Who Cares about the Weather? Climate Change and U.S. National Security

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Disease, old age, crime and accidents routinely destroy life and property, but not all threats to life and property are threats to 'security.' – *Daniel Deudney*[1]

And I must say I was personally disappointed in the recent Presidential campaign.… there was almost no serious discussion of energy and the environment and in the three debates we had even though there were security, economic and environment issues raised there was only one question asked of the candidates about environmental policy and no specific question about energy policy. Even though the decisions we make or fail to make in this area may have a bigger impact on America and the world than virtually all the things that were debated. – *Bill Clinton, December 2004*[2]

Introduction

Is climate change a valid national security issue for the United States? Questions like this one entered the academic debate and remain a subject of introspection in the policy and advocacy community. Since the late 1980s and 1990s, scholars have sought to embrace a more elastic definition of national security to encompass environmental concerns, health, human rights, and development (Brown 1977; Ullman 1983; Mathews 1989; Myers 1989; Renner and Worldwatch Institute. 1989; Wirth 1989; Gleick 1991; Haftendorn 1991; Rowlands 1991 Winter; Kolodziej 1992; Myers 1993; Soroos 1994; Dabelko and Dabelko 1995; Del Rosso 1995; Lipschutz 1995; Matthew 1995, 3; Rothschild 1995; Krause and Williams 1996). Policy advocates have also framed discussions of climate change in a similar manner. These moves to broaden the agenda have coalesced into the concept of "human security," an expansive term that incorporates the gamut of largely non-military threats to human welfare (United Nations Development Program 1994; Paris 2001; King and Murray 2001/2002; Owen 2004). The motives of scholars and advocates of broadening are similar. National security is regarded as a more potent mechanism to get the attention of others, namely political heavy-weights. This is particularly true after September 11, 2001. For academics, donors and

[1] (Deudney 1990,463).
[2] (Clinton 2004).

journals drive careers. For advocates, "security" commands more respect and resources as an object of serious inquiry by heads of state and other decision-makers.

The attraction of a security frame for environmental problems is somewhat understandable, but a number of scholars have questioned the usefulness of such an unlimited definition, what Sartori called "conceptual stretching" (Sartori 1991). The concept may cease to mean anything if it means everything (Deudney 1990; Levy 1995; Brock 1997; Gleditsch 1998; Homer-Dixon 1999). By using the security frame, the concept potentially may to be tied to militarized solutions that may not be appropriate for resolution of the underlying issues or may divert attention from less nationalistic ways of thinking about the problems (Deudney 1990; Waever 1995; Conca 1998; Payne 1999). Some scholars have furthered muddied the conceptual waters through promotion of the amorphous term "human security" which seems to encompass all sorts of harms to human welfare at the individual and group level and how to avoid them. This term too is subject to similar critiques of being merely polemical rather than a useful analytic construct (Walt 1991; Buzan 2004; Paris 2004).

Some scholars of the link between environment and security have tried to offer a more rigorous definition in keeping with conventional understandings of security as related to military force and violence. A decade of scholarship, notably the papers from the Toronto group project led by Thomas Homer-Dixon, Oslo's International Peace Research Institute led by Peter Gleditsch, and the Woodrow Wilson's Environmental Change and Security Project now led by Geoff Dabelko, have tried to respond to these definitional attacks by narrowing their focus to the relationship between environmental scarcity and violent conflict in developing countries (Homer-Dixon 1991; Homer-Dixon 1994; Dabelko and Dabelko 1995; Homer-Dixon and Levy 1995; Gleditsch 1997; Ronnfeldt 1997; Gleditsch 1998; Homer-Dixon 1999). These studies have thus hewn far more closely to traditional definitions of security to be of relevance to that intellectual tradition. This line of research has elucidated the indirect but important role environmental degradation may play in

worsening socio-economic conditions and thereby give rise to internecine conflicts. However, in abandoning the normative and political justification that inspired early advocates of the term "environmental security," the substantive agenda of the environment as a core foreign policy concern was also largely left by the wayside.

While a return to the definitional disputes of the 1990s of just what is "environmental security" would be a cul-de-sac, the study of environmentally-inspired violent conflict is not the only direction for scholars interested in environment, national security, and grand strategy. Indeed, even taking a narrow definition of what constitutes national security—threats to core values of a state for which it would be willing to go to war or use force, one can identify a rich research agenda that relies upon robust empirics and, from the perspective of the great powers, more politically relevant substantive topics such as energy security (**Part II**); nuclear proliferation (**Part III**); disasters, complex emergencies, and humanitarian intervention (**Part IV**); and, finally, reputational concerns and soft power (**Part V**).

