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逃跑囚犯的两难：中国，美国，和全球变暖

**Escaping the Prisoner's Dilemma: China, the United States, and Global Warming**

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## **Abstract**

Global warming is one of the greatest threats to our world today. This challenge grows more and more urgent each day and requires an increased amount of attention from the international community. In order to combat the numerous effects of this global environmental issue, cooperation from nations big and small, and rich and poor alike is essential. Due to their position as the greatest emitters of greenhouse gases, the United States and China must be central to the solution in reversing the harmful effects of global warming.

The U.S. and China have a long history of mistrust and misperceptions that have made cooperation seem impossible. Nevertheless, they have found common ground on some of the most divisive issues proving the relationship is capable of moving forward. Currently, the Sino-U.S. relationship is the most important bilateral relationship in the international arena. There is arguably no challenge facing the world today that can be solved without the engagement of both of these nations. As climate change is at the forefront, it is crucial that we understand what it is that hinders cooperation between the United States and China.

With the use of the Prisoner's Dilemma, I take a look at historical encounters between the United States and China and determine whether or not they cooperated or defected. In analyzing four cases I draw conclusions as to what circumstances or characteristics encourage or discourage successful agreements. After establishing these results, I take a look at the United States and China as currently defecting on the question of climate change. Based on historical data, I argue that international security issues will lead the Chinese to be more likely to cooperate with the United States while domestic conflict in China leads to less cooperation between these

two nations. In closing, I provide policy suggestions for crafting the climate challenge into one that emphasizes the international security aspect. Additionally, I provide ideas for small cooperative agreements over a long period of time in order to bolster a more ambitious, bilateral climate policy agreements in the future between the United States and China, which this world so desperately needs.

## 摘要

今天，全球暖化是对我们的世界最重要的威胁。这项挑战日趋紧急，需要来自国际团体日益增加的注意。要与这个全球环境问题的后果战斗，来自大小国家、富国穷国的合作，同样地是必要的。因为美国和中国产生的温室气体最多，二国应该对全球暖化的问题负起重要的责任。

美国和中国长期互不信任，使得双方的合作似乎困难重重。即便如此，在一些最引起分歧的问题上，美国和中国仍能达成共识，这可证明美中关系仍能正向发展。当前，美中关系是在国际竞技场上最重要的双边关系。毫无疑问，今天面对世界，没有哪一项挑战少得了美中两国的参与。当气候变迁成为全球共同关注的焦点，我们更须了解阻碍美中合作解决暖化问题的主要因素为何。

利用“囚犯的两难”理论，本论文分析美中之间的互动历史，试图找出影响双方决定合作或者不合作的关键因素。在分析四个主要案例时，我研究哪些背景因素导致理想或不理想的协商成果。建立这些结果之后，我讨论美国和中国为何不愿共同面对气候变迁的问题。根据历史数据，我主张国际安全的考量将使中国在未来更倾向与美国合作，而中国的国内冲突则将导致中

国与美国合作解决问题的意愿降低。在结论方面，对于如何将环境气候挑战纳入美国的国际安全施政方针，我将提供策略上的建议。此外，我也在本论文中提供一些长期合作的细部方案，以支持美国和中国在将来能达成更有雄心，双边互利的气候政策协议。这正是我们这个世界所迫切需要的。

## TABLE OF CONTENTS

Abstract.....	i
Chinese Translation of Abstract.....	iii
Acknowledgements.....	vi
Chapter 1 Introduction, Literature Review, Hypothesis.....	1
Chapter 2 Theory and Case Studies.....	14
Chapter 3 Application of Prisoner's Dilemma to the Case of Climate Change.....	32
Chapter 4 Climate Policy Suggestions and Incentives for Cooperation.....	40
Appendix 1 Timeline of Government Initiatives for U.S.-China Energy and Climate Change Cooperation.....	50

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## **Chapter 1**

### **Introduction**

No one could have predicted that the effects of the Industrial Revolution in the second half of the 1800's could bring some of the greatest technological innovations and advancements but also significant harm to our environment. It was at this time that human activity such as the burning of fossil fuels, coal and oil, and the practice of deforestation contributed to the rising concentration of heat-trapping greenhouse gases (GHG). Now reaching a very high number in our atmosphere, these gases hold the heat closer to earth, preventing them from escaping.

The warming of the earth is somewhat natural, and the earth's climate has changed numerous times across history; however, according to [National Oceanic and Atmospheric Administration's] NOAA and [National Aeronautics and Space Administration] NASA data, we have surpassed previous levels<sup>1</sup>, and, "the Earth's average surface temperature has increased by about 1.2° to 1.4 °F in the last 100 years" (EPA). These may seem like small numbers, but the results are changing weather patterns and intensity, snow and ice coverage, sea levels, and the overall environmental and ecological sustainability of our planet. Specifically in the United States, we have already witnessed the damage that can happen with event like hurricane Katrina.

Science has shown a great deal of evidence that human activity is likely culpable and aims to address a course for negotiation strategies in foreign policy. Human activity can be described as the burning of fossil fuels, deforestation, population increase, factory farming and

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<sup>1</sup> Environmental Protection Agency readily provides data it has accumulated from NOAA and NASA findings on its website under "basic information" "science" and "U.S. climate policy". [www.epa.gov](http://www.epa.gov)



more. Therefore, these are factors we can control to reverse the harm done to the environment. Otherwise, if the damage continues to be neglected then the change in weather patterns, increased geographical and ecological threats, health problems, and much more will only worsen.

Although the theory of global warming was coined in the 19<sup>th</sup> century, it “first entered the general public’s consciousness during the unusually hot summer of 1988, when James Hansen of the National Aeronautics and Space Administration’s Goddard Institute for Space Studies warned that the Earth’s temperature was steadily rising” (Long, 3). Soon, this new phenomenon would receive global attention and compel nations to take action. The United Nations would establish the Intergovernmental Panel on Climate Change (IPCC) to analyze the true impact of this environmental threat and provide suggestions for the international community in cutting carbon dioxide emissions.<sup>2</sup> It was evident that such a challenge would require significant effort from each nation- rich or poor, big or small. Next, in 1992 the United Nations Framework Convention on Climate Change (UNFCCC) “urged signatory nations to reduce greenhouse emissions to 1990 levels by 2000” (Long, 4). In 1997 we saw over 150 nations under the Kyoto Protocol, “draft legally binding targets and timetables for reducing greenhouse gas emissions” (Long, 4).

The efforts that took place in Kyoto, Japan were notable, but insufficient. After this climate summit, many nations began to engage in unilateral, bilateral, and regional policies to reverse the harm on the environment. For Example, Brazil, formally one of the most opposed developing nations to climate change has begun to develop a national plan that would, “cut

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<sup>2</sup> Douglas Long explains in *Library in a Book: Global Warming* that the UN stepped in during 1988 to conduct research in order to provide strategies for nations to use to cut CO2 emissions.

emissions by 39 percent from projected 2020 levels” (Cárdenas, 2009, 1). Mauricio Cárdenas, director of Latin America Initiative at The Brookings Institute, also noted that while this is an impressive step for President Luiz Inácio Lula da Silva, Brazil is establishing these goals based on outdated information. Consequently, unilateral efforts have become more widespread among developed and developing nations alike; nevertheless, this approach lacks the pressure and accountability necessary that would be present in a bilateral, regional, or multilateral climate policy. The following examples show that when states engage each other in order to create climate policy, there is often a great deal more of success in terms of establishing detailed goals and ways of checking up on progress.

In the bilateral initiatives between the U.S. and Mexico, these two nations have made progress by, “establishing the US-Mexico Bilateral Framework on Clean Energy and Climate Change” (The White House-Office of the Press Secretary, 2009) where in the beginning of 2009 they “discussed the need for joint efforts to reach our common goal of achieving a low carbon future and a clean energy economy” (The White House-Office of the Press Secretary, 2009). While in theory this bilateral initiative should provide more accountability in terms of reaching stated goals and meeting deadlines and overall more productive than unilateral policy, these two countries are in an extremely imbalanced power relationship. If the U.S. were to defect, it is highly unlikely that Mexico would have the ability to coerce its partner into what it wants. Therefore, this approach is positive, yet lacks the power balance in order to coerce both nations into achieving their objectives.

The case of the European Union has been one of the most successful climate policies and this is categorized as a regional approach. At roughly the same time as the Kyoto Protocol went

into force in 2005, The European Union established the European Emissions Trading Scheme (ETS) for CO<sub>2</sub>. The fifteen original member states “agreed to cap its greenhouse gas emissions at 8 percent below the level of 1990” (Klepper and Peterson, 102). This approach has set the stage for many other cap-and-trade like programs in other countries. While this was the first multinational agreement on climate policy and still not a golden solution, it has demonstrated individual nations’ recognition of the challenge at hand and ability to collaborate for the greater good. Although a step in the right direction, reversing the effects of climate change is virtually impossible without engaging the highest emitters of CO<sub>2</sub>.

As fruitful as other nations have been, it has become more and more clear that climate change is irreversible without both the United States and The People’s Republic of China collaborating first, bilaterally, and then multilaterally on climate policy. Their lack of cooperation is extremely detrimental to the overall goal because throughout history and considering projected CO<sub>2</sub> emissions for the future, both China and the United States are clearly the greatest contributors taking the number one and two positions on the charts. In actuality, “the United States emitted more greenhouse gases than any other country—a fact often noted, since carbon dioxide, the leading greenhouse gas, remains in the atmosphere for roughly 100 years. However, in 2007 China [surpassed] the United States as the world’s top annual emitter of carbon dioxide<sup>3</sup>. Together the two countries are responsible for over 40% of the greenhouse gases released into the atmosphere each year” (Lieberthal and Sandalow, 14). So far, we have seen these two nations, especially in the last few years, make progress about and around climate

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<sup>3</sup> See The Netherlands Environmental Assessment Agency, *Global CO<sub>2</sub> Emissions: Increase Continued in 2007* (June 13, 2008): <http://www.planbureauvoordeleefomgeving.nl/en/publications/global-co2-emissions-increase-continued-in-2007>; Ross Garnaut, *The Garnaut Climate Change Review: Final Report* (Cambridge: Cambridge University Press, 2008). Available in .pdf at: <http://www.garnautreview.org.au/CA25734E0016A131/pages/draft-report>.

change. They have touched on issues such as clean energy, and made fervent promises to continue talks. Thus, while I admit that progress has been made, my greater concern and reason for stressing their bilateral initiatives is that this global challenge grows more threatening the more we do not address it. China and the United States need to focus on the bigger picture of global warming, agree that they must both be the start of fruitful international collaboration, and then break the issue down into smaller pieces to be tackled consistently and efficiently.

