish this mission, and an entity like the Climate Change Center, properly focused and empowered, could collect and analyze ICCME intelligence with optimal speed. Nevertheless the ability to accomplish this mission will remain contingent on fundamental alterations in the CIA's approach to its mission, a shift, in the case of climate change abatement, from an adversarial to a cooperative approach.

³⁶⁶ United Nations, "Security Council Holds First-ever Debate on Impact of Climate Change on Peace, Security, Hearing Over 50 Speakers," 5663rd meeting, April 17, 2007, United Nations (accessed February 19, 2013), <http://www.un.org/News/Press/docs/2007/sc9000.doc.htm>

9. Quickly Establish the ICCME within the IC

There is currently no publicly available information in regard to how far the CIA's now disbanded Climate Change Center had advanced in preparing for the ICCME function. As noted previously, however, it is known that the center had in fact engaged in discussions with the National Laboratory authors of the GHGIS paper and received input from the National Academy of Sciences.

One frequently discussed aspect of the ICCME function is its possible cost. The JASON and GHGIS reports both focus considerable attention on cost containment. The JASON's suggest that innovation and mass production of sensors, for instance, will quickly drive costs down.³⁶⁷ Attention is paid to the cost/benefit of using satellites rather than in situ sensors. The Obama administration revived the Measurement of Earth Data of Environmental Analysis (MEDEA) program that permitted the sharing of information collected by IC assets, including satellite imagery, with scientists studying the effects of climate change. The program had been suspended by the Bush administration. In reviving the program, scientists like Ralf Cicerone took pains to dismiss the idea that the use of these resources would negatively impact other national security objectives or involve more than minor additional costs.³⁶⁸

Likewise, upon the establishment of the Climate Change Center, the CIA was careful to emphasize the center's activities have minimal additional costs either to the agency or the American tax payer. While cost can certainly not be disregarded, it seems likely that any future circumstances that would prompt the U.S. to initiate the negotiation of an ICELA—and to contemplate the economic costs associated with aggressively limiting U.S. carbon emissions—would perforce be accompanied by the political will to absorb the relatively minor, though not inconsequential, costs associated with ICCME.

Nevertheless, the fact that the Climate Change Center was already operational might have

³⁶⁷ JASON, *Methods for Remote Determination*, 39, 46, 58, 61, 62, 82.

³⁶⁸ William Broad, "CIA Is Sharing Data with Climate Scientists," *New York Times*, December 4, 2010, accessed July 1, 2012, http://www.nytimes.com/2010/01/05/science/earth/05satellite.html?_r=1&hp.

helped to alleviate some level of cost concern regarding the need to support the treaty with new governmental investments.

The 1996 Congressional assessment of IC centers repeatedly noted the need to anticipate some lapse of time before a “center” would begin to perform as intended.³⁶⁹ The authors wrote of repeatedly hearing an estimated time of roughly five years provided by the officials with whom they consulted.³⁷⁰ It is to be hoped that the efforts undertaken at the CIA’s Climate Change Center will contribute to future U.S. action to mitigate climate change and that the closing of the CIA’s Climate Change Center not undermine the coordination achieved. The knowledge and experience gained by those assigned to the Climate Change Center should be considered by congress when devising any future ICCME.

So long as the ICCME mission entails only a part of the objectives undertaken by the Climate Change Center (i.e., clandestine monitoring in support of an international treaty monitoring regime), the ICCME’s needed stand-up time might be considerably abbreviated.

10. Collaborate Effectively with the GHGIS

As noted above, the researchers tasked with developing the GHGIS were approached by representatives of the CIA’s now defunct Climate Change Center. Climate change coordination or synchronization with the GHGIS did not appear to be a center priority. Whether, upon further analysis, the CIA or other IC representatives recognizes IC integration with the GHGIS as an essential requirement for treaty success and whether the IC can accomplish this coordination is unknown. As suggested previously, the CIA’s past resistance to outside direction appears incompatible with a close collaborative relationship with either a domestic or international GHGIS. In fact, a 1996 congressional review of the IC center concept cited previously noted that the centers tended to be controlled and aligned most closely with the CIA, and that other

³⁶⁹ Permanent Select Committee on Intelligence, “IC21 The Intelligence Community in the 21st Century.”

³⁷⁰ Ibid.

agencies were reluctant to work with the centers for fear that their resources would be stolen from them by the more powerful agency.³⁷¹ The study did suggest, however, that a center need not be necessarily situated within the CIA, and in the case of the ICCME in particular, alternative options might be considered.³⁷² By removing the center from under the control of the CIA, the center might enjoy more productive and collaborative exchanges with other IC agencies. It is likely, however, that these more fluid relations would come at unacceptable cost, namely at the expense of more ready access to the CIA's substantial clandestine resources.

11. Assist in Developing a Treaty That Can Be Monitored Effectively

Having already been established, the CIA's Climate Change Center would have likely been suited to evaluating both the challenge of ICELA monitoring and the collection and analysis resources available to the CIA. Provided an entity like the Climate Change Center prioritized maximal treaty participation and compliance of the world's most important CO2 emitters, it would seem uniquely qualified for this role. Should, however, any such center approach treaty negotiations with a more conventional CIA agenda (i.e., ensuring that the U.S. does not risk strategic military or economic disadvantage as the result of any treaty), it could well undermine the achievement of a treaty most likely to meaningfully reduce global CO2 emissions.

12. Determine the Optimal Use of Resources

Because the governance structure and the degree of autonomy enjoyed by the CIA's Climate Change Center were unknown, it is not possible to determine what amount of discretion the center could have employed in pursuing the ICCME mission. Ultimately, should Congress choose to entrust the ICCME mission to an entity like the

Climate Change Center, the choice of governance structure will determine whether or not

³⁷¹ Permanent Select Committee on Intelligence, "IC21 the Intelligence Community in the 21st Century."

³⁷² Ibid.

the center can effectively employ IC resources, including its own, to accomplish the ICCME mission.

E. OPTION 3 UPPER LEVEL IC COORDINATOR (CHIEF OF MISSION, MISSION MANAGER)

The most visible example of a high level position established to achieve a focused policy objective is the policy czar. The president may select an individual to coordinate an integrated federal response to an issue requiring close collaboration between federal bureaucracies, whether or not they are departments of the IC. This model of maintaining presidential unity of command, with multi-agency unity of effort, has often been found wanting. Without statutory authority, policy czars must frequently resort to cajoling the heads of departments, or calling upon the president to break bureaucratic log jams.³⁷³ Because this thesis anticipates the need for a close collaborative effort between the ICCME and an internationally recognized GHGIS, the statutory limitations of the czar position would likely so encumber the international intelligence sharing process, which further consideration of the “czar” option will be foregone.

Alternatively, Congress may provide a high level official with statutory authority. One such example of high level bureaucratic integration responsibility that has particular relevance to the ICCME “detection” function is the Director of the Domestic Nuclear Detection Office (DNDO). The director has the authority to employ detailees drawn from other federal agencies. Ideally, these detailees provide the DNDO with knowledge and communications conduits to their agency of origin, facilitating further coordination. Thus far, limited DNDO experience suggests that having less authority than the officials in the agencies with which the DNDO is coordinating may hamper the DNDO Director’s ability to achieve his or her mission. Given the current lack of cohesiveness among departments within the IC, other officials with whom the director is charged to coordinate may, instead, continue to prioritize their own agencies’ agendas.³⁷⁴

³⁷³ Lamb, “Chief of Mission Authority as a Model for National Security Integration,” 3.