This article seeks to link the issue of climate change to those four topics and thereby demonstrate that climate change has connections to high politics, that the solutions pro-offered by the environmental community to climate change have consequences for national security and grand strategic concerns of great powers. Furthermore, while the physical effects are unlikely to pose an existential threat to the United States in the short to medium term, I make the claim that the problem of global climate change substantively already poses challenges for the U.S. in terms of its effects on U.S. interests outside its borders, both physical and symbolic (Homer-Dixon and Levy 1995; Homer-Dixon 1999). The main objective of this paper is to open up a line of new climate change political science research that speaks to the ambitions of the original proponents of "environmental security" but that is also sufficiently recognizable to conventional security types to be of interest to them.

Before substantiating these claims in parts 2-5, I explore in **Part I** the definitional terrain of "environmental security" by offering an account of "national security" and "grand strategy" that accords with traditional conceptions of the terms. In Parts 2-5, I outline a research agenda for four different kinds of climate-security related issues. In **Part II** on energy security, I take climate change as the dependent variable and claim that different outcomes (terrorism and climate change) both have antecedents in a common cause (energy dependence). In **Part III,** I make the case that a potential remedy for climate change—nuclear power—may create negative security externalities of its own in terms of nuclear proliferation. In **Part IV**, I take climate change as the independent variable and show how certain outcomes related to natural disasters have security implications for humanitarian intervention. Finally, in **Part V**, I take action on climate change as potentially having positive security externalities for U.S. soft power and reputation. For each of these sections, I sketch out the argument and causal chain before turning to specifying the research agenda for the future.

Part I: Firearms, Fear, and Fuel – Core Pieces of National Security and Grand Strategy

With the end of the Cold War, there was a short-lived moment in which increasing numbers of advocates and scholars thought that inter-state war and even sub-national conflicts might be on their way out or significantly reduced (Mueller 1989). A revived concern for the environment, development, and other issues suggested that a peace dividend could allow the international community to move on to new problems not involving the use of force. Some even thought the separate domain of "security studies" might no longer be relevant. Even the Gulf War seemed to augur a "new world order" of collective security as the United Nations and the United States rallied a broad coalition to eject Saddam Hussein from Iraq. After the election of Bill Clinton, globalization became the main watchword for the heady economic times of the 1990s, elevating international political economy concerns to prominence in the academy and in policy. These developments motivated calls for "redefining security" to encompass a broader set of concerns—pollution, disease,

poverty, human rights. Proposals to incorporate the environment and security led to a research agenda of "environmental security" that soon became encompassed by the still more expansive concept of "human security."

As scholars, advocates, and policymakers dabbled in promoting a wider security horizon, burbling from below were sad reminders of the capacity for human violence with internal state breakdown and ethnic conflict in the Balkans and Rwanda the most tragic evidence of this. Nonetheless, these grim tidings were the occasion for optimistic institution-building with the war crimes tribunals for both countries inspiring the creation of the International Criminal Court, a meta-court to deter and punish future crimes against humanity. Even as ethnic conflict revived fears of violence, the aspirations of the security re-definition tribe were also betrayed by scholars who objected to the securitization of the environment and human security. Some saw these concepts as mere propaganda slogans while others worried that successful linkage might connect goals like environmental protection to unsavory purposes and means such as nationalism and military instruments unsuited for the problems at hand (Deudney 1990; Conca 1998; Gleditsch 1998).

The terrorist acts of September 11th in a sense put to bed the naïve hope that the history (of violent conflict) had receded, but the defenders of human security have made in-roads in legitimating their concerns as part of the panoply of security issues. Indeed, September 11th constituted a different sort of security threat, subtly reinforcing the view that the concept of "national security" needed an update. This section reviews those academic debates and makes the claim that the concept of "national security" can be linked to climate change without ultimately embracing a radical redefinition of "security" to encompass everything.