Additionally, it is important to note that both the United States and China have made unilateral efforts in combating climate change and their policies will be discussed in detail later on. Therefore, if the science about global warming exists, the U.S. and China have made domestic recognition of the issue, and the fate of successful international climate policy and the survival of the planet rests on their cooperation, then why do we still lack a committed solution? This is a clear example in international politics of a case of the prisoner's dilemma. In the face of critical global challenges such as North Korean nuclear missile testing, the War on Terror, the Dalai Lama, and Taiwan, the U.S. and China historically are concerned with the opposing nation's contribution and involvement to a challenge, leading them to fear exploitation when faced with the options: cooperate or defect.

With decades filled with interaction between these two nations, it is important to analyze each state's decisions. In doing so, we can find patterns or tendencies and learn what incentives or solutions would promote cooperation and mutual reward. With the case of climate change, there is clearly the highest level of reward for the world if both cooperate, yet they choose not to due to skepticism towards the other's commitment, private information, and political, social, and cultural differences. The goal of this paper is highlight key events in history when the U.S. and

China have cooperated or defected using the abstract formula for the prisoner's dilemma and determine the optimal incentives in order to encourage both nations to work together on climate policy for the good of the world.

## **LITERATURE REVIEW**

Study and research in international politics has led me to consider the sheer importance of the United States as the global hegemony and the responsibilities that come with that role. Some of the global superpower's duties are to maintain stability in the international community and lead by example. This becomes more complicated as the magnitude and urgency of threats to our world increase. This fact means that the United States will struggle to combat challenges alone and must learn to engage regional leaders and great powers. This includes collaboration with nations with which Washington does not always see eye to eye. Because of its incredible rate of growth, increasing influence in world politics, and potential to aid in the solution to major problems, I emphasize that China will be the most important nation for the United States to work with. It is for these reasons that I have decided to research Sino-U.S. historical interactions so that policymakers and better prepare for what lies ahead.

While my goal is to discover under what circumstances the United States and China have cooperated historically in order to make future collaboration more fruitful, the issue I am currently concerned with is climate change. My academic background is not scientific. Therefore, my understanding of climate change is partially derived from the Environmental Protection Agency's information. Additionally, I utilized the Intergovernmental Panel of Climate Change (IPCC) which is a leading scientific body that reviews data voluntarily contributed from scientists around the world. The IPCC takes a step further than the EPA (whose main source of information is the IPCC) because it is open to all member countries of the United Nations (UN) and World Meteorological Organization (WMO). In general, I agree with the previous sources that there is a slight increase in the world's temperature every year. While

the annual degree increase is less than two, its overall impact is changing the configuration of our climate and will have dire effects long-term.

It is generally believed by atmospheric scientists that this change to the climate will continue and the long term trend “poses serious risks to our economy and our environment. It poses even greater risks to many other nations, particularly poorer countries that will be far less able to cope with a changing climate and low-lying countries where sea level rise will cause significant damage” (Sunil, 1). V.S. Sunil, the author of the two volume series entitled *International Encyclopaedia of Global Warming and Climate Change* is a more contemporary outlook on the climate challenge, the current actions of main contributors, and an assessment of future prospects with solutions. In conjunction with the EPA and the IPCC sources, Sunil also establishes that, “the world is undoubtedly warming. This warming is largely the result of emissions of carbon dioxide and other greenhouse gases from human activities including industrial processes, fossil fuel combustion, and changes in land use, such as deforestation” (Sunil, 4). He provides data similar to the EPA regarding increase in temperature annually. Then, he states the projected global increase by 2100 which will be three to seven times as much as the degree increase in the past 100 years<sup>4</sup>. These two volumes are critical to a more complex understanding of what climate change has done so far and what it can do in the future if significant policy is not put in place by a greater number of nations.

With an understanding of climate change and its effects our environment over hundreds of years, it is amazing that the highly advanced scientific level of the international community has yet to find a solution. Unfortunately, as the issue of climate change grows more urgent, more

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<sup>4</sup> See *International Encyclopaedia of Global Warming and Climate Change* Volume 1. V.S. Sunil establishes the basics of climate change in the past, present, and future projections.

and more opposing arguments develop as to culpability making it very difficult to establish a multilateral plan with joint responsibilities. Historically, there have been bold attempts at a global climate change effort. “After more than a decade of negotiations and planning under the United Nations Framework Convention on Climate change (UNFCCC), the first binding international agreement to control the emissions of greenhouse gases has come into effect in the Kyoto Protocol” (Nordhaus, 91). In the chapter “Is there life after Kyoto?” from the book *Global Warming: Looking Beyond Kyoto*, William D. Nordhaus explains that the Kyoto Protocol lacked key points such as “[an inclusion] of the major developing countries along with lack of an agreed-upon mechanism for including new countries and extending the agreement to new periods” (Nordhaus, 92). New to this challenge, the international community was faced with a greater problem when the United States pulled out of the treaty in 2001. The Protocol will expire in 2012 and the current protocol if extended “will have little impact on global temperature change” (Nordhaus, 92).

The Kyoto Protocol certainly drew a great deal of international attention; nevertheless, it failed to establish a very effective plan to combat climate change. The issue arguable was still too new at the time for no country was able to provide a golden solution or a willing to take on the bulk of the responsibility. Fortunately, this would not be the last international climate meeting.

In Copenhagen in December of 2009, countries “failed to agree on fundamental issues and [blamed] each other for the decent towards a humiliating end” (Vidal, Stratton, Goldenberg). Throwing 120 world leaders together in a room to create a plan to tackle a problem that still new water seems like a bad idea from the start. No country is wants to risk being exploited at this



point in the negotiation process. As a result, “[o]nly weak, long-term aspirations for an overall global emissions cut of 50% by 2050 and an 80% cut by 2050 for rich countries appeared to be agreed by all. These commitments, and a pledge to keep temperature rises below 2C, were assumed to be givens at the start of the summit” (Goldenberg, Stratton, Vidal). The summit ended on a very dismal note. President Obama’s leadership was anticipated by some to have the power to broker an agreement on some levels. Instead, “Obama did not offer any new pledges of action- either in increased emissions cuts or clarity on America’s contributions to a climate fund for poor countries. He also help the line against China, saying America would not yield on the vexed issue of measuring and verifying emissions cuts promised by developing countries” (Vidal, Stratton, Goldenberg).

Both the Kyoto Protocol and the summit in Copenhagen are evidence that the international community is aware of the climate challenge. While a solution of international magnitude is crucial, it will have to start with a core based on the United State and China engaged bilaterally due to their very high carbon footprint.

China and the United States take the number one and two spots respectively, as the highest emitters of CO<sub>2</sub> in the world. They are also arguably engaged in the most important bilateral relationship in the international community. I am intrigued by what Elizabeth Economy and Adam Segal, both from the Council on Foreign Relations, mean by “the G2 Mirage.” The G2 refers to the Sino-U.S. team and its potential to, “do more together” (Economy and Segal) because “Both Washington and Beijing are destined to fail if they attempt to confront the world’s problems alone, and the current bilateral relationship is not getting the job done” (Economy and Segal).

They are not the only ones who recognize the potential in this new cooperative bilateral relationship. “Zbigniew Brzezinski has advocated the development of a G-2, a group of two comprising China and the United States that could address the international financial crisis, tackle climate change, limit the proliferation of weapons of mass destruction, and maybe even help resolve the Israeli-Palestinian conflict” (Economy and Segal).

Noticing the attention that is placed on the possible future of Sino-U.S. relations, I am interested in researching what factors would or would not contribute to their cooperation. In looking at cases in history, and analyzing what the issue is, the position of both the Chinese and Americans, and the outcome, then I will be able to use this information to make generalizable statements about how they will act regarding current challenges.

In choosing my cases I first utilized *China and the United States: Cooperation and Competition in Northeast Asia* where I found the articles “The North Korea Nuclear Crisis and U.S.-China Cooperation” by Bonnie S. Glaser and Liang Wang and “The Taiwan Factor in U.S.-China Relations” by John F. Copper. These two very different situations led me to hypothesize that one, Sino-U.S. interaction on international security is more likely to be successful, while two, Chinese domestic politics likely results in misunderstandings and disagreements. To add to my argument, I added one more case study to each hypothesis. The War on Terror would serve as a second issue of international security and the Dalai Lama/Tibetan minority issue would follow the Taiwan case study.

All of the above literature has helped me to formulate my ideas about the nature of Sino-U.S. relations. Through relative coursework, readings, research in the U.S. and abroad in China, and a genuine interest in policy formation, I will then use this comparative case study to create a

blueprint for successful bilateral Sino-U.S. climate policy initiatives.

## **HYPOTHESES**

**H1.** When interacting on issues of international security, China and the United States are more likely to COOPERATE.

**H2.** When interacting on issues of China's domestic politics, China and the United States are more likely to DEFECT.

**H3.** When China and the United States are placed in a multilateral environment aimed at finding a solution to a problem, they will defect.

**H4.** When China and the United States are placed in a bilateral environment and interact frequently for prolonged periods of time on an issue, they are more likely to find areas of cooperation.

## **Chapter 2**

### **Theory and Case Studies**

In international relations, it is common to see that two states will interact on various topics and during each time they are presented with the opportunity to cooperate or defect.

While one could imagine that cooperation from both parties would lead to mutual benefits, this is not always easily achieved. Situations arise when a country is unsure of what the other country will do, and out of fear of being exploited, it chooses to defect leaving its opponent or partner at a complete loss. For international relations we call this situation The Prisoner's Dilemma. This theory, "is simply an abstract formulation of some very common and very interesting situations in which what is best for each person individually leads to mutual defection, whereas everyone would have been better off with mutual cooperation" (Axelrod, 9). In the Prisoner's Dilemma there are four possible outcomes.