³⁷⁴ Shea, *The Global Nuclear Detection Architecture*, 29–46

Another option that has been implemented to address certain specific intelligence objectives is the creation of an upper level mission coordinator within the IC. Previously, this position was called the “mission manager.” DNI James Clapper merged this position’s responsibilities with those of the National Intelligence Officer (NIO) position in 2010, and he renamed the new position the National Intelligence Manager (NIM)³⁷⁵ The responsibilities of each of these IC positions were or are constituted somewhat differently. For the purposes of this thesis, the term “mission manager” is retained and assumed to mean an IC position exercising a high degree of statutorily recognized executive authority over multiple federal agencies. The “mission manager” can be vested with considerable authority to direct resources and appeal directly to the DCI or to the president when confronted with resistance from other agencies within or without the IC.

Unfortunately, for the purposes of analysis, these high level positions are of recent vintage and given the sensitivity of their responsibilities, not transparent to outside observers. Fortunately, however, a more longstanding and more readily analyzed example of this type of high level statutory authority, including authority over IC resources, can be found in the Foreign Service. In 2010, the National Defense University published a highly favorable analysis of the U.S. Ambassadorial Chief of Mission (COM) authority.³⁷⁶ The authors strongly recommend that this model be considered to address other federal challenges concerning interagency integration. The authors describe the challenge of integration, writing:

At heart of the problem is the inability to reconcile a desire for a clear chain of command from the President down through the heads of the departments and agencies with the need to empower new mechanisms (individuals or organizational constructs) with sufficient authority to integrate efforts across the departments and agencies in pursuit of specified national missions.³⁷⁷

More so even than the policy czar, the IC mission manager or the National Intelligence Manager, the Chief of Mission (COM) exercises authority which extends to

³⁷⁵ Lowenthal, *Intelligence*, 138.

³⁷⁶ Lamb and Marks. *Chief of Mission Authority*.

³⁷⁷ *Ibid.*, 3.

virtually all aspects of the geographical area under his or her jurisdiction. The National Defense University paper closely considers various aspects of the COM authority, and it suggests modifications that could be made in the context of other national security focus areas.³⁷⁸ Their admonition regarding the need to adequately empower the high level official is unequivocal:

Perhaps the best known model of Presidentially delegated authority for integration of diverse department and agency activities, however, is the Chief of Mission authority generally associated with resident bilateral Ambassadors. Its origin, effectiveness, and limitations merit close scrutiny because the model suggests that the national security system's problem with insufficient integration authority will not be solved until Congress provides the President with a legally sanctioned and sufficiently empowered mechanism to integrate the activities of the departments and agencies for priority national missions.³⁷⁹

Despite the considerable authority granted the COM, however, he or she may still confront difficulties in collaborating with members of the intelligence community, which may withhold information from the COM because of "their concern for protecting their sources and methods."³⁸⁰ While the mission manager would likely exercise IC authority on behalf of the National Security Council, exercising effective authority over multiple agencies within the IC would likely prove challenging.

Ultimately, the challenge of employing the mission manager approach to the ICCME function is that the position is designed to be responsive to the President who is himself locked in to the election cycle and may not find it expedient to prioritize the monitoring mission. Should the mission manager model be employed to accomplish the ICCME function, it is essential that Congress establish tight statutory control over the resources available to the ICCME. For instance, by withholding \$15,000,000 in funding from Department of Homeland Security Appropriations Act of 2007, Congress

³⁷⁸ Lamb and Marks. *Chief of Mission Authority*, 12.

³⁷⁹ Ibid.

³⁸⁰ Ibid., 15–16.

successfully encouraged the DNDO to enter into a memorandum of understanding with the other federal agencies with which it was conducting activities.³⁸¹

Circumstances prompting U.S. participation in a future ICELA would suggest that the issue will have received a level of national attention and prioritization whereby the creation of a high level mission manager with broad ICCME authority would be politically feasible. Nevertheless, should there be inadequate political support, an analogous position might be considered at a lower level, with the prospect of the position being elevated, should the requisite political support develop. Nevertheless, should the ICCME mission manager option be pursued, it should initially be vested with the highest possible authority.

1. Prioritize the Identification and Reporting of Treaty Non-Compliance

The mission manager could be held statutorily responsible for prioritizing the ICCME mission as congressionally defined legislation. Congress could further require that the mission manager regularly report to Congress and likewise compel this individual to appear to give testimony and answer questions regarding his or her activities. In fact, one of the most daunting challenges for the Coordinator for the Prevention of Weapons of Mass Destruction Proliferation and Terrorism (better known as the “Weapons of Mass Destruction Czar”) is the vast array of areas and issues falling under the position’s purview.³⁸² An important reason to constrain the mission manager position to the ICCME function would be to ensure the prioritization of the agency’s statutorily defined mission. Combining the ICCME mission manager responsibility with others, regardless of their pertinence to the issue of climate change, would dilute and possibly undermine the ICCME’s focus.

³⁸¹ Shea, *The Global Nuclear Detection Architecture*, 13.

³⁸² Anya Louikianova and Leonard Spector, “New WMD Coordinator Has the Right Stuff, But Will He Have the Right Staff?” February 13, 2009, Center for Nonproliferation Studies, accessed January 18, 2012, http://cns.miis.edu/stories/090213_wmd_coordinator.htm (accessed November 4).

2. Identify Violators Quickly and Reliably

Currently, there exists relatively little institutional knowledge, much less sources and methods, to collect ICCME intelligence within the IC. The DOE has engaged the efforts of the three National Laboratories and the Jet Propulsion Laboratory that collaborated on the development of the GHGIS paper. The paper's authors have also engaged in discussions with the CIA regarding the GHGIS concept and requirements. Presumably, the mission manager could draw on resources from the DOE or the CIA, or both, and eventually develop the capacity to identify treaty violators. More likely, however, the mission manager would face a task far more difficult than that encountered by mission managers asked to integrated already existing bureaucracies. The resources of currently existing institutions have been developed by leadership within those institutions to accomplish previously established goals in which those leaders had a vested interest. Regardless of the authority given to the mission manager or the willingness of the agencies whose resources would be drawn upon to accomplish the ICCME function, it is difficult to imagine that these agencies could or would sacrifice the accomplishment of their primary missions in order to rapidly achieve ICCME objectives. As a best case scenario, the mission manager would face a long struggle against institutional passive resistance. Though the mission manager might find employees within the existing bureaucracies who would embrace the ICCME mission enthusiastically, the ICCME would likely require the adoption of an interagency collaborative ethos that has long eluded IC reform efforts.

3. Use all Available Means to Accomplish the Mission

A possible advantage for the mission manager over the "center" is that the mission manager would have greater authority to command resources outside a center's jurisdiction. In fact, part of the WMD's recommendation in the establishment of the National Counterproliferation Center, was to vest the NCPC with a managerial role like that of the mission manager, so as to permit it to better marshal resources within the IC.³⁸³

³⁸³ Lowenthal, *Intelligence*, 136–137.

It would be essential that Congress in fact put means to overcome bureaucratic resistance at the disposal of the mission manager. When Congress created the “Weapons of Mass Destruction Czar,” it enfeebled the position by making its authority to secure expertise from the different departments and agencies contingent on the agreement of the respective secretary or agency head.³⁸⁴ Unless Congress provided the mission manager position with more comprehensive authority over human and material resources, it is likely the mission manager would be hindered by inadequate support.

4. Adapt Quickly to a Non-Traditional Mission

Congress could require that the mission manager appointee receive Senate approval, thereby giving Congress the opportunity to question the nominee regarding his or her conceptual approach to the ICCME mission. Requiring Senate approval would demonstrate a level of Congressional engagement, and set the tone for the position. By isolating the issue as deserving of dedicated high level attention, Congress would also signal the uniqueness of the task.

Given adequate authority, the mission manager would be able to select staff most inclined to abandon former methodologies as required by the demands of the new mission. The ICCME represents a mission of unlimited duration and thought would have to be given as to whether the extent of the differences between conventional IC practice, sources, and methods were compatible with the ICCME needs.