In her 1991 piece, Haftendorn asks whether the ambiguous term "security" refers to a goal, an issue-area, a concept, a research program, or a discipline (Haftendorn 1991,3). It probably encompasses all of those things. However, the idea of national security as a concept/normative goal

is intimately tied to the survival of the nation-state. As Del Rosso argued, for most of the past four hundred years, "security has meant protection from organized violence caused by armed foreigners." Thus, the general idea is context-specific, arising with the idea of state sovereignty itself. That said, the term “national security” has more contemporary origins in the United States as it sought to defend itself against the Soviet threat in the 1950s, the term purportedly coined in the 1940s by James Forrestal, FDR’s Secretary of the Navy and later Truman’s Secretary of Defense. National security in this era was invoked in the creation of the interstate highways system as well as efforts to support the aeronautics industry (Del Rosso 1995,183). While security the concept refers to protecting the territorial integrity of the state, it has also had a broader meaning than mere survival of the country or protection from armed attack (Art 2003,3). Great powers like the United States have interests beyond their own borders for which they may be willing to fight. These “vital interests” may be tied to the country’s “way of life” and be considered so important that a threat to them could be considered a challenge to “national security.” The concept becomes more “ambiguous,” in Wolfers’ felicitous phrase, because security has both an objective dimension (freedom from threat) and a subjective dimension (freedom from fear) (Wolfers 1952,485).[3]

Like the concept of “national security,” the field of security studies was born in the shadow of the Cold War. Despite antecedents in the pre-World War II era, the discipline of security studies really blossomed and became self-conscious in the Cold War as American strategists sought to understand how to best protect the country from nuclear annihilation (Wolfers 1952; Baldwin 1995). While often intimately tied to policy, namely American foreign policy, this sub-field of international relations steadily has taken a more theoretical turn as the discipline of international relations matured (Walt 1991; Miller 2001b). Steve Walt, drawing mostly upon the American experience, suggested that security studies has a very precise meaning, narrowly defined as the "study of the threat, use, and

[3] Walt’s balance of threat theory where state intentions matter in threat perception incorporates a similar view.

control of military force." In his view, efforts to broaden the agenda would “destroy” the “intellectual coherence” of the field (Walt 1991,21).

While plausible given the preoccupation of the field with war, there are problems in this account. As David Baldwin reminds us, this definition focuses on the means of obtaining security rather than the ends.

> Security studies has traditionally devoted less attention to the goal of security than to the means by which it is pursued. More accurately, one should say that the field has tended to focus on one set of means by which security may be pursued, that is, military statecraft (Baldwin 1995,129).

Indeed, policy tools other than the use of force could potentially be better to pursue security goals. For example, as Kolodziej notes, George Kennan's containment strategy of the Soviet Union was built on more than force, but also "free governments and markets." In the view of the architects of U.S. post-Cold War strategy like Georges Kennan and Marshall, the example of the West “growing stronger and more prosperous-and freer-would undermine and delegitimate the Kremlin's self-serving security policies and power structures" (Kolodziej 1992,428; Waever 1995). Thus, a definition of security studies that focused on one set of means may not be the most appropriate. As Wolfers argued, different countries and different individuals may draw different conclusions about what means and strategies (institutions, coercive power, disarmament, neutrality, isolationism) are the most appropriate ways to guarantee their own nation’s security (Wolfers 1952,491).

Similar problems beset accounts of grand strategy like Robert Art’s otherwise exemplary book. Art argues that while foreign policy relates to a country’s entire panoply of policy goals and how the full range of policy instruments at its disposal should be marshaled to achieve them, grand strategy, he concludes, focuses "primarily on how the military instrument should be employed to achieve them. It prescribes how a nation should wield its military instrument to realize its foreign policy goals" (Art 2003,2). Somehow, this definition of grand strategy does not seem very “grand” if it deliberately excludes a set of means that may be better to achieve overarching goals. If grand

strategy is not solely about military instruments then what does it refer to? Walt cites Barry Posen's work and suggests that "Grand strategy is a state's 'theory' for creating security through military and diplomatic means" (Walt 1991,13). This more encompassing definition thus makes intelligible past behavior by the United States and the labels Art employs to describe different kinds of grand strategies: dominion, global collective security, regional collective security, containment, selective engagement, isolationism, and offshore balancing. The theory or grand strategy employed by American foreign policy-makers after World War II, what Ikenberry called a strategy of constitutional order, relied on institutions as much as it relied on force.[4] One can see clearly the limits of thinking about strategy in strictly military terms by looking at the U.S. occupation of Iraq. The failure to adequately incorporate other elements beyond military instruments has ultimately made that intervention more expensive in blood and treasure. Had the non-military instruments been more systemically included in the overall strategy (public diplomacy, economic assistance, post-war reconstruction, etc.), the difficulties the U.S. encountered might have been mitigated (even if the conditions for successful occupation were not too promising).