"The first relationship specifies the order of the four payoffs. The best a player can do is get T, the temptation to defect when the other player cooperates. The worst a player can do is get S, the sucker's payoff for cooperating while the other player defects. In ordering the other two outcomes, R, the reward for mutual cooperation, is assumed to be better than P, the punishment for mutual defection. This leads to a preference ranking of the four payoffs from best to worst as T, R, P, and S."

(Axelrod, 9-10)

Using the figure 2 below, I set China as Player A and the United States as Player B.

		Player A	
		Cooperate	Defect
Player B	Cooperate	3 / 3	1 / 4
	Defect	4 / 1	2 / 2

Although in this theory, we hope that the reward for cooperating with each other will be greater than the risk of the average of temptation and sucker's payoff, there are other characteristics that make the Prisoner's Dilemma even more complicated. The abstract formula of this game theory is the idea that two prisoners are taken into custody, but the police officers have insufficient evidence for a conviction. Instead, they separate the suspects and offer them each the same deal. Here is where we see the application of T, R, P, and S, depending on whether the prisoners choose to cooperate with his or her accomplice or rat on them in order to pursue self-interest. In this situation, there is almost no information given to each prisoner about what the accomplice will or will not say. Additionally, they have no contact with each other. This will likely lead the prisoner to make a decision about the other's actions based on what they know about him or her or what their past choices have been like. As a result, there is very little trust when involved in the Prisoner's Dilemma. With the lack of information and contact and a tendency to defect in the past, leaves each player with little incentive to cooperate out of fear of being exploited.

It is significant to study the interaction of China and the U.S. through the framework of the Prisoner's Dilemma for several reasons. First and foremost, these countries have historically displayed a high level of mistrust towards each other. Misunderstandings and misinterpretations have led to mutual defection on various topics. Now, the Sino-U.S. relationship is arguably the most important bilateral relationship in the world, as, "Henry Kissinger has called for the U.S.-Chinese relationship to be "taken to a new level" (Economy and Segal). In international relations theory classical realists would argue that if the international arena were to be structured with bipolarity once more- the last time being the Cold War from the end of WWII to 1989- then power would be balanced and peace would ensue. This situation is possible if China rises as peacefully as it says it will, and the United States learns to engage this rising nation.

Or, if the international structure were to remain in a unipolar system with the United States as the dominant power, there are still critical incentives for cooperation between the United States and China. Washington will have to engage other regional superpowers and rising middle powers because the challenges facing the international community today are too numerous and too sensitive to be tackled by one country alone. The War on Terror, global financial crisis, and climate change are just a few of the greatest threats that can only be solved if leaders from around the world come together. Therefore, it is absolutely necessary that we analyze the historical interactions of the Sino-U.S. relationship and determine what factors or situations cause cooperation to prevail. In this way, U.S. and PRC foreign policy can achieve a peaceful, productive bipolar structure.

## **Case Studies**

### *Research Design*

The structure of my thesis is a comparative case study analysis of events and their outcomes. Four cases are chosen where two, the issue of North Korean nuclear missiles and the War on Terror, are labeled as international security threats. The second set of two, the Dalai Lama and the Taiwan issue, are labeled as domestic affairs in China.

Over the time I have spent conducting research, I have come across various cases that could be applied to my argument. These four cases were chosen in particular because of their timeliness and urgency regarding Sino-U.S. relations and familiarity because of current events. Moreover, the four cases study analysis are enhanced by a template where I provide a brief description of the issue, the People's Republic of China's (PRC) position, the United States' position, and the outcome of the event or current status. With this information I consider the choices made in each event through the lens of the Prisoner's Dilemma. The benefit of using this game theory combats the concern surrounding a comparative case study analysis by making it more generalizable. These four cases alone show that there is a consistent tendency in Sino-U.S. interactions which can be built upon in future research of more scenarios including but not limited to: the global financial crisis, the Uighur Minority in Xinjiang province of China, the War on Drugs, and U.S. multinational corporations in China such as Google.

Overall, this research is designed in this way so that we can easily learn from historical interactions and decisions made in Washington and Beijing. In this way, in determining which situations or circumstances bolster cooperation, then policy formation in the future can be crafted to move in this direction. The ultimate goal is to improve Sino-U.S. relations so that these



countries can rid of mutual mistrust and avoid the traps of the prisoner's dilemma as they are faced with some of the world's greatest challenges.

### *North Korea*

In looking at historical decisions when these two nations came face to face on major issues then we may be able to see under what circumstances or with what characteristics present will China and the United States cooperate. One of the most prominent U.S. - China meetings in recent history was over North Korea obtaining nuclear arms capabilities. This single issue brought these two nations together, showed the world how much they can accomplish while on the same side and significantly improved overall relations.

“The United States had been highly concerned with the proliferation status of North Korea, particularly its illicit plutonium weapons program. As a result, On October 21, 1994, the United States and North Korea signed an agreement-the Agreed Framework-calling upon Pyongyang to freeze operation and construction of nuclear reactors suspected of being part of a covert nuclear weapons program in exchange for two proliferation-resistant nuclear power reactors. The agreement also called upon the United States to supply North Korea with fuel oil pending construction of the reactors” (Arms Control Association).

Regardless of progress, in 1993, North Korea threatened to withdraw from the Nuclear Non-Proliferation Treaty (NPT- which requires non-nuclear weapon states to renounce the development and acquisition of nuclear weapons). At this time, North Korea and South Korea had improved relations, particularly with the Agreement on Reconciliation, Non-aggression, Exchanges and Cooperation and the Joint Declaration on the Denuclearization of the Korean Peninsula signed by both countries in 1991. This provocative move by the North Korean government significantly disrupted the progress that the peninsula had made. The U.S. still aimed to bring North Korea back into compliance with its NPT agreements and return to talks

with South Korea<sup>5</sup>. As a high threat to international security, Washington was compelled to intervene.

Realizing that it lacked sufficient political clout in North Korea, the United States pressed China to join them in multilateral talks with Pyongyang. At first Beijing was hesitant because of its positive relations with a long standing regional ally but soon realized that leaving this conflict to bilateral talks would risk military intervention by the U.S., the spread of nuclear weapons to other states in the region such as Taiwan or Japan, and even chaos at the border it shares with North Korea if conflict ensued. The benefit of addressing this international security threat outweighed the cost, and so Beijing hosted multilateral talks. Additionally, the PRC considered its overall status with the US as it decided it was in its best interest “to avoid a setback in U.S.-China relations also factored into Beijing’s reassessment. Preserving stable ties with Washington was a top priority” (Glaser and Wang, 150).

Beijing’s entrance into the talks was a crucial point. In what was thought to be an attempt to get Kim Jong Il to the negotiation table “China shut down its pipeline from the Daqing oilfield in northeastern china to north Korea for three days in early March, ostensibly for ‘technical maintenance,’ shortly after Pyongyang test-fired a missile into waters between the Korean Peninsula and Japan” (Glaser and Wang, 150). Consequently, April of 2003, Beijing hosted a trilateral meeting.

This trilateral approach developed into Six-Party Talks where Japan, South Korea and Russia also took part. Nevertheless, China was central in keeping Pyongyang in the negotiation process and even, “arranging two informal bilateral sessions between the United States and

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<sup>5</sup> “North Korea Nuclear Crisis February 1993 - June 1994.” *Global Security.org* Accessed on 12 April 2010. [http://www.globalsecurity.org/military/ops/dprk\\_nuke.htm](http://www.globalsecurity.org/military/ops/dprk_nuke.htm)

North Korean delegations ‘in a way that was not awkward’ for either side” (Glaser and Wang, 151). Progress lagged over the next few years during the Six-Party Talks as the United States and North Korea continued to mistrust each other and lack flexibility in their objectives.

North Korea then aggravated the conflict by testing missiles on July 4<sup>th</sup> and October 9<sup>th</sup>, 2006. China’s foreign ministry responded to this security threat through a statement that said Pyongyang had, “defied the universal opposition of international society and flagrantly conducted the nuclear test.”<sup>6</sup> They opening criticized this act by their long time allies which suggests that the PRC sides with the United States in preventing North Korea from obtaining nuclear weapons. Throughout these events, there were various times where China and the United States disagreed on the means; nevertheless, they agreed on an ultimate end for the fact that a denuclearized Korean peninsula was in the best interest of the international community. Although the North Korean nuclear missile crisis has yet to be fully resolved, this event has proved to the international community that the United States and China will find some cooperative ground under threats to the international security. Both states recognized the various problems that could potentially arise if Pyongyang achieved nuclear proliferation. Placed in the Prisoner’s Dilemma, the United States and China chose mutual cooperation realizing the overall benefits were greater than the average of temptation and sucker’s payoff. This is shown as:

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<sup>6</sup> Ministry of Foreign Affairs of China Statement. 25 October 2010 [http://news.xinhuanet.com/world/2006-10/09/content\\_5180207.htm](http://news.xinhuanet.com/world/2006-10/09/content_5180207.htm).

		United States	
		Cooperate	Defect
China	Cooperate	3 / 3	1 / 4
	Defect	4 / 1	2 / 2

As a result, I argue that they were much more inclined to cooperate rather than defect due to the fact that the event was a threat to international security. Additionally, cooperation over time improves the chances of better relations and agreements on future interactions. After the heart of this crisis was over, the choice to cooperate also showed that that Sino-U.S. relations were as former Secretary of State Powell said “the best they have been since President Nixon’s first visit’ to China in 1972” (Glaser and Wang, 151).

### *The War on Terror*

Similarly to the North Korean nuclear missile crisis, the War on Terror also provides evidence that the Sino-U.S. relationship is capable of cooperation, particularly in the area of international security.

September 11<sup>th</sup>, 2001 is remembered in history as the day that a series of coordinated suicide terrorist attacks by al-Qaeda were carried out on the World Trade Center in New York City. 19 terrorists hijacked four commercial passenger airplanes and crashed one into each of the Twin Towers of the WTO, one into the Pentagon, and one into a field in rural Pennsylvania. As an almost immediate response by the United States under President George W. Bush, the War on Terrorism was initiated and American troops were sent into Afghanistan in search of al-Qaeda terrorists and Taliban leaders. The goal of this war is to eliminate international terrorism. Although all countries do not agree on an absolute definition of terrorism, it has had the power to call nations to join together into action that otherwise may not.