5. Respond to Identified Potential Violations

Perhaps the most important benefit to be achieved by vesting the ICCME responsibility with a single high level IC official with direct access to the President is that the responsibility for reporting on violations could be entirely streamlined. Alternatively, Congress could establish a process similar to the drafting of National Intelligence Estimates, whereby designated high level national security officials consider evidence regarding possible violations, and whether and how suspicions might be shared with the GHGIS or other domestic or international entities. Given the previously described IC

³⁸⁴ Lamb, “Chief of Mission Authority as a Model for National Security Integration,” 10–11.

preference for noncommittal statements, the mission manager authority would likely permit an accelerated process of decision making and/or release of findings. While more speedy decisions would likely be the result, so too would be the likelihood of error and of personal bias clouding assessments.

6. Select Targets to Optimize Global CO2 Emissions Reduction

Again, the high profile of the mission manager and Congressional influence over the mission manager selection process would increase the likelihood that the focus of the ICCME would be more transparent than if the ICCME mission were obscured by levels of IC bureaucracy. Greater accountability would promote greater responsiveness to criticism about target selection, as well as greater care in ensuring that target selection was conducted through a fair and defensible process. By making the ICCME mission manager publicly accountable, Congress would help ensure that other political and IC actors, up to and including the President, refrain from attempting to influence the ICCME focus or findings, knowing that such efforts might subsequently become the subject of public Congressional hearings.

7. Maintain Credibility

By vesting responsibility for the ICCME function in an individual endowed with high level executive authority and subject to routine Congressional questioning, Congress would ensure the program remains publically accountable. Public engagement and ensuring public accountability have long been recognized as important means of building and maintaining public trust.³⁸⁵ The mission manager appointment should be subject to congressional approval to further promote transparency regarding the mission manager commitment to an unbiased role. Congress might want to consider granting the mission manager certain special powers available to the Chief of Mission, including “country clearance,” which empowers the COM to exclude U.S. personnel from their area of authority.³⁸⁶ These special powers are rarely used, but they are symbolically important

³⁸⁵ Slovic, “Perceived Risk, Trust, and Democracy,” 678.

³⁸⁶ Lamb, “Chief of Mission Authority as a Model for National Security Integration,” 14.

and would highlight the priority that Congress gives to the accomplishment of the ICCME mission.

8. Make Speedy Assessments

Regardless of the degree of authority the mission manager wields over personnel (detailee) selection and management, there remains the likelihood that at least some of these personnel may remain more responsive or loyal to their agency of origin or to its priorities. Lack of institutional loyalty to the mission may delay its accomplishment.³⁸⁷

9. Quickly Establish the ICCME within the IC

While the mission manager may be selected quickly, the development of a structure for integrating IC and other agency efforts in support of the ICCME function would likely be a challenge that could only be met after considerable delay. At the writing of the 2009 Congressional Research Service's evaluation of the DNDO, the agency had been operating for four years and was still conducting a gap assessment of detection architecture needs. Agencies as well established as the Department of Defense, the Department of Energy, and the Department of State, for example, had been engaged in detection activities for decades prior to the DNDO's assumption of the integration function.³⁸⁸ The ICCME function is an entirely new undertaking, and while the criticality of each "detection" will be far less than for the DNDO, the demands of integrating IC protection of sources and methods will be compounded by the requirement for sharing the detection of treaty violations with a the international community.

10. Collaborate Effectively with the GHGIS

Provided the ICCME mission manager exercises effective control over the IC and other U.S. resources nominally at his or her disposal, having a high level IC official vested with the authority to share information with the internationally recognized GHGIS would greatly facilitate cooperation and permit the development of trust between the

³⁸⁷ Permanent Select Committee on Intelligence, "IC21 The Intelligence Community in the 21st Century."

³⁸⁸ Shea, *The Global Nuclear Detection Architecture*.

ICCME and the GHGIS. Clearly, however, this desired outcome is contingent upon the selection of a mission manager predisposed to cooperating with the GHGIS (i.e., an individual who understands that an effective ICELA is essential to preventing catastrophic anthropogenic damage to the atmosphere and that, when judiciously employed, IC resources can help ensure an effective ICELA).

11. Assist in Developing a Treaty That Can Be Monitored Effectively

The creation of a mission manager with narrowly defined ICCME responsibility ensures that this individual will provide treaty negotiation recommendations consistent with allowing effective monitoring. To be effectively represented during negotiations, the ICCME must speak with a single clear voice. The mission manager can ensure that the ICCME perspective is unambiguously and credibly expressed, only if he or she has adequate foreknowledge of the challenges the ICCME will confront in pursuing its goals.

12. Determine the Optimal Use of Resources

International initiatives to monitor an ICELA will likely rely chiefly on sensing technologies. The principal value to be added to the IC by this endeavor will be in human intelligence, the area in which the CIA is best endowed among civilian IC agencies. Should Congress employ the mission manager model for interagency coordination of the ICCME mission, it is essential the mission manager be able to rely on close collaboration with the CIA. Regardless of the governance and structure of the ICCME, Congress and the President need to ensure CIA engagement with the ICCME mission. While the ICCME mission function was included among those of the CIA's Climate Center, as described by former DCI Leon Panetta, it is not possible to determine whether or not the ICCME function ranked highly among the Climate Center's priorities.³⁸⁹

CIA recognition for the need to prioritize international ICELA collaboration above its traditional adversarial objectives will depend in large part on the structuring of the ICCME function and on the leadership qualities of those enlisted to achieve its goals.

³⁸⁹ CIA, "CIA Opens Center on Climate Change."

Should the mission manager meet with active or passive CIA resistance—particularly in the detailing of its personnel and in the engagement of its sources and methods—achieving the ICCME objectives will be difficult. The shift from employing institutions long dedicated to ensuring the nation’s security from international adversaries to instead asking that these national security agencies collaborate with many of those adversaries in confronting a looming environmental catastrophe suggests fundamental institutional contradictions that should not be dismissed with platitudes or embraced without careful forethought.

F. OPTION 4: HYBRID SUB-AGENCY OF THE CIA OR OTHER IC DEPARTMENT, BUT WITH A SEPARATE HEAD WHO WOULD BE STATUTORILY ANSWERABLE DIRECTLY TO CONGRESS

The hypothesized ICCME proposed by this thesis will confront the challenge of overcoming a tension between the IC’s need to protect sources and methods and the need for its operations to remain sufficiently transparent to maintain international credibility. As noted in the preceding analysis, the three previous structural options for the ICCME each confront important obstacles to the successful reconciliation of this tension. Using an existing agency or smaller segment of that agency—particularly the CIA or a segment of the CIA, like the Climate Change Center—will generate great challenges sharing resources and information with an international ICELA monitoring regime, such as the proposed GHGIS. While the mission manager option would overcome the institutional resistance to this type of international intelligence sharing, the mission manager would nevertheless confront problems overcoming the institutional loyalties of the IC personnel he or she would rely on to accomplish the ICCME mission.

The fourth option considered for structuring the ICCME is essentially that of combining the “center” and “mission manager” options. The analysis is directed at determining whether the resulting hybrid structure might overcome the limitations of its constituent structures or simply undermine the strengths that each of those constituents exhibits when standing alone.

1. Prioritize the Identification and Reporting of Treaty Non-Compliance

The DNDO provides an example of how Congress can carve out a unique area of concern and empower a narrowly focused entity with significant administrative and multi-agency coordinating authority. Nestled among very powerful federal departments, there is little danger that the agency might engage in “mission creep,” as it is inconceivable that these other federal entities will allow further encroachment upon their own missions. At the same time, the DNDO finds itself at the crux of an important and highly visible issue. Because the DNDO relies heavily on “detailees,” much of its effectiveness depends on the degree to which these detailees align their own career goals with those of the DNDO. Because the DNDO is engaged in a far more traditional mission than would be the ICCME, it is likely that this career alignment would be more natural for DNDO detailees than it would be for ICCME detailees. While Congress could increase the number of dedicated ICCME personnel (relative to detailees), the novelty of the ICCME function suggests that there would be some resistance among the most well established IC personnel in abandoning their current positions for ICCME positions that are in many ways completely distinct from their previous employment.³⁹⁰

As noted in the Congressional Research Service DNDO report cited previously, the DNDO director may confront some difficulty in coordinating activities within outside agencies that are headed by their own directors, who in fact exercise greater authority than that of the DNDO.³⁹¹ One means of rectifying the type of personnel and authority challenges confronted by the DNDO director would be to vest the head of a similarly structured ICCME with greater authority, along the lines of that possessed by a mission manager.

Should Congress consider the hybrid structure, it is likely that objections might be raised as to whether an ICCME director could abuse his or her authority and undermine the authority of the heads of existing federal departments. In their recommendations regarding the need for interagency coordination to be supported by an individual with

³⁹⁰ CIA, “CIA Opens Center on Climate Change.”

³⁹¹ Shea, *The Global Nuclear Detection Architecture*, 5.

“Chief of Mission” like authority, Lamb and Marks suggest that the mission manager’s authority would be circumscribed by the limits of their mission and by a desire not to invoke the intervention of the President, who would retain the authority to adjudicate managerial disputes.³⁹²

2. Identify Violators Quickly and Reliably

Absent a detailed assessment of the type of research and development that occurred at the CIA’s Climate Change Center, it is not possible to know how prepared personnel at the center might have been for the ICCME function. Much of the reticence to divulge information regarding the center, like its ultimate closing, can be attributed to the criticism the CIA received from some conservative Congressmen regarding the existence of the center. The type of information collected and distributed by the center was unlikely to be of particular sensitivity from a national security perspective.³⁹³ This type of information should be subject to Congressional review. More insight into the now closed center’s level of preparedness for the ICCME function, if any, would permit a more nuanced discussion of Congress’ options in structuring the IC’s ICCME operations.

Assuming the CIA’s Climate Change Center had attained some level of ICCME preparedness, one option would be to enlist at least a segment of the center’s former personnel to staff the hybrid ICCME. Having already considered the technical and administrative challenges of the ICCME task, these personnel would have likely developed insights into how the challenges to identifying treaty violations might best be accomplished. Likewise, as these personnel are native to the CIA, they would come with foreknowledge regarding the means to enlisting IC resources from the CIA and possibly from other segments of the IC.

3. Use all Available Means to Accomplish the Mission

By creating a separate ICCME entity within an existing agency and vesting high level authority in its leader, the hybrid ICCME would ensure that experienced IC

³⁹² Lamb, “Chief of Mission Authority as a Model for National Security Integration,” 21.

³⁹³ Defense Science Task Force, “Trends and Implications of Climate Change for National and International Security,” 87.

personnel, with a degree of institutional affinity—if not loyalty—to the ICCME could rely on the authority of their director to secure needed resources for the mission. Though the hybrid agency might meet with some passive resistance from within and some active resistance from without, it would also have considerable institutional knowledge of the IC and be able to anticipate hurdles before they were encountered. Under the direction of a director with wide authority, the ICCME staff would have both the knowledge and the ability to achieve its mission.

4. Adapt Quickly to a Non-Traditional Mission

Although individual personnel within the IC may have already contemplated the ramifications of climate change for the country and the collaborative international role the IC might be required to play in order to confront this new situation, there is thus far no evidence these ideas have percolated to the IC leadership. Congress, however, has the option of placing experienced IC personnel under the leadership of an individual with a strong grasp of the ICCME challenge. There seems little option but to rely on the professionalism of many existing IC personnel to adapt to and to adopt the ICCME mission. It would not be wise to instead bring personnel with climate expertise into the IC in sufficient numbers to staff the ICCME, and expect that they might integrate with existing personnel to the degree necessary to collaborate in the accomplishment of the ICCME mission. Under the best of circumstances, the ICCME will place tremendous demands on its personnel and leadership, with one of the severest being the need to develop new ways of thinking about their mission.

5. Respond to Identified Potential Violations

As noted in the corresponding section of the mission manager option, the mission manager position will permit the ICCME optimal discretion and latitude in bringing identified potential violations to the ICELA and/or the GHGIS either directly or through some intermediary as determined by Congress.

6. Select Targets to Optimize Global CO2 Emissions Reduction

While many political forces and the internal predilections of the IC may exert pressure on the mission manager, his or her public accountability to Congress would serve as a strong counterbalance. Public accountability, in fact, would help to alleviate some of the countervailing pressures to achieving the ICCME mission in an unbiased way, since other political and bureaucratic actors will be aware of the constraints within which the director of the ICCME operates and be less tempted to divert the ICCME from its mission.

7. Maintain Credibility

As noted in the corresponding mission manager section above, in empowering a hybrid ICCME Congress would best ensure public credibility of the ICCME by granting its publicly accountable director wide powers to accomplish the ICCME mission. A publicly accountable director would be obliged to ensure that the focus and findings of the ICCME are—to the extent possible—in line with the agency’s Congressionally defined objectives.

As noted previously, in order to effectively collaborate with other agencies within the IC, it is essential that those agencies also consider the ICCME’s ability to protect “sources and methods.” Here, the 2009 Congressional Research Service report on DOE counterintelligence reform is particularly germane.³⁹⁴ The report notes:

Many critics blame DOE’s security problems generally on the tension within DOE between open scientific inquiry and security, they tend to focus on what they characterize as, inter alia, three specific issues: a high turn-over of inexperienced top leadership, bloated and dysfunctional management, and an agency culture that views the discipline of counterintelligence with disdain.³⁹⁵

The ICCME will confront an analogous “tension” only whereas the DOE must promote open scientific inquiry within a secure environment, the ICCME must foster international trust while ensuring that sources and methods are not compromised. The

³⁹⁴ Cumming, *Intelligence Reform at the Department of Energy*, 2.

³⁹⁵ Ibid.

mission manager/center hybrid ICCME structure would possibly confront turnover issues, initially, as more traditionally minded IC personnel chose other career paths, but its special focus would also attract mission enthusiasts whose expertise and specialization would increase over time. While a certain level of technical expertise would be essential to accomplishing the mission, much of the hybrid ICCME's top leadership could be selected from among a wide range of IC personnel, since the novelty of the mission would mean that all personnel would initially be mission "novices." As a "center" the hybrid would likely be less subject to bureaucratic "bloat," particular if its relatively smaller staff was overseen by a publically visible and accountable leader with substantial authority to marshal IC resources in service of the ICCME's narrow mission.

8. Make Speedy Assessments

Given that the ICCME is not yet established, the most feasible means of ensuring a future ICCME is able and willing to perform its function with the greatest possible efficiency and speed may be to transfer existing experienced IC personnel into an ICCME with a narrow objective and strong leadership.

9. Quickly Establish the ICCME within the IC

Assuming personnel from the CIA's Climate Change Center were enlisted for the hybrid ICCME, this option would combine some expertise regarding the resources required and institutional knowledge of the IC with the authority needed to overcome bureaucratic impediments with the least possible delay.

10. Collaborate Effectively with the GHGIS

The potential benefits of vesting a high ranked federal official with the authority to share ICCME information with other agencies, whether domestic or international, was discussed in the previous "mission manager" section. The hybrid option would preserve this benefit and extend it to the "center" personnel under the mission manager's direction.

11. Assist in Developing a Treaty That Can Be Monitored Effectively

As noted in the previous section on the “mission manager,” by entrusting a high ranking federal official with responsibility for narrowly defined ICCME objectives, Congress would help ensure these objectives receive undiluted advocacy during treaty negotiations. Assuming this “mission manager” likewise directed and could call upon the resources of an ICCME dedicated semi-autonomous division of an IC department, (i.e. a center) it would increase the likelihood that the mission manager’s advocacy was based, in fact, on the best available information.