After the U.S. launched the War on Terror making a public conviction that this it would not stand for this type of activity and it asks any nation that agrees to join it, it, “received strong backing for the war on terrorism...from its NATO allies and from China, a sign that the Sept. 11 terrorist attacks have united nations that don’t always see eye-to-eye” (McClatchy). While Francis Taylor, a retired Air Force general who ranked as ambassador at large said after his trip to Beijing that, “it was clear in [his] discussions that the Chinese leadership, along with counterparts at [his] level, share [their] resolve in shutting down the global terrorist network linked to Osama bin Laden and his al Qaida organization” (McClatchy). This might have come

as a surprise to some considering the Sino-U.S. history displays a great deal of mistrust and misunderstandings on various topics from Taiwan, human rights, the economy, and much more.

As a result, the United States was able to get approval to have an FBI posting in Beijing. This led to “cooperation on counter-terrorism and counter-proliferation [to deepen], in the areas of intelligence sharing, anti-money laundering efforts, frequent strategic consulting, and agreements on Chinese regulation of its missile sales. This proves that the two countries can effectively cooperate, even on sensitive, security-related issues” (Peng, 3).

Because the prisoner’s dilemma does not allow for contact between the prisoners, and each has little to no information as to how the other will act, it is notable that almost directly following the attacks on September 11<sup>th</sup>, China announced its support for the U.S. in its efforts to end terrorism. Beijing chose cooperation knowing that they take the risk of receiving the sucker’s payoff. In analyzing this case study, I find that the United States international commitment to end such a major security threat gave PRC leadership the confidence necessary to know that they would not be exploited and could count on U.S. continued involvement in the War on Terror. Thus, they chose cooperation, recognizing the benefits would be greater than the average of temptation to defect plus the sucker’s payoff.

U.S. China Prisoner's Dilemma on the War on Terror is shown as:

		Player A	
		Cooperate	Defect
Player B	Cooperate	3 / 3	1 / 4
	Defect	4 / 1	2 / 2

Similar to the North Korean nuclear missile crisis, something can be said about the overall relationship between the United States and China when cooperation on an issue prevails. Bilaterally, they do not need absolute trust in order to find common ground on some of the most divisive and controversial issues. “Although mutual irritation lingered and suspicion persisted, the relationship nevertheless took a dramatic leap toward a new and closer chapter of Sino-U.S. cooperation in the wake of the September 11 terrorist attacks. The tragedy offered an exceptional opportunity for China to improve its relationship with the United States, and Beijing acted promptly to grasp it by elevating the antiterrorism agenda in its foreign policy. In the subsequent U.S. –led global war on terror, China ‘bandwagoned’ with Washington. Although China’s concerns about terrorism within its borders greatly exceeded its worries about terrorism internationally, it nevertheless stepped up intelligence sharing, law enforcement cooperation, and joint efforts to curb terrorist financial activities” (Glaser and Wang, 145)

## *Taiwan*

China and Taiwan's relationship has been an ongoing development for centuries. History has taken Taiwan through rule by the Chinese, Japanese, world war and civil war<sup>7</sup>. The United States has played a very influential role in Sino-Taiwan relations mostly since the post WWII era. Beginning with Washington's formal recognition of China established in 1979 during Carter's visit to China, the U.S. has since then recognized the one China policy where Taiwan is a part of mainland China. The situation becomes more complicated because in that same year President Carter also signed into law the Taiwan Relations Act (TRA), "which created domestic legal authority for the conduct of unofficial relations with Taiwan,"<sup>8</sup> which has given more freedom to what goes on between Taiwan and the U.S.

Since then, besides the encouragement of a democratic presence in Asia, the United States' relation with Taiwan has been mostly militarily oriented. The U.S. has continued arms sales of defensive military arms to Taiwan, claiming it is protected under the Taiwan Relations act, which, "provides for such sales and which declares that peace and stability in the area are in U.S. interests" (The State Department-Taiwan). Moreover, in more recent history, Washington has made clear that they do not support a Taiwanese independence,

"But it does support Taiwan's membership in appropriate international organizations, such as the World Trade Organization, Asia-Pacific Economic Cooperation (APEC) forum, and the Asian Development Bank, where statehood is not a requirement for membership. In addition, the U.S. supports Taiwan's meaningful participation in appropriate international organizations where its membership is not possible" (The State Department-Taiwan).

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<sup>7</sup>"Background Note: Taiwan." Bureau of East Asian and Pacific Affairs. *U.S. Department of State*. 10 Feb. 2010. <http://www.state.gov/r/pa/ei/bgn/35855.htm>

<sup>8</sup> The State Department's website provides a database with access to information on Taiwan, its relationship with the United States, and various facts. 10 Feb. 2010 <http://www.state.gov/r/pa/ei/bgn/35855.htm>



The Obama administration, as recently as January 2010, agreed to sell “\$6 million worth of Patriot anti-missile systems, helicopters, mine-sweeping ships and communications equipment to Taiwan” (Pomfret A02). The position of the United States has and continues to be that weapons sales to Taiwan is for the benefit of the stability of East Asia in hopes that it will deter a Chinese attack across the Taiwan Strait. Nevertheless, Washington can expect that China will likely slow military relations with the U.S., express adamant, public opposition, and may even place sanctions on any U.S. companies that supply the equipment that aid Taiwan.

Although the United States stand firm in its support for Taiwan- but not its independence or desire to change the status quo- this issue is by far the most divisive with the PRC. Taiwanese political parties fighting for control in their government have made the issue between China, the United States, and Taiwan, more complex over the years. The United States does not want to disrupt the democracy there, yet still finds it necessary to intervene occasionally. This is where the conflict lies because “China views Taiwan as part of its territory and contends that U.S. arms sales to the island are, as the vice foreign minister said Friday [1-29-10] ‘a gross intervention into China’s internal affairs’” (Pomfret A02).

The current China, United States, Taiwan interaction may become more dangerous the strong that China gets. For years now, the United States has maintained formal ties with the PRC recognizing their interests in Asia require such stable relations; nevertheless, Washington has been consistent in maintaining informal relations with Taiwan. As China’s power and influence in the international community grows, the more the U.S. defects on issues dealing with Taiwan, the longer or more difficult it could be to return to positive Sino-U.S. diplomatic relations. As stated previously, the question of Taiwan is arguably the most divisive issue in this

relationship and has built up over time. With China's current rate of growth it could choose to make Washington pay a much higher political, financial, or economical price the more it feels its internal affairs are violated by an arms sale or other intervention with Taiwan.

In the Case of Taiwan, through the use of the Prisoner's Dilemma, this interaction is shown as:

		United States	
		Cooperate	Defect
China	Cooperate	3 / 3	1 / 4
	Defect	4 / 1	2 / 2

Historically, the United States' position on Taiwan has changed very little and the same could be said of the PRC. Neither will very easily give up on how they wish to pursue relations with Taiwan. In the Prisoner's Dilemma, when one player is confident that the other will defect, then the only good choice would also be to defect so as to avoid the sucker's payoff by cooperating when the other defects. This logic follows so as to not be exploited; nevertheless, mutual defection scores 2-2 which is less than mutual cooperation which benefits both with a 3-3. The core of this challenge is the fact that both players know historically they disagree on matter of domestic politics and will continue to choose mutual defection as long as the other player does not change its position.

Moreover, in terms of the overall Sino-U.S. relationship, any wrong move in such a divisive issue like Taiwan can cause the entire relationship to take a few steps back. Politics are delayed and there often are repercussions that trickle into other areas of conflict. This emphasizes the fact that defection on one critical dilemma, or those that one player finds most central to the nation-state, can have major ramifications for the relationship as a whole.

### *Dalai Lama/Tibetan Minority*

I argue that like the Taiwan issue, the conflict over the Dalai Lama is viewed as an internal affair for China. Historically, when the U.S. has intervened in any way, it has received strong criticism from the Chinese.

The Dalai Lama is the name used to refer to a group of people that come from the line of religious leaders/officials of the Gelug sect of Tibetan Buddhism. He is believed by his followers to be the “rebirth of a long line of tulkus who descend from the bodhisattva<sup>9</sup> Avalokiteshvara. His Holiness is thought to be on earth in order to enlighten others. The Dalai Lama is considered a political and religious figure for Tibetans (“The Dalai Lama-A Brief Biography”).

The Tibet question deals with the idea of self-determination and independence against the PRC. This is never an easy question because, “there is no clear international consensus about the

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<sup>9</sup> Bodhisattvas are enlightened beings that choose to postpone reaching nirvana. Instead they take rebirth so that they can serve humanity on earth.

respective rights of nationalities and states” (Goldstein). Although this dispute goes back for centuries, the focus is on the past three hundred years.<sup>10</sup>

Between the 17<sup>th</sup> century and 1959, the Dalai Lamas were a political and religious figure for Tibet but have since that final year maintained power in exile because of conflict with the PRC. As a result, this region is now referred to as Central Tibetan Administration (CTA).

The PRC has reached out to the Tibetan leaders but no significant progress has been made. “The exiles were unwilling to accept a solution that did not allow Tibet to operate internally under a political system different from the rest of China...the Chinese were categorically unwilling to consider permitting any entity other than the Communist Party to run Tibet” (Goldstein).

As a result of this deadlock, the Dalai Lama initiated an international campaign in 1987 where he tried to rally support from Western nations. In the United States for example, he made speeches arguing that, “Tibet was illegally occupied by China and asserted that a Greater Tibet should become a self-governing democratic entity under a constitution that granted Western-style democratic rights”(Goldstein). In that same year, the growing adamant support from Americans led Congress to sign into law the Foreign Relations Authorization Act which a part of it,

“state that the United States should make the treatment of the Tibetan people an important factor in its relations with China, that China should respect internationally recognized human rights and end violations against Tibetans, and that the United States should urge China to

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<sup>10</sup> Late 17<sup>th</sup> century Tibet was a protectorate of Manchu-ruled China and the government had loose control over it. Then there was the overthrow of the Qing Dynasty in 1912 which gave Tibetans a taste of independence. This lasted until the PRC was established in 1949 and China claimed Tibet as a part of the nation-state. International recognition of this idea further interfered with Tibetan pursuit of self-determination.

release all political prisoners in Tibet and reciprocate the Dalai Lama's efforts to establish a constructive dialogue on Tibet's future" (Goldstein).