12. Determine the Optimal Use of Resources

For the same reasons the hybrid ICCME option would be well suited to assisting in the drafting of an effective treaty, its structure would likewise promote the best use of the tools at its disposal. The “center’s” focus would leave it less exposed to competing agendas, and its publicly visible and accountable director would have to be able to defend his or her policy decisions to well informed interest groups outside the IC.

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X. FINDINGS

The signatories to the Kyoto Protocol did not adopt any mechanism to verify treaty compliance. International participants in any future CO₂ emissions limitation treaty will almost certainly insist that monitoring be included as part of their agreement. The U.S. has already gone to great lengths to explore what such a monitoring regime might look like. Though the intelligence collected by the U.S. IC has been instrumental in furthering the objectives of international weapons nonproliferation agreements like the Nonproliferation Treaty (NPT), there is currently no published discussion about how the IC might support a future international CO₂ emissions limitation agreement or whether such support might in fact be needed or beneficial.

By examining the technological challenge of monitoring international CO₂ emissions, this thesis highlights the many obstacles that an overt treaty monitoring regime will confront, and it demonstrates that covert intelligence could indeed assist in overcoming them. Literature discussing the prospects for international cooperation on climate change invariably includes game theory prognoses, but this literature does not focus on the problem of treaty verification. These mathematical models do, however, suggest that signatory confidence in the compliance of other treaty participants is an essential ingredient in achieving maximum treaty potential (i.e., the most sacrifice that each treaty participant is willing to endure). Given the immense global challenge of overtly monitoring an international CO₂ limitation agreement, the long delays before such a monitoring regime would be able to identify and confirm treaty violations, and the past success of the U.S. IC in identifying violations of international arms agreements like the NPT, it seems clear that by providing intelligence on concealed efforts to violate the agreement, the resources of the IC could likewise contribute to a climate change treaty's success.

A. EQUITY: THE SINE QUA NON OF GLOBAL CLIMATE COOPERATION

After establishing that covert intelligence *could* assist in achieving the goals of an international CO₂ limitation agreement, the question remains as to *how* to organize the U.S. intelligence effort so as to help rather than hinder such an undertaking. Here U.S. experience with the NPT—both in the NPT’s similarities to a future international CO₂ emissions limitation agreement and, in one fundamental difference—provides guidance. The difference between the two treaties is that only in the case of the NPT could international admonishments be supplemented with military and material threats to compel treaty compliance. In the case of a future CO₂ agreement, signatories will be held to their commitments primarily by their desire to achieve the treaty ends and to preserve their international honor.

It is likely that national leaders will only be able to uphold their treaty obligations so long as their nation’s citizens perceive those commitments as worthwhile and fair. By considering how the domestic politics of climate change will constrain the options available to national leaders, this thesis highlights the importance of ensuring the perception of “equity” in pursuing treaty objectives. In employing intelligence to support treaty monitoring, the central problem will be one of legitimacy. If the international community considers U.S. intelligence to be accurate and unbiased, then that intelligence would retain the power to focus international condemnation on any potential treaty violator. Should that intelligence provoke international distrust, however, then it would poison any part of the treaty or treaty monitoring it touches.

The international trust and cooperation needed to achieve meaningful CO₂ emissions reductions will be contingent on overcoming divisions both within and among nations. If the U.S. IC is perceived as pursuing the parochial interests of the U.S. or its allies, rather than ensuring that all international CO₂ limitation treaty provisions are being respected, recriminations regarding the equitable division of the sacrifices needed to reduce global CO₂ emissions could easily come to dominate the international discourse. Historically, all sovereign nations have empowered their intelligence agencies to protect their own strictly national objectives. Though it is easy to make the argument

that global compliance with the provisions of an international CO2 limitations agreement would be a superordinate U.S. objective, such a proposition could easily lead to counterintuitive conclusions. For instance, domestic U.S. violations of the treaty could undermine international cooperation and cause the international CO2 limitation regime to falter or collapse. It would follow that the U.S. IC entity charged with treaty compliance monitoring would want to expose any such U.S. violation. Legal provisions preclude IC surveillance of American citizens domestically, the question remains, however, as to whether IC personnel would be inclined to divulge the covertly identified treaty violations of U.S. citizens—should those violations be committed by an American owned subsidiary abroad. This extreme but conceivable possibility serves to highlight the complexity of the problem posed by enlisting the IC into such a fragile international diplomatic ecosystem.

As described in the section on public opinion, the public's preoccupation with equity may well prove a more potent behavioral motivator than even considerations of self-preservation. In this diplomatic setting, the precision of treaty monitoring efforts, especially covertly collected intelligence, will assume less importance than the global perception that the monitoring is being conducted fairly.

B. THE IC MUST COLLABORATE WITH AN INTERNATIONALLY RECOGNIZED ADMINISTRATIVE BODY

A consideration of China's perspective regarding the NPT and the provisions for monitoring various international arms control agreements should forewarn us about the limits of unilateral U.S. admonishments in achieving a reduction in international CO2 emissions. By excluding itself from the Kyoto Protocol, the U.S. forewent any moral authority on the climate change issue. Furthermore, by excusing itself from that international agreement in a markedly contentious manner, it fueled a perception that the U.S. itself assumed no special responsibility for the state of the atmosphere to which it had already contributed a disproportionate amount of anthropogenic CO2. The U.S. government fostered a perception that the U.S. was eager to sacrifice economic progress in poorer countries, rather than endure any cost at home. Finally, by using international fora to raise the issue of climate change as an international security concern (i.e., in

which populations most vulnerable to the effects of climate change would threaten the more fortunate), the U.S. offended the sensibilities of certain international representatives. Representatives of some developing countries considered the U.S. position callous and claimed that Americans were in effect insinuating that these poorer countries were more a threat to be feared than they were partners in solving the climate change problem.

In this international context, the U.S. IC will fail in its mission to ensure national security if it becomes the focus of more controversy. In this uniquely important instance, the IC will need to present itself as the champion of unbiased treaty administration. The IC can only do so if it is seen to support rather than to preempt international monitoring efforts. Such a collaborative effort would require a transparent relationship between the IC entity entrusted with the covert monitoring task (ICCME) and the overt international treaty monitoring regime (GHGIS). The international community would be unwise to reject U.S. covert support, given that U.S. technological and intelligence resources could significantly augment the capacity of the international monitoring regime. Nonetheless, to enjoy international legitimacy, that support would have to be offered under conditions amenable to both the U.S. and a representative majority of other treaty signatories.

The challenge to employing the IC to support the international monitoring regime will then be to ensure that the intelligence collected reflects the truth and does so in a way that does not appear to disadvantage any single treaty signatory or block of treaty signatories. Should the U.S. endeavor to unilaterally condemn alleged treaty violations, there is little chance that U.S. accusations will receive global backing or acknowledgement. U.S. intelligence will have to be mediated by an internationally recognized institution. Any such international institution will be unwilling to endorse intelligence findings if there is any question regarding the accuracy of the information being shared by the IC or of bias in the manner in which the IC selects its targets.

C. IC MONITORING MUST BE ADAPTIVE

The non-linear progression of climate change and the vagaries of public understanding and interest in the issue do not foster broad windows of political

opportunity, nor lend themselves to the building of stable international coalitions. Because climate change presents such complexity, covert monitoring of an international CO₂ emissions limitation agreement must itself be approached differently than conventional national security objectives. Overt or covert, the monitoring regime cannot be viewed as external or ancillary to the efforts to reduce anthropogenic CO₂ emissions. For better or for worse, these efforts will become part of the international discourse involving climate change. Hans Blix and the IAEA became recognized international names during the lead up to the Iraq War. In the effort to forestall climate change, whatever monitoring regime emerges will doubtless achieve even greater notoriety. In a very real sense, treaty monitoring efforts will become part of the discussion—and more likely the debate—regarding the equitable administration of the treaty provisions. Like climate change itself, the global effort to mitigate the phenomenon will present its own complex system. The goal, given the complexity and contentiousness of anthropogenic climate change, will be to build a treaty regime that is not only complex, but also adaptive in that its own behavior encourages and incentivizes greater treaty participation and compliance.