Riots and protesting in Tibet and in countries around the world that support their cause would continue. This was not enough to bring Beijing and the Dalai Lama to a conclusion.

Beijing's interest in the Dalai Lama has deteriorated because, "it feels he is not serious about making the kind of political compromises they could agree to and resents his supporters' anti-Chinese rhetoric and activities" and what makes this worse is that, "the absence of a credible U.S.-Europe-Japan threat of sanctions allows them to refuse talks with impunity" (Goldstein).

The United States intervention in the Tibet issue has remained a consistent problem for Sino-U.S. relations. During the Clinton Administration in the early 1990s, the president openly criticized China for its treatment of Tibetans and overall human rights record. Most recently, President Obama became the fourth consecutive U.S. president to meet with the Dalai Lama in February 2010. As Washington has maintained this relationship with the Dalai Lama over the past few decades, its position has changed very little. On the contrary, what has changed is the fact that "China's reaction to [the arms sale in January] and the Dalai Lama meeting have been tougher than in the past- a sign perhaps of a sense of triumphalism from Beijing as China emerges from the global financial crisis generally unscathed" (Pomfret A02). As discussed earlier, China may feel it is in a stronger more influential position in international affairs now more than ever. After threatening sanctions in response to the arms sale to Taiwan in January, "it has warned of unspecified consequences for the Dalai Lama meeting" (Pomfret A02).

This case study displays how U.S. intervention was not happily accepted by the Chinese. Therefore, criticism of PRC's human rights record and meetings with the Dalai Lama in

Washington has resulted in a great deal of irritation for Beijing. The United States has not shown any sign of backing off; likewise, China's position on a unified country, which includes Tibet, has not changed.

This is shown in the prisoner's dilemma as mutual defection yielding a payoff of 2-2.

		United States	
		Cooperate	Defect
China	Cooperate	3 / 3	1 / 4
	Defect	4 / 1	2 / 2

In the prisoner's dilemma, continuous defection by one player gives the other player no incentive to cooperate so as to avoid receiving the sucker's payoff. In this case study, it would be extremely difficult to change the pattern of defection without a very clear and decisive shift in policy from one player, which likely would not happen without some information from the opponent as to their willingness to change as well.

In looking at past interactions, there seems to be a slight pattern regarding which issues tend to bolster cooperation or end in defection between the U.S. and China. It is important to note this when analyzing their current positions on international climate policy agreements. Next, I will first look at their domestic accomplishments to reverse the effects of global warming.

### Chapter 3

#### **Application of Prisoner's Dilemma to the Case of Climate Change**

China and the United States have made strides on climate policy unilaterally. It is crucial to understand what each has done domestically because this highlights the evident hesitation with a bilateral and multilateral commitment, which will also be analyzed. Finally, I will apply the prisoner's dilemma to the climate change case study.

##### *The Unilateral U.S. Policy*

From a unilateral perspective, we have seen in the United States that political disagreement in Congress has made it very difficult to produce a national plan. The extreme divide on climate change policy was at the federal level for the first time in the summer of 2009. As an advantage to the federal governmental structure, when California became disappointed in the lack of national policy to regulate carbon dioxide emissions from cars, the state initiated its own, "efforts to implement the world's toughest vehicle-emission standards" (V.S. Sunil, 333). Additionally, "ten other states have adopted California's tougher rules, which would force automakers to cut exhaust from cars and light trucks by 25 percent and from sport utility vehicles by 18 percent, beginning in 2009" (V.S. Sunil, 333). Despite progress made at the state level, the United States has only begun to address the problem at the federal level in the summer of 2009 where Congress and the Supreme Court have given serious consideration.

##### *The Unilateral China Policy*

As one of the most influential developing countries in this debate, China has also shown great strides in national climate policy. In his highly optimistic speech on September 22 of this

year, President Hu Jintao addressed the United Nations General Assembly. He verified a clear China position on climate change and outlined the principles of his nation's plan to reverse the most harmful effects on his nation. He specifically avowed the following four crucial points:

“First, we will intensify our effort to conserve energy and improve energy efficiency. We will endeavor to cut carbon dioxide emissions — (inaudible) — GDP by a notable margin by 2020 from the 2005 level. Second, we will vigorously develop renewable energy and nuclear energy. We will endeavor to increase the share of non-fossil fuels in primary energy consumption to around 15 percent by 2020. Third, we will energetically increase forest carbon — (inaudible) — we will endeavor to increase forest coverage by 40 million hectares and forest stock volume by 1.3 billion cubic meters by 2020 from the 2005 levels. Fourth, we will step up our efforts to develop green economy, low carbon economy and — (inaudible) — economy and enhance research, development and dissemination of climate-friendly technologies.” (*Hu Jintao addresses the United Nations*)

These four futuristic verbal goals gain plausibility based on China's 11<sup>th</sup> Five-Year Plan (2006-2010), which bolsters a “20 percent energy intensity improvement target [that] can translate into an annual reduction of over 1.5 billion ton of CO<sub>2</sub> by 2010” (Jiang Lin and et al. 2008). Heading into the close of the year 2009, the Chinese have already accomplished half of this goal which if sustained makes, “the largely energy security- and local pollution-based effort one of the most significant carbon mitigation initiatives in the world” (Tu, 13). President Hu puts forth coherent and impressive tactics for combating climate change domestically. While much of the rest of the world is interested in China's progress, world leaders and organizations are waiting in anticipation of a commitment from China on an international level.

### *Bilateral Policy*

The need to have these two nations working together on this issue is supported by a hearing before the Committee on Foreign Relations in the United States Senate 111<sup>th</sup> Congress



on June 4<sup>th</sup>, 2009<sup>11</sup> that discussed *Challenges and Opportunities for U.S.-China Cooperation on Climate Change* and the collaborative report by *Asia Society* and *Pew Center on Global Climate Change* entitled “Common Challenge, Collaborative Response: A Roadmap for U.S.-China Cooperation on Energy and Climate Change” where the executive summary puts it as, “these two countries are both crucial in the effort to address climate change. Simply put, if these two countries cannot find ways to bridge the long-standing divide on the issue, there will literally be no solution” (8).

In my efforts to understand what has historically led the U.S. and China to defect on global collaborative opportunities, I have found support from the *Asia Society* and *Pew Center on Global Climate Change* report that these bilateral goals are crucial because they are a means to a multilateral effort which is what climate change requires. “By demonstrating global leadership and achieving bilateral practical progress, two of the world’s largest economies [United States and China] can help all nations achieve fair and comprehensive agreements under the UN Framework Convention on Climate Change and beyond as envisioned in the Bali Action Plan<sup>12</sup>” (“Common Challenge, Collaborative Response”, 12). I also use this report to show the various times China and the United States came together on an issue regarding climate change and energy. There has been an increase in the number of times these nations have met per generation from only three in the 70’s to almost 15 in the 21<sup>st</sup> century. (See appendix 1). Still the agreements are often vague, not followed up on or insignificant to the cause.

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<sup>11</sup> United States Senate Committee on Foreign Relations released *Challenges and Opportunities for U.S.-China Cooperation on Climate Change* to discuss crucial points in this matter with China and climate change experts.

<sup>12</sup> The Bali Action Plan refers to the meetings in Bali, Indonesia in 2007 in preparation for the prospect of a climate agreement in Copenhagen, Denmark in December 2009, the most recent international climate change summit.

Unilateral, bilateral, and regional efforts are crucial to making progress in the fight against climate change. Additionally, considering the GHG emissions across history and that which is projected currently and into the future, the harm caused by climate change will be much more troublesome, if not impossible to stop, without collaboration between the U.S. and China bilaterally and under the parameters of an international agreement. Therefore, with the risk associated with these the U.S. and China sticking to their own domestic policy coupled with projected CO2 levels, emphasize the urgency of this global crisis. There is sufficient evidence that we must find a path for cooperation between these two countries to lead the way for international commitment to environmental survival and sustainability.

### *International Agreements*

#### Kyoto Protocol

The Kyoto Protocol is a United Nations initiated international agreement that set targets for 37 industrialized countries and the European community in order to reduce greenhouse gas emissions. It is overseen by the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC set the goal of emissions reductions of an average of five percent compared to 1990 levels from 2008-2012. The Protocol was entered into force in February of 2005.<sup>13</sup>

The Clinton administration negotiators were very involved in the early creation of the Kyoto Protocol. Although never fully pleased with the terms of the treaty, they continued to be involved. Ultimately this doesn't matter because the United States withdrew from the Protocol in 2001 after President Bush expressed that the goals of the accord were not in the best interests

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<sup>13</sup> This information is readily available on the UNFCCC. "Kyoto Protocol." *United Nations Framework Convention on Climate Change*. 14 Apr. 2010. <[http://unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php)>.

of the U.S.<sup>14</sup> Bush was concerned that the restrictions that would arise because of the agreement could harm America's economy. Additionally, the administration was not going to sign anything that did not also commit developing countries to some type of reductions as well. Some have speculated that this was President Bush's way of using Washington's leadership position to get an improved treaty created before any signatures; however, others took it as a lack of seriousness.<sup>15</sup> As mentioned previously, from this point forward the U.S. only addresses the issue of climate change at a state level. It is not until the summer of 2009 that the Federal government, specifically the House of Representatives, passed climate legislation. Unfortunately, it was never passed in the Senate.

As of the end of 2009, 187 countries have signed and ratified the treaty, China being one of them.



<sup>14</sup> The article "U.S. Withdraws From Kyoto Protocol" from *Greenpeace* is important to note how significant lack of U.S. ratification on Kyoto was to the entire process. Accessed on 15 Apr. 2010. <<http://www.greenpeace.org/usa/news/u-s-withdraws-from-kyoto-prot>>.

<sup>15</sup> "When It Comes to Kyoto, the U.S. Is the 'Rogue Nation'" *TIME.com*. This article calls the U.S. the Rogue state for not signing the Protocol. It also considers whether or not the Protocol can continue and be successful without the American ratification. 14 Apr. 2010. <<http://www.time.com/time/world/article/0,8599,168701,00.html>>.

In the figure above, green represents countries that have signed and ratified the treaty, grey no position, red are those who signed but denied ratification, and yellow is signed but ratification pending (as of 2007, Australia has moved towards ratification).

Although China is rapidly industrializing and modernizing, it has found climate change to be of enough significance to sign onto the Kyoto Protocol. PRC leadership had described President Bush's decision to pull out of the treaty as "irresponsible"<sup>16</sup> and seems to show much more of a public responsibility to the environment, regardless of domestic growth. This seems favorable at face value, but it is important to note that agreement to the Protocol is very different for China and the United States as the commitment is much more intense for industrialized nations. China's agreement to the treaty actually helps the nation with receiving Clean Developed Mechanisms, which provide the finances and technology transfers to the country in order to carry out projects aimed at developing clean technology. Overall, on an international level, China did agree to the climate policy while the United States did not, and they would not be at the same table on this issue until 2009 in Copenhagen.

### Copenhagen

With the agreements made in Kyoto Japan years earlier, the international agreement was to revisit the issue at the climate summit in Copenhagen, Denmark in 2009 in order to attempt to find Kyoto's replacement when it expired. The result of the conference of over 190 countries

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<sup>16</sup> "China and Japan Support Kyoto Treaty." *BBC NEWS / AMERICAS* /. China and Japan show their support but point out the fact that the global hegemony is not taking responsibility in such a threatening matter. Accessed 15 Apr. 2010. <<http://news.bbc.co.uk/2/hi/americas/1268251.stm>>.

was that, “The agreement reached is not a treaty and has no internal or external enforcement mechanism.”<sup>17</sup> This is only worsened by the fact that after the meeting, there was no longer a commitment to pursue a legally binding pact in 2010 and did not increase the monetary pledge that would be used to aid the developing nations in their struggle to reduce carbon dioxide emissions.<sup>18</sup>

For the United States, 2009 was a very busy year regarding climate policy. President Obama was faced with domestic and international challenges to reach fruitful policy to address this complex issue. At the Copenhagen summit, he was largely looked to for a leadership position to press forward on an international agreement in the upcoming year. Instead, the summit only further highlighted the urgency of the issue, the compelling evidence that global warming is threatening many nations, and the fact that there is no true consensus on the issue. It is still pointed out that the rift between the United States and China grows more evident as neither wants to be involved in a legally binding, international agreement if the other is not. “Obama hinted that China was to blame for the lack of a substantial deal. In a press conference he condemned the insistence of some countries to look backwards to previous environmental agreements. He said developing countries should be ‘getting out of that mindset, and moving towards the position where everybody [recognizes] that we all need to move together.’”<sup>19</sup>

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<sup>17</sup> "Copenhagen Climate Conference Ends with Whimper, No Legally Binding Pact, No Commitment to Pursue One in 2010." *Row 2 Seat 4: Fox News' White House View*. This blog site expressed strong concern for the lack of real progress at Copenhagen, especially because time is a major factor. Accessed on 12 Apr. 2010. <<http://whitehouse.blogs.foxnews.com/2009/12/18/copenhagen-climate-conference-ends-with-whimper-no-legally-binding-pact-no-commitment-to-pursue-one-in-2010/>>.

<sup>18</sup> See Footnote 17

<sup>19</sup> Vidal, John, Allegra Stratton, and Suzanne Goldenberg. “Low Targets, Goals Dropped: Copenhagen Ends in Failure.” *The Guardian*. Copenhagen summit may not have been a complete failure. However, expectations were high and goals were not achieved. The issue is more serious each day and continues to be pushed off. Accessed on 1 Mar 2010. <http://www.guardian.co.uk/environment/2009/dec/18/copenhagen-deal>

Copenhagen overall did not produce a new plan to take over where the Kyoto Protocol left off, but formal support of China was a “boost to the agreement’s credibility.”<sup>20</sup> Although this is an important step forward because it shows that one of the most important economies with the greatest carbon footprint is onboard with the issue and looking to make a significant contribution. China most recently, has shown incredible goals domestically. It will be very important to also have Beijing that involved at the international level down the road.

In the case of climate policy, the United States and China have made considerable progress domestically. I argue that the bilateral talks, meetings, and some types of agreements have increased in frequency and detail over the past three decades; however, there lacks a serious commitment of CO2 reductions agreed upon between Beijing and Washington. Also, an international agreement has clearly lagged.

Therefore, this case study, through the prisoner’s dilemma is shown as mutual defection, yielding a 2-2 payoff.

		United States	
		Cooperate	Defect
China	Cooperate	3 / 3	1 / 4
	Defect	4 / 1	2 / 2

<sup>20</sup> "Climate Goal Is Supported by China and India." *The New York Times*. It is vital that the two highest emitters of greenhouse gases among the developing countries are involved in the international climate policy initiatives. Accessed on 25 Mar. 2010. <<http://www.nytimes.com/2010/03/10/science/earth/10climate.html>>.

Now, the challenge is to encourage China and the United States towards mutual cooperation, where the payoff is better for both nations (3-3) and the results will positively impact the rest of the world. This will require an unmistakable leadership role from the United States, a revision of the blueprint for negotiations in order to bolster Sino-U.S. cooperation, and a commitment to create effective climate policy.

## **Chapter 4**

### **Climate Policy Suggestions and Incentives for Cooperation**

The ultimate objective, if we are ever to solve the challenges of global warming, is to establish effective international climate policy. Climate change has and will continue to be a highly divisive topic where no nation has the golden solution, nor wants to be exploited in an attempt to combat the challenges. The magnitude and complexity of the overall issue make it near impossible to find common ground by 120 or more nations in one sitting, and we do not have much time left. “The Kyoto Protocol is a complicated agreement that has been slow in coming-there are reasons for this. The Protocol not only has to be an effective against a complicated worldwide problem-it also has to be politically acceptable” (Sunil, 307). With that being said, coupled with the fact that we lose time each day we do not address it, the solution needs to start on a smaller scale-at the very point at which progress lags. The world’s leading super power and the world’s highest CO<sub>2</sub> emitter should establish the core of the overall international climate policy.

In order to escape the prisoner’s dilemma on climate policy, China and the United States will have to utilize key strategies in the negotiation process. Firstly, the United States, as the global hegemony, has the responsibility of taking a leadership role on an issue that will impact every nation. In this position of power and influence and ability to set the agenda for the rest of the world, Washington can emphasize climate change as a serious threat to international security. President Obama should take a public stance on the issue, especially expressing concern for the harmful effects that will only become more troublesome and unable to reverse if we do not take action immediately e.g. rising sea level, destruction to coastlines, mass migration, spread of diseases, and loss of islands.



Next, policymakers must change the environment of interaction in order to promote cooperation. Right now regarding climate change, interactions are weak and short-term benefits are much more appealing; thus, states defect. In order to combat this problem, Axelrod adds to my policy suggestions with a way of changing the setting for the mutual benefit of both parties involved. There are a few key goals that need to be achieved in order to do this.

First and foremost, climate change has presented itself to the world in a way that has left no country able to provide a golden solution to reverse all of its harmful effects. What we do know is that it is an extremely complex issue with dire consequences, and an urgency level that rises at an alarming rate. With this fact, no country wants to take on the responsibility of taking on the climate burden alone, nor run the risk of failing fix the problem. Part of the issue at hand is the fact that placing 120 or more countries into a formal international setting where the world is given a few days to essentially come to a consensus on how to combat climate change, is not going to be the most successful way to go about this. Climate change still has too many open-ended questions; among them is the issue of common but differentiated responsibilities<sup>21</sup> is a growing argument that leaves the nations of the world bitterly divided. Additionally, in the example of the last international climate summit in Copenhagen, Denmark, many nations had high expectations for the United States and China to take a leadership role. Neither seemed to

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<sup>21</sup> The principle of common but differentiated responsibilities is one of the basic principles in international environmental law, the core idea of this principle is that the developed countries and the developing countries should bear different environmental protection responsibilities in all kinds of international environmental protections issues Xing and Wang. "CDM in China" *Crucial Issues in Climate Change and the Kyoto Protocol: Asia and the World*. Hackensack: World Scientific Publishing Co. Pte. Ltd., 2010. The argument is that historical differences regarding a nation's contribution to the overlying global warming problem vary a great deal. Developing nations use the fact that they have only just begun their industrialization process and therefore, developed nations should bear the costs of technological transfers for green technology. This becomes more complicated when developing nations such as China are projected to be just as culpable as any developed nation that has been industrialized for 150 years, if they are not held to strict emission reduction standards.

want to do that unless the other would too-both are evidently still trapped in the prisoner's dilemma.

Rather than the previous approach, China and the United States can break down the issue of climate change into smaller pieces and establish windows of time where each topic will be discussed. This will present the challenge in a more approachable way, it will provide checkpoints where each nation can check up on the other's progress and make adjustments where necessary if weaknesses are present, and the overall strategy to combating climate change can be altered as more information is discovered over time. This tactic will require a few key points that Axelrod has suggested on how to promote cooperation in the prisoner's dilemma.

One, the same individuals need to meet each other and become more and more familiar with how they have behaved on an issue. In this case, China and the United States' heads of state, an established special envoy, or other representative, must shuttle back and forth between Beijing and Washington to maintain consistent contact on the status of climate change and each nation's position on whatever aspect they are currently dealing with. This continued interaction makes it possible for cooperation, based on reciprocity, to be stable.

Two, we must "promote cooperation by transforming the strategic setting itself-for example, by enlarging the shadow of the future" (Axelrod, 124). In order to do this, the future must be more important relative to today. In the game theory, we know that defecting on the first interaction could yield Temptation payoff, or 4. However, once the opponent knows that he/she is dealing with someone who only defects, then there is no incentive to cooperate with them because then they will only ever receive a sucker's payoff, or 1. This results in mutual defection, yielding the worst payoff for both, 2-2. Consequently, it may be a very high payoff to

pursue self-interest and defect first, but in the long run, establishing a cooperative relationship based on reciprocity will yield mutual cooperation, 3-3, the best situation for both.

The most successful way to enlarge the shadow of the future is to make interactions more durable, and more frequent. Durability in interactions “allows patterns of cooperation which are based on reciprocity to be worth trying and allows them to become established” (Axelrod, 129). This requires that China and the U.S. make investments into climate change resolutions in order to emphasize their commitment to the bilateral relationship so as to ensure that the intention is for neither to be exploited. Some examples of durable actions could be Washington providing clean energy technology transfers to China, Beijing, and agreeing to clean carbon initiatives and CO2 emissions reductions goals by a specified year.