Perhaps the greatest challenge in designing such an IC treaty monitoring entity is the need to remain responsive to legitimate concerns whether be they from within the U.S., from the international monitoring regime, or from the international community more generally. In fact, only through attention to domestic and international concerns regarding equitable treaty administration will Congress ensure that the IC monitoring entity can support and augment the international monitoring effort's broader adaptive capacity.

D. IC MONITORING MUST BE TRANSPARENT

As described in Chapter IV, the public's preoccupation with equity may well prove an even more potent behavioral motivator than considerations of self-preservation. In this diplomatic setting, the precision of treaty monitoring efforts, especially covertly collected intelligence, will assume less importance than the global perception that the monitoring is being conducted fairly.

Critics have long complained about the IC's insular and rigid operations. As explored in the section on legislative oversight of intelligence activities, much of this rigidity is the possibly unavoidable byproduct of the IC's widely acknowledged need to protect its methods and sources. The IC can often evade reform by concealing its weaknesses behind a cloak of secrecy; however, the "license" often allowed to the IC is likewise the source of its frequent failures. U.S. Presidents of both parties have often demonstrated an inclination to trade long-term national nonproliferation goals for short-term political expediency. The stakes in the case of climate change are too great, and the potential climate damage too irreversible for Congress to leave IC treaty monitoring operations to the IC's or even to the President's discretion. To remain responsive to criticism and adaptive to the changing treaty environment, the IC monitoring entity will need to operate with a high degree of independence within the IC and to issue its findings without the possibility of censorship.

Establishing and maintaining this perception will only be accomplished by exposing the U.S.'s covert monitoring regime to a high degree of public scrutiny. This apparent paradox need not deter Congress. IC operations are frequently investigated by Congress in a manner that ensures public accountability and that protects sources and methods. By creating a rigorous and publicly visible congressional oversight regime that narrowly focuses on the IC's international CO2 emissions limitation treaty function, Congress can shape an IC entity that will bear domestic and international scrutiny and be able to offer crucial support to international climate change mitigation efforts. Should the IC's monitoring regime be sheltered from public accountability, it will invite suspicions and remain heedless of the corrosive effects these suspicions will have on international treaty cohesion.

1. The Challenge and the Opportunity

In the section "Legislative Oversight," this thesis described the "fire alarm" mechanism that ensures that the majority of the federal bureaucracies remain responsive to the interest groups most affected by their operations. Though this "adaptive" mechanism does not traditionally operate within the IC, which is forced to reform only

when its unwelcome behaviors become so routinized that they burst into the national spotlight, nothing prohibits the legislature from exposing a designated segment of the IC to the redemptive power of the “fire alarm” through the institution of more pervasive oversight and more routine and structured accountability to Congress.

Unlike other federal bureaucracies, agencies within the IC typically have little in the way of natural constituencies outside the executive branch itself. Generally, the only non-governmental entities with which the IC engages are its own vendors and subcontractors who must also conduct their business in secrecy. There exist already, however, influential and vocal public groups who focus significant attention on both sides of the climate change “controversy.” As noted in the section on “Public Opinion,” by successfully hectoring the current administration into closing the CIA Climate Change Center, opponents of climate change have demonstrated the power of the “fire alarm” mechanism to exert influence on IC initiatives—albeit with unfortunate consequences for responsible climate change mitigation efforts.

The bureaucratic design theory discussed at the beginning of this thesis highlighted the ways in which interest groups can advance their objectives by concentrating the weight of their collective influence on individual legislators who will support their cause in return for political support. Although interested groups on the opposite side of the climate change ledger chose not to counter the CIA Climate Center’s opponents, there is no reason why they could not. Although there is no precedent for environmental activists enlisting the support of the IC through pressure on Congress, as the climate change issue continues to gain prominence and traditional battle lines begin to blur, wise activists will certainly recognize the potential power of an ally like the IC. Conceding victory to the opponents of climate change mitigation on such an important symbolic and practical point as the Climate Change Center was an unfortunate, but not irreversible, oversight.

Ultimately, Congress can exercise authority in determining how IC resources will be employed to ensure appropriate treaty monitoring. Based on the foregoing research, this thesis identifies the most essential goals for any IC entity entrusted with the monitoring responsibility, and examines four options for structuring this entity.

The monitoring mission will be unique in many respects, and these distinctions will have several important institutional ramifications. IC institutional inertia will make it difficult to initiate and sustain IC monitoring which will require new competencies and a novel cooperative ethos. The mission can only be successful if it is conducted with a high degree of transparency. The mission will require a close cooperative and highly visible relationship with the representatives of an international treaty regime. These requirements are likely to elicit objections from the IC and others within the executive branch who will argue that these requirements are incompatible with the IC's need for secrecy. IC concerns should not be dismissed, but they should be evaluated in light of the unlikelihood that this unique monitoring mission will provoke counterintelligence efforts on the part of other countries. Furthermore, while some conventional intelligence sources and methods may be employed to achieve the treaty monitoring objectives, these need not risk compromise so long as intelligence sharing is conducted through a discrete number of high level channels. Importantly, transparency regarding the monitoring mission will encourage those personnel managing the covert monitoring to adjust their activities to address or alleviate concerns that might otherwise be used by treaty violators, who might seek to "blame the messenger."

2. The Best Option

While this thesis identifies 11 specific goals for a theoretical IC treaty monitoring entity, these goals consist primarily of institutional challenges which this entity must overcome. The goals are neither ranked nor weighted since, as revealed in the preceding analysis, the attainment of all other objectives depends on transparency. The imperative for transparency in the IC's treaty monitoring endeavor transcends all other needs. Should the IC's efforts undermine confidence in the treaty, the IC will have obviated its own practical contributions and nullified any potential benefit of U.S. treaty monitoring.

Of the four options discussed for organizing the IC to monitor any future treaty, the hybrid option clearly suggests itself as the best and likely only means of achieving the required transparency. Should the IC monitoring mission simply be entrusted to an existing agency within the IC, Congress will forego the ability to provide the sustained

and meaningful direction needed to overcome the IC's institutional aversion to outside scrutiny. While such an approach will provide the IC flexibility in identifying treaty violators, this very flexibility would result in a business as usual approach to a problem which requires, in fact, a transparent structured process that can endure and bend to criticism from domestic and international treaty supporters and opponents.

As has already been seen in criticism leveled against the CIA's now defunct Climate Change Center, the center concept alone—simply creating an entity within the IC with no special statutorily established requirements beyond those of any other IC entity—will not endow the monitoring entity with the transparency needed to ensure its responsiveness to legitimate domestic and international concerns. The prospect for a climate change “center” within the IC—absent a high degree of statutorily established autonomy and authority within the IC and clear requirements that would expose the center to outside scrutiny—is to excite suspicion and resentment among those countries that the center might identify as having committed treaty violations. In releasing information about possible violations, such a center would likely exacerbate international concerns about the equitable administration of the treaty provisions, undermining U.S. and international resolve and doing little to remediate violators, who could persuasively accuse the U.S. of bias. U.S. administrations would be inclined to employ intelligence regarding treaty violators inconsistently, and, as frequently seen with intelligence gathered on nonproliferation, center reports regarding treaty violations would likely be released through channels over which presidential administrations could in fact exercise imperfect control.