Climate negotiators must utilize a policy of “pay then persuade,” an approach coined on Thomas Schelling’s notion that “if we want [the Chinese] to do anything in the short run-that is, within twenty-five years-we have to pay for it. If we want them to do something in the slightly longer run, we may persuade them” (Schelling, 14).

President Hu’s hands are tied by his fervent promises made domestically. His situation is intensified by the fact that citizens “believe that hollow threats and promises undermine the country’s reputation; that empty commitments are dishonorable and embarrassing; or that inconsistency is evidence of incompetence” (Tomz, 3). The U.S. must establish its legitimacy to commit on this issue by taking the initiative in technology transfers and financial assistance on major projects in China and other developing nations.

Moreover, interactions must be more frequent. “In such a case, the next interaction occurs sooner, and hence the next move looms larger than it otherwise would. This increased rate of interaction would therefore be reflected in an increase in...the importance of the next

move relative to the current move” (Axelrod, 130). China and the United States should establish bilateral meetings that would occur every three to five months. Frequency could go down after the initial goals are set and progress is seen; however, the more interaction in the beginning the greater chance of developing mutual trust, emphasis on the urgency of the issue, and sheer commitment to the ultimate goals. Part of the problem with tackling climate change in the past is the fact that summits are years apart, and the agenda is so daunting that it is near impossible to make significant progress. In shrinking down the members to bilateral-U.S. and China- each nation has only one other to focus and interact with. In meeting with each other frequently and with specified intervals in between, there is a higher chance of promoting stable cooperation because neither state can get to know the other’s behavior with an unpredictable amount of time until the next meeting. Overall, we must put Axelrod and Schelling’s ideas together. The U.S. must utilize frequent interaction with commitments to technology transfers and financial assistance in order to pay for the climate problem *now*. Over time, frequency develops the necessary durability that will convince the Chinese that we are willing to cooperate. This will encourage the Chinese to respond with reciprocity, not fear exploitation, and thus, mutual cooperation will ensue.

Due to the fact that climate change is such an urgent, complex issue, it will absolutely require this durable and frequent interaction. Whether it is Chinese and American heads of state, at a few meetings, and then a special envoy at the rest, either way, it is most important that the commitment level is consistent and apparent. It will be in the best interest of the entire international community for Washington to take a leadership role in climate policy. It is time to stop giving excuses as to why America is unable to afford the time and effort to international climate policy or waiting for Beijing to take the lead. As the global hegemony, the United States

has a responsibility to the world to engage China and press the issue of global warming to the forefront of international security concerns.

There truly is no excuse left not to make this happen. Now as Wu Jianmin, a senior advisor to the Foreign Ministry in China once said “we all understand we don’t have much time left. We’ve got to work together” (Wong and Revkin).

## **Conclusion**

The issue of global warming is evidently a very divisive and urgent challenge facing the entire world. The rising temperature, although less than two degrees Celsius per year, is and will continue to severely impact the environment, the global population, and the world as we know it. Currently, there is no perfect solution to this problem, but that is not a rare obstacle in international relations. The fact is, we do not at this point require an answer for every unknown regarding climate change; rather, we require the undivided attention and inclusion of the nations of the international community to work together in order to put us on the right path towards a resolution.

After recognizing that climate change is one of the greatest challenges facing the world today, I strongly believe that the United States is in a position of power where it is responsible for setting the agenda for the rest of the world. If the U.S. dictates global warming as an urgent priority, then the rest of the world will listen. It is up to Washington to accept this responsibility and lead others on how we will take action together. It is negligent as the global hegemony, to be back and forth on our position on climate change, to back out when an agreement needs our support, and especially to place the blame elsewhere when we are well aware of our own carbon footprint. How can the United States, the most developed and rich nation of the world, back out of an international climate agreement for fear of repercussions to its domestic economy when climate change threatens the very existence and survival of other nations? This is not leadership at all and must be changed immediately.

Washington can make the necessary changes to its climate policy by starting with a position of leadership where it presses all nations to join in an effective international climate policy agreement. It must emphasize the issue as a threat to international security so as to

encourage a wider range of support from fellow concerned countries. Next, it is absolutely paramount that the United States works with China bilaterally. It is evident to the world that China and the United States hold securely to their positions as the number one and number two carbon dioxide emitters respectively. Without their involvement, an international plan is essentially fruitless.

A bilateral, Sino-U.S. agreement on climate change will, one, establish a committed relationship between these two nations in order to tackle an incredible global challenge. Two, create the necessary core to the solution of reversing the harmful effects of global warming. Three, prove to the rest of the world that these two nations are serious about the task at hand and willing to make the effort for the mutual benefit of the nations involved. China and the United States must come to accept that it is their involvement that environmental sustainability rests, and it is their initiative that the world is waiting for.

There is more at stake here than just the prospect of successful bilateral agreements on climate change. There are various threats facing the world today that neither the United States nor any other superpower is able to fight alone. For example, we will continue to deal with the repercussions and obstacles presented by the global financial crisis, nuclear proliferation, terrorism, the international drug trade, poverty and hunger, just to name a few. The United States is in a position of responsibility where it must engage regional superpowers, and other global leaders, but especially China, arguably the fastest growing, most important developing nation in the world with incredible potential to help solve the above issues.

There is evidence that both China and the United States recognize the need to continue to work together on issues such as nuclear non-proliferation and the War on Terror, as new threats arise under these challenges. *China Daily* even wrote that some of the new obstacles will be,

“the Iranian nuclear and Darfur challenges” (Tao). Successful cooperation on these issues will be just as crucial to international security as the creation of climate policy. The benefits of an improved Sino-U.S. relationship will bolster these nations in the future to work together on areas that they previously struggled to find common ground. They must start with climate change—what both agree needs serious consideration. Then, successful bilateral climate policy will establish the foundation for Sino-U.S. leadership on other divisive issues.



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## Appendix I. Timeline of Government Initiatives for U.S.-China Energy and Climate Change Cooperation

Year(s)	Name	Actors	Purpose
1979	Scientific and Technology Cooperative Agreement	Official bilateral governmental agreement established by President Carter and Vice Premier Deng Xiaoping	Started with focus on high-energy physics. Served as an umbrella for 30 subsequent bilateral environment and energy protocols.
1979	MOU for Bilateral Energy Agreements	U.S. DOE and the China SDPC	Led to 19 cooperative agreements on energy, including fossil energy, climate change, fusion energy, energy efficiency, renewable energy, peaceful nuclear technologies, and energy information exchange
1979	Atmosphere and Science and Technology Protocol	NOAA and Chinese Meteorological Administration	Bilateral climate and oceans data exchange, research, and joint projects.
1983	Protocol on Nuclear Physics and Magnetic Fusion	DOE and SSTC	Long-term objective to use fusion as an energy source.
1985, 2000, 2005-2010	Protocol on Cooperation in the Field of Fossil Energy Research and Development (the Fossil Energy Protocol)	DOE and Ministry of the Coal Industry (later MOST)	First major bilateral agreement on fossil energy. Now includes 5 annexes: power systems, clean fuels, oil and gas, energy and environment technologies, and climate science. Protocol is managed by the Permanent Coordinating Group including members of both countries.
1987	Annex III to the Fossil Energy Protocol Cooperation in the Field of Atmospheric Trace Gases	DOE and CAS	Cooperative research program on the possible effects of CO <sub>2</sub> on climate change.
1987	Fossil Energy Protocol—Additional Annexes	DOE, Ministry of the Coal Industry	Coal preparation and waste stream utilization, and atmospheric fluidized bed combustion (FBC) information exchange.
1988	Sino-American Conference on Energy Demand, Markets and Policy in Nanjing	LBNL/DOE and SPC/ERI	Informal bilateral conference on energy efficiency that led to an exchange program between ERI and LBNL, and the first assessment of China's energy conservation published by LBNL in 1989.
1991	5-year extension of the Science and Technology Cooperation Agreement	High-level umbrella agreement DOE and SSC	
1992	Implementing Accord for a Program of Collaboration on the Superconducting Super Collider (SSC)	DOE and SSC	\$18 billion project that ultimately was not funded by Congress.

Year(s)	Name	Actors	Purpose
1992	U.S. Joint Commission on Commerce and Trade		Facilitate the development of commercial relations and related economic matters between the United States and China. The JCCT's Environment subgroup supports technology demonstrations, training workshops, trade missions, exhibitions, and conferences to foster environmental and commercial cooperation.
1993	U.S. Commercial Mission to China	U.S. DOE and Commerce	For U.S. companies to promote their electric power technology services in China. Industry representatives identified a potential for \$13.5 billion in U.S. electric power exports between 1994-2003 (not including nuclear power), equating to 270,000 high-salary U.S. jobs and an opportunity for introducing cost-effective, environmentally sound U.S. technologies into China's electric power industry.
1993	Establishment of the Beijing Energy Efficiency Center (BECon)	ERI, LBNL, PNNL, WWF, EPA, WWFN, SPC, SETC, SSTC	The first non-governmental, non-profit organization in China focusing on promoting energy efficiency by providing advice to central and local government agencies, supporting energy efficiency business development, creating and coordinating technical training programs, and providing information to energy professionals.
1994	2 Annexes to the Fossil Energy Protocol	DOE and SSTC	1) To make positive contributions toward improving process and equipment efficiency; reduce atmospheric pollution on a global scale; advance China's Clean Coal Technologies Development Program, and promote economic and trade cooperation beneficial to both parties. 2) Cooperation in coal-fired magnetohydrodynamic (MHD) power generation.
1994	China's Agenda 21 Document Released	SSTC and China's National Climate Committee	Lay out China's request for international assistance. The United States agreed to support China through DOE's Climate Change Country Studies and Support for National Action Plans programs.
1995	Series of DOE bilateral agreements signed by Secretary of Energy O'Leary	Bilateral agreements on Energy between DOE and ministries as noted below: 1) MOU on bilateral energy consultations (with SPC) 2) Research on Reactor Fuel (with CAEA) 3) Renewable Energy (with Ministry of Agriculture) 4) Energy Efficiency Development (with SSTC) 5) Renewable Energy Technology Development (with SSTC) 6) Coal Bed Methane Recovery and Use (with MOCI) 7) Regional Climate Research (with the CMA)  Also established: -Plan for mapping China's renewable energy resources (DOE and SPC) -Strategies for facilitating financing of U.S. renewable energy projects in China (with DOE, SPC, Chinese and U.S. Ex-Im banks) -Discussions for reducing and phasing out lead in gasoline in China (DOE, EPA with China's EPA and SINOPEC)	



Year(s)	Name	Actors	Purpose
1995	U.S.-China Oil and Gas Industry Forum (OGIF)	DOE, SPC, plus ministerial-level oil and gas organizations	
1995 (some annexes in 1996)	Protocol for Cooperation in the Fields of Energy Efficiency and Renewable Energy Technology Development and Utilization	DOE and various ministries	<p>This Protocol has seven annexes: policy, rural energy (Ministry of Agriculture), large-scale wind systems (with MOEP), hybrid village power, renewable energy business development (with SETC), and geothermal energy, energy efficiency (with SPC), hybrid-electric vehicle development.</p> <p>Energy efficiency includes 10 teams of Chinese and U.S. government and industry representatives focusing on: energy policy, information exchange and business outreach, district heating, cogeneration, buildings, motor systems, industrial process controls, lighting, amorphous core transformers, finance.</p>
1995-2000	Statement of Intent for Statistical Information Exchange (later became a Protocol)	DOE and NBS	Five meetings to discuss energy supply and demand and exchange information on methods of data collection and processing of energy information.
1997	U.S.-China Forum on Environment and Development	Established by Vice President Al Gore and Premier Li Peng	Venue for high-level bilateral discussion on sustainable development. Established 4 working groups: energy policy, commercial cooperation, science for sustainable development, environmental policy. Three priority areas for cooperative work: urban air quality, rural electrification, clean energy and energy efficiency.
1997	Energy and Environment Cooperation Initiative	DOE and SPC	Targeting urban air quality, rural electrification, and energy sources, and clean energy sources and energy efficiency. Involved multiple agencies, participants from business sectors, and link energy development and environmental protection.
1997	U.S.-China Energy and Environmental Center	Tsinghua University and Tulane University, with DOE and SSTC/MOST	An initiative centered at Tsinghua and Tulane Universities co-funded by DOE and MOST to 1) provide training programs in environmental policies, legislation and technology, 2) develop markets for U.S. clean coal technologies, and 3) help minimize the local, regional, and global environmental impact of China's energy consumption.
1998-ongoing	Agreement of Intent on Cooperation Concerning Peaceful Uses of Nuclear Technology (PUNT)	DOE and SPC	Paved the way for the exchange of information and personnel, training, and participation in research and development in the field of nuclear and nuclear non-proliferation technologies.
1998	Joint Statement on Military Environmental Protection	U.S. Secretary of Defense and Vice-Chairman of Chinese Central Military Commission	MOU provides for the exchange of visits by high-level defense officials and the opening of a dialogue on how to address common environmental problems.

Year(s)	Name	Actors	Purpose
1998	Peaceful Uses of Nuclear Energy Agreement	DOE and NDRC	
1999-2000	Fusion Program of Cooperation	DOE and CAS	Plasma physics, fusion technology, advanced design studies, and materials research.
2002-2003	U.S.-China Fusion Bilateral Program	DOE and CAS	Plasma physics, fusion technology, and power plant studies.
2003	Carbon Sequestration Leadership Forum	DOE	Includes 13 countries, including China.
2003	FutureGEN	DOE with many international partners	Initially an IGCC plus CCS plant, restructured in January 2008 as potential federal funding to support CCS on a privately funded IGCC or PC plant. Companies can bid for participation and funding.
2004	U.S.-China Energy Policy Dialogue	DOE and NDRC	Resumed the former Energy Policy Consultations under the 1995 DOE-SPC MOU. Led to a MOU between DOE and NDRC on Industrial Energy Efficiency Cooperation and includes energy audits of up to 12 of China's most energy-intensive enterprises, as well as training and site visits in the United States to train auditors.
2004	U.S.-China Green Olympic Cooperation Working Group	DOE, Beijing Government	Included opportunities for DOE to assist China with physical protection of nuclear and radiological materials and facilities for the Beijing Olympics as they had done in Athens.
2006	Asia-Pacific Partnership on Clean Development and Climate	U.S., China + India, Japan, Korea, Australia (later Canada)	Created public-private task forces around specific sectors; Aluminum, Buildings and Appliances, Cement, Cleaner Use of Fossil Energy, Coal Mining Power Generation and Transmission, Renewable Energy and Distributed Generation, Steel.
2006	U.S.-China Strategic Economic Dialogue	Vice Premier Wu Yi and U.S. Treasury Secretary Henry Paulson. Includes DOE, EPA, NDRC, MOST	Bi-annual, cabinet-level dialogue that includes an energy and environment track.
2007	MOU on Cooperation on the Development of Biofuels	USDA and NDRC	Encourages cooperation in biomass and feedstock production and sustainability; conversion technology and engineering; bio-based product development and utilization standards; and rural and agricultural development strategies.

Year(s)	Name	Actors	Purpose
2007	U.S.-China Bilateral Civil Nuclear Energy Cooperative Action Plan	DOE and NDRC	To complement discussions under the Global Nuclear Energy Partnership (GNEP) toward the expansion of peaceful, proliferation-resistant nuclear energy for greenhouse gas emissions-free, sustainable electricity production. Bilateral discussions include separations technology, fuels and materials development, fast reactor technology, and safeguards planning.
2007	U.S.-China Westinghouse Nuclear Reactor Agreement	DOE, State Nuclear Power Technology Corporation (SNPTC)	DOE approved the sale of 4 x 1,100-megawatt AP-1000 nuclear power plants that use a recently improved version of existing Westinghouse pressurized water reactor technology. The contract was valued at \$8 billion and included technology transfer to China. The four reactors are to be built between 2009 and 2015.
2008	Ten Year Energy and Environment Cooperation Framework (SED IV)	DOE, Treasury, State Commerce, EPA, NDRC, SFA, NEA, MOF, MOEP, MOST, and MFA	Establishes five joint task forces on the five functional areas of the framework: 1) clean efficiency and secure electricity production and transmission 2) clean water 3) clean air 4) clean and efficient transportation 5) conservation of forest and wetland ecosystems.

Source: Pew Center on Global Climate Change, Common Challenge, Collaborative Response: A Roadmap for U.S.-China Cooperation on Energy and Climate Change, Feb. 2009, Web, Appendix 1.

## Academic Vita

### Michelle Smyth

EDUCATION:      The Pennsylvania State University, Schreyer Honors College      University Park, PA  
                         B.A. in International Politics      Concentration-National Security  
                         Minors in Chinese and Middle East Studies      Projected Graduation: May 2010

#### LANGUAGES:

- English- Native
- Spanish-near fluency
- Mandarin Chinese-Proficient-4 years; traditional and simplified writing systems; 5 months study in Beijing
  - Fujian and Cantonese dialect- 3 months working at Chinese restaurant
- Arabic- 2 years of study
- Latin-4 years of high school, highest achievement award in the subject at graduation
- Italian-1 year of study
- Ancient Greek- 1/2 year of study

#### EXPERIENCE:      **Citizens' Campaign for the Environment**

White Plains, NY      06/09-08/09  
Public Educator in New York and Connecticut

- Raise public awareness about American Clean Energy and Security Act and The Clean Air Act, the harmful effects of greenhouse gas emissions, rising rate of asthma for children
- Raised public awareness of improved clean energy resource technologies available to NY
- Motivate the public to write letters to congressmen, senators, and the President about ACES bill
- Petitioned for the U.S. Senate to approve reductions in greenhouse gases
- Research for desalination proposal and water conservation for New York State
  - Researched successful water conservation programs across the U.S. and how NY could incorporate certain aspects in the future
- Conduct briefings to staff about mood management and maintaining a positive attitude

#### **New Bon Chinese Restaurant**

Mahopac, NY      05/09-08/09

- Front End Operations Manager with added responsibilities for translating all aspects of the business
- Ensure the restaurant operates efficiently and effectively within the company's fiscal and operational guidelines
- Monitor front end operations of the restaurant including guest satisfaction, food quality, ambience, and bar and restaurant monetary reconciliation

- Develop and monitor daily sales projections and develop initiatives to build sales, profitability, and guest counts while creating positive guest relations

### **Penn State University Berkey Creamery**

University Park, PA 09/08 to 12/08

- Cashier, stock inventory, sales 01/10 to 05/10

### **Alliance Bernstein- Large Pension Asset Management Company**

White Plains, NY 05/08-08/08

- Filing and organizing the new account folders of 2000 to present
- Independent project- archiving old accounts

### **ACTIVITIES:**

- Penn State Varsity Crew Team (practice 6 days/week; 4:50/5:30 am weekday) 09/06 to present
  - Captain of Varsity Women
- Organizing teammates to run in Philadelphia Marathon Fall 2009  
and canvass for donations of \$1 per mile where all proceeds go to THON-PSU  
IFC/Panhellenic Dance Marathon aimed at raising money for pediatric cancer
- Arabic Tables (Arabic speaking outside of class) 09/07 to 05/10
- Dancing in THON-46 hour no sit, no sleep dance marathon  
For the fight against pediatric cancer February 19-21, 2010

### **ACCOMPLISHMENTS:**

- Penn State's only endorsement for the Rhodes Scholarship 2009  
for 2010-2011 academic year
- Completed Philadelphia Marathon- 4 hrs 14 min 11/22/09
- Completed Half Marathon on The Great Wall of China 5/16/ 09
  - 29<sup>th</sup> overall; 7<sup>th</sup> in 20-29 age bracket
- ACRA Rowing Association 2<sup>nd</sup> All-American Academic Team 2008
- Phi Beta Kappa National Honors Student as a junior 04/09
- Department of Political Science Kim Anderson Memorial Scholarship  
(given to 1-2 students enrolled in one of the Department's majors who  
demonstrated outstanding academic achievement) \$1000 12/09
- 2009 International Thesis Research Grant from Schreyer Honors College \$10,000 1/09
- James and Deborah Newell Scholarship for high academic achievement in  
International Politics \$1000 12/08
- Whole World Scholarship for student travel and research  
to a non-traditional location \$1000 11/08
- Phi Eta Sigma Freshman National Honors Society 01/07