Far more promising than the preceding two options for how to best structure the ICCME is that of Congress statutorily empowering an executive position within the IC with Cabinet level authority to marshal IC resources to engage in the monitoring function. Such a position would entail a high degree of public visibility and concomitant accountability. By statutorily establishing goals for this position consistent with international collaboration and legitimacy (e.g., coordination of monitoring activities with an international treaty monitoring regime), Congress would go far to enhance the adaptive ability of all monitoring efforts generally and the adaptive capacity of the treaty

itself. Treaty violators would discover that any objection they might raise about unfair treaty administration could effectively be countered through an internationally supported process in which the participation of U.S. intelligence would be understood and embraced. The full weight of international condemnation could quickly be brought to bear on any treaty violator, with the likely result that such violations would in fact be rare.

Ultimately, however, such a statutorily established executive position, regardless of the authority wielded by the particular office holder, would run headlong into the resistance of other intelligence “players” with whom he or she would compete for resources. Unless this highly placed executive commanded a core group of dedicated intelligence professionals, whose loyalty to the extraordinary climate change mission was not divided with other intelligence objectives, the mission would suffer from a lack of institutional continuity and determination. Because collegial and effective collaboration with the international GHGIS treaty monitoring regime will be so important, the IC monitoring effort must be led by individuals who recognize the need to protect their sources and methods, while integrating their work with that of their international partners.

The IC monitoring effort will be most effective the more narrowly its mission is defined. A broad agenda would complicate not only the monitoring task b7 encroaching on the work of other IC agencies, eliciting greater concerns within the national security establishment, and multiplying opportunities for public controversy, it would also muddle the evaluation criteria applied by Congress’ when considering the monitoring function. Given the institutional experience of the CIA’s Climate Change Center, it seems likely the CIA could quickly assemble a group of intelligence experts to effectively assist a highly placed executive vested with the authority to establish a credible IC entity to monitor an international CO₂ emissions limitation agreement. Of the four options considered for structuring the ICCME, then, this “hybrid” monitoring agency, combining the institutional resources of a center well integrated in the larger IC with the authority of high ranking executive leadership, offers the country and the world the best hope for a constructive IC contribution to the global objective of climate change mitigation.

XI. CONCLUSION

A. CLIMATE CHANGE AND HOMELAND SECURITY

While this research was undertaken in order to determine the utility of applying IC resources to the climate change mitigation effort, the thesis itself is a homeland security product. IC sources and methods are optimally employed to answer narrow questions in order to inform decisions about national security policy issues. Homeland security was instituted to reconstitute the wider significance of disparate pieces of information in order to devise integrated responses to threats to the nation. No single other U.S. institution is better suited to addressing the complex global threat of climate change.

B. NO TIME TO WASTE

Each day that passes without meaningful reductions in anthropogenic CO₂ emissions portends greater challenges for those currently entrusted with the nation's national security and greater challenges still for those who follow. Mitigating the damage should be the first order of business.

Traditional security concerns will compel the national security establishment to consider the problem of climate change from a traditional national security perspective, initially. Many within the national security bureaucracy have focused on the secondary effects of climate change (e.g., how floods, desertification, and crop failures will lead to global conflict). Studying these contingencies is essential, but the national security focus should not exclude a more comprehensive approach to the issue. The research for this thesis uncovered countless national security works and references that focus on the need for increased awareness of climate change. For national security and international affairs experts who recognize the reality of anthropogenic climate change, the prospect for increased competition for limited resources is obvious. Absent from these studies, however, is an explicit reminder of the pre-emptive climate option.

Much of the damage done to the atmosphere is, as the current jargon describes it, "locked in." The atmosphere is nearly one degree Celsius warmer now than it was a

century ago. That is a significant change with devastating consequences—most still to be felt. Humanity is not yet, however, condemned to the worst that increasing greenhouse gas concentrations can do. Unless humanity undertakes a global effort to substantially reduce greenhouse gas emissions, the American Meteorological Society estimates that mean surface temperature will increase from between 3.5 and 7.4 degrees Celsius by the end of this century.³⁹⁶

Instituted in large part to overcome “failures of imagination,” among U.S. national security and other federal bureaucracies, homeland security has found itself bringing up the rear on the issue of climate change. Fortunately in June of 2012, the Department of Homeland Security published a plan to “begin to understand the potential impacts of climate change across all of our homeland security missions.”³⁹⁷ Nonetheless, efforts to mitigate the human causes of climate change should also be considered by the homeland security enterprise. Mitigation strategies require their own focus and, need not await further evaluation of the clearly detrimental effects of unabated CO₂ emissions.

C. THE NEED FOR COMMUNICATORS

Scientists have provided society with knowledge about climate change, but the interests of scientific integrity have hindered most experts from effectively articulating the urgency of the situation. In fact, the scientific community has frequently been blamed for failing to communicate this prosaic atmospheric process in a way that would overcome a collective reluctance to acknowledge the bad news. Many of the politicians that have attempted to take up the cause are, as a result, no longer in office.³⁹⁸ As challenging as risk communication is under normal circumstances, the complexity and extended time horizon of climate change make it vastly more so.³⁹⁹

Once there was no single institution vested with the responsibility of explaining to the American people how Islamic extremists in distant lands posed a threat to us here at

³⁹⁶ Council on Foreign Relations, “The Global Climate Change Regime.”

³⁹⁷ Deputy Secretary Jane Holl Lute, in the preface to the Department of Homeland Security, “Climate Change Adaptation Roadmap.”

³⁹⁸ “Climate of Doubt,” *Frontline*.

³⁹⁹ Markowitz, and Shariff, “Climate Change and Moral Judgment,” 243.

home. That institution has been established. Homeland security filled a void by uniting and nurturing multi-disciplinary expertise in order to protect and prepare the nation for threats that were as real as they were unprecedented. Homeland security practitioners may feel uncomfortable assuming a role that seems, perhaps, far afield from their area of expertise. But it is in fact homeland security practitioners who can best assess the human costs of the geophysical processes that confront the nation. No one else has more experience in grappling with the difficulties of communicating risk to the public. It is that communication expertise that is most needed now.

D. THE NEED FOR INSTITUTIONAL DECOMPARTMENTALIZATION

The notion that homeland security should play some role in mitigating climate change will one day seem as natural as it might seem counterintuitive today. This forecast is not difficult to make because the underlying processes generating modern terrorism and future climate disasters are interwoven. Greater efficiencies allow greater numbers of people to exploit more technological and natural resources—often in places that were once inaccessible to them. The vulnerability of societies to transnational self-organizing criticality is only recognized when the damage has already begun to manifest. There is an ongoing need for an institution with the human resources to identify and warn us about threats before it is too late. This institution must be able to encourage the decompartmentalization of other governmental, educational, and private institutions; draw on their most talented, dynamic, and imaginative individuals; and unite them in devising comprehensive responses to threats as they emerge. There will be an ongoing need for specialization, but the specialization of today may be inappropriate for the urgencies of tomorrow. A government institution built to recognize these emerging imperatives and endowed with the skills to overcome institutional barriers to timely adjustments will serve the nation well.

Historically the Intelligence Community has operated at a distance from U.S. public institutions. New threats have demonstrated the need for a continuum between foreign intelligence and domestic security. Homeland security has occupied this space. The transition is ongoing, and while many may lament this conflation of covert and overt

security roles, nothing suggests that the former differentiation should or could be re-instituted. The controversy over new security measures has become a feature of U.S. national political life, and homeland security will continue to be involved in determining how best to achieve both liberty and security.

E. BUILDING GLOBAL TRUST AND UNITING THE FRONT AGAINST CLIMATE CHANGE

To the question as to whether the U.S. national security establishment has anything to offer in solving a problem that can only be remedied through global reduction in greenhouse gas emissions, the answer is a cautious “yes.” Early into the research for this thesis, it became clear that the question was, in fact, academic and that the U.S. IC would necessarily be involved in monitoring any future agreement. The ramifications of climate change are too broad for the IC to ignore them. The focus of this research then turned to the question as to whether the IC’s assistance in meeting the climate change challenge could be managed so as to avoid undermining cooperative global effort the problem demands.

In the past, the U.S. Intelligence Community has both sustained and shaken global confidence in the viability of the NPT. More than once, the IC ensured that countries could not easily hide their attempts at treaty violation, while on other occasions covert U.S. operations threw into question the legitimacy of the IAEA, the treaty’s official monitoring agent, and by extension the very treaty itself. This latter aspect of NPT history must not be repeated should the U.S. engage in monitoring a future Kyoto-like treaty. Overcoming climate change is a massive global undertaking that can only be accomplished in an atmosphere of trust. The IC should not be expected loosen its grip on secrecy willingly. Leaving the IC to its own devices in monitoring the compliance of other greenhouse gas limitation treaty signatories will inflame international suspicions. Properly orchestrated under strict Congressional oversight, however, the IC’s monitoring efforts could instead contribute substantially to the international trust on which the treaty’s success will depend.

States that operate under the consent of the governed earn their legitimacy through the protection of their citizens from dangers both obvious and occult. In his book *Terror and Consent*, Philip Bobbitt notes, “In the twenty-first century, the fundamental problem for states of consent must confront the challenges of terror will be to achieve public endorsement and official accountability in the face of largely hypothetical threats that require anticipatory action based on secret intelligence.”⁴⁰⁰ Though offered in the context of terrorism, the challenge Bobbitt describes could just as well be that posed by the covert monitoring of a future international CO2 emissions limitation agreement. U.S. citizens and the global public will want assurance that the treaty is being respected by signatories, but they will only be assured if they believe that treaty monitors, whether covert or overt, are themselves being held to a high standard of accountability. Within the U.S. and without, the expanding role of national security institutions in public life will prove corrosive to the state’s legitimacy unless effective mechanisms are instituted to reassure the public that their rights and interests are being protected.

Maintaining public trust while ensuring security already represents a challenge in which homeland security is most experienced, if not yet most expert. At the confluence of these two objectives sits contemporary risk communication. This is where U.S. government institutions have been most deficient in dealing with climate change, and where homeland security should actively make a contribution, rather than limiting itself to the sad task of managing avoidable climatic destruction.

The media frequently communicates too simplistic, and ultimately overly optimistic, view of climate change as some sort of linear phenomenon where “winners” and “losers” will be determined according to how the changing climate modifies the local weather. This view is dangerous. The atmosphere is by far mankind’s most critical node in that it is ultimately linked to all human operations. One characteristic of any highly complex networks is that the ramifications of any single failure can be felt throughout the network in unpredictable ways. “Cascades failures” in myriad human networks will be

⁴⁰⁰ Bobbitt, *Terror and Consent*, 349.

provoked by any analogous abrupt changes in the climate.⁴⁰¹ Homeland security entrepreneurs are uniquely qualified to understand the vulnerabilities of all networks. Homeland security entrepreneurs must remain keenly aware of both obvious and occult interconnections. They should consider rectifying the widespread “linear” climate misconception to be among the homeland security enterprise’s most solemn responsibilities.

F. NATIONAL SECURITY’S ENGAGEMENT WITH CLIMATE CHANGE

This thesis also considered whether there were operational contributions that the national security establishment could bring to climate change mitigation. The answer in this case is an unqualified “yes.” The difficulties inherent in overt global CO₂ monitoring cannot be underestimated. To the extent that the IC can peer behind the curtain of other treaty signatories’ intentions, it can provide the international monitoring regime with valuable assistance that can help accelerate the slow process of identifying treaty violations. As noted previously, the IC could help encourage greenhouse gas whistleblowers by providing a secure means of confidential international reporting. In addition, adapting new technologies to the task of covert CO₂ monitoring is yet another area worthy of IC attention.

The research for this thesis visited several important matters that merit the attention of both scholars and policymakers. The Intelligence Community’s governance structure during a time of rapid global transformation, the support of U.S. intelligence for international peacetime initiatives, and the role of the U.S. security establishment in fostering broad international cooperative efforts, are each in need of continued focused study. These operational areas have been well traveled, but the rapid evolution in the threats and opportunities confronted by the nation state requires a new integrative approach to U.S. national security.

⁴⁰¹ Ted G. Lewis, *Critical Infrastructure Protection in Homeland Security* (Hoboken, NJ: John Wiley and Sons, 2006), 72. Leon Fuerth, “Severe Climate Change over the Next Thirty Years,” in Kurt M. Campbell, *Climactic Cataclysm* (Harrisonburg, VA: R.R. Donnelley, 2008), 135.

G. PURSUING A WIDER ROLE FOR HOMELAND SECURITY

If homeland security is to be more than the sum of its parts and something other than a reactive conglomerate, it must prove its ability to do something homeland security's constituent institutions cannot achieve independently. The effort to mitigate climate change is unexplored territory, but the research for this thesis suggests possible areas for further study. Both the JASON and GHGIS papers discussed earlier in this thesis include CO₂ measurement options that could well involve agencies currently under the Department of Homeland Security. Air samples could be collected by inbound aircraft originating in the target country. The Suess effect (differential concentrations of residual carbon 14 from atmospheric nuclear tests of the 1960s) could be exploited to analyze imported produce of known provenance to measure fossil fuel combustion in distant lands. It would certainly bespeak the interconnectedness of the globe and break many conceptual molds if specially trained Customs and Border Patrol (CBP) agents at U.S. ports of entry ended up discretely furnishing international atmospheric information to an international CO₂ limitation agreement monitoring regime.

Several national bureaucracies have published joint studies focusing on the likely effects of unbridled climate change.⁴⁰² Established by Congress in 1990 to provide a “comprehensive and integrated United States research program which will assist the Nation and the world to understand, assess, predict and respond to human-induced and natural processes of global change,” the United State Global Change Research Program (U.S.GCRP) unites 13 different U.S. departments and agencies, among them the U.S. Departments of Defense, State, Commerce, Energy, Agriculture, and Transportation.⁴⁰³ Given the implications of climate change for the U.S., the absence of the Department of Homeland Security from this group is remarkable and in need of rectification.

⁴⁰² Backlund, Janetos, and Schimel, *The Effects of Climate Change on Agriculture*; USGRP, *The U.S. Climate Change Science Program*.

⁴⁰³ United States Global Change Research Program “Global Change Research Program” United States Global Change Research Program, accessed January 16, 2013, <http://www.globalchange.gov/>.

H. FLEXIBLE RESPONSE: THE OPEN ROAD AHEAD

Any attempt to design a bureaucratic structure to confront a problem with the dynamic complexities of human response to environmental disaster is destined to fall short in at least one way, and perhaps many. Climate change policies, however, should not be held to a binary standard of failure or success. There should be little doubt that, if followed, the recommendations offered within this thesis will frequently prompt their own revisions. Frequent adjustments should be considered their strength and not their failing. Climate change and its attendant human suffering imply a constantly evolving ecological and political landscape. A successful treaty monitoring regime will be one that encourages treaty compliance by fortifying global confidence in the treaty's equitable and effective administration. To do so, any monitoring regime must not shun scrutiny, but instead demonstrate its own adaptive resilience to treaty opposition.

In their paper *A National Security Narrative*, published by the Woodrow Wilson Center in 2011, Captain Wayne Porter and Colonel Mark Mykleby suggested that in conceptualizing the evolving national security challenge as a closed system, the U.S. would ultimately find itself unable to adapt to an environment that will change regardless of American resistance.⁴⁰⁴ The authors recommended instead a strategy that will allow the nation to recognize and capitalize on opportunities.⁴⁰⁵ Such a strategy requires the foresight to abandon rigidity and embrace flexibility. To the extent that the recommendations offered in this thesis reflect that counsel, they have hit their mark.

⁴⁰⁴ Wayne Porter and Mark Mykleby, "A National Security Narrative," 2011, Woodrow Wilson Center, accessed December 15, 2011, <http://www.wilsoncenter.org/sites/default/files/A%20National%20Strategic%20Narrative.pdf>.

⁴⁰⁵ Ibid.

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