What then are the appropriate fields of inquiry for security studies and grand strategy? Security studies commonly refers to war and violence and the martial instruments that are employed therein. As discussed above, the field traditionally dealt with external threats of armed attack against a sovereign's territorial integrity and survival. However, with interstate war less of a commonality and internal violent challenges on the rise as threats to state integrity, it makes less sense to confine the discussion to external challenges. Transnational terrorist acts also suggest that a focus purely on inter-state violence is no longer apt. Moreover, while armed aggression is most closely associated with security threats, we need look only to the first Gulf War to realize that a state may perceive a security threat that is not an existential one for the nation but, rather, a threat to its "way of life" for

[4] (Ikenberry 2001). For a critique of Ikenberry's thesis, see Schweller's review essay which claims the U.S. was less the benefactor of a constitutional order than Ikenberry portrays (Schweller 2001).

which it is prepared to go to war. Protecting the nation's vital access to oil resources is an important national objective for which the United States (and countries like Japan) have historically been prepared to wage war.[5]

Thus, a security threat should be understood as involving vital national issues for which a country is prepared to go to war, even if other remedies may be on offer or better protect its core interests.[6] We can also distinguish a security threat from a more generalized, lower level security *challenge*. Security challenges are issues for which a state may be willing to use force, if not wage war. The decision by the U.S. to send troops to Somalia and the Balkans for peace-keeping operations are security issues of this order, not existential threats to the country but ones of sufficient importance that the country was willing to send its sons and daughters into harm's way.

With this extended discussion on security and security studies, it still begs the question of why link climate change and security policy? Deudney and others have cautioned against the linkage:

> And when an earthquake or hurricane strikes with great force, we speak about 'natural disasters' or designate 'national disaster areas,' but we do not speak about such events threatening 'national security.' If everything that causes a decline in human well-being is labeled a 'security' threat, the term loses any analytical usefulness and become a loose synonym of 'bad' (Deudney 1990,463-464).

He went further to argue that security problems imply specific institutional responses and ways of thinking that may be antithetical to environmental problem-solving. By tying the issue to security concerns, advocates may generate a sense of urgency but such "crash programs" are often more expensive, less well-designed, and more repressive than policies developed in less haste.

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[5] Art lists protecting the U.S. access to "reasonably price" oil as one of its three most important objectives, preceded only by (1) prevent an attack on the homeland and (2) prevent a great power war in Eurasia and if possible the security competition that would make such a war more likely. Mitigating climate change is the sixth of the six important foreign policy objectives for the United States (Art 2003).

[6] This definition accords with the views of (Levy 1995,43; Mathew 1997). It also fits a definition of human security posed by King and Murray, though they go on to define human security in a way that appears to deliberately leave out physical threats to a state or individual bodily person. King and Murray define a human security threat as "important enough for human beings to fight over or to put their lives or property at great risk." See (King and Murray 2001/2002,594). For a critique, see (Paris 2001).

Writing in 1990, he suggested that a different set of arguments could be marshaled to win the political day:

> Environmental awareness need not depend upon co-opted national security thinking. Integrally woven into ecological awareness are a powerful set of values and symbols-ranging from human health and property values to beauty and concern for future generations... Far from needing to be bolstered by national security mindsets...this 'green' sensibility can make strong claim to being the master metaphor for an emerging post-industrial revolution (Deudney 1990,469).

Fifteen years later, this prediction sounds quaint, as if the nascent environmental movement of the late 1980s coalesced into a more influential political player and contributed to the greening of American energy policy. That did not happen, and it is an open question whether it will in the absence of sustained attention at the highest levels. While security language may invoke militarized, nationalist responses, they may also be means by which to catalyze other kinds of institutional responses. Like the GATT, the Marshall Plan, the interstate highway system, and the space program, any number of initiatives may be bundled under the security umbrella, some with more convincing relevance than others. For each, the case has to be made sufficiently well enough to influential players that they regard it inside the box of valid security concerns. An elastic definition of security may in time capture more support for an alternative metric, but foreign policymakers who live in this realm on a daily basis understand security as it relates to the potential for violence. As a result, any issue that claims to speak to this area needs to make the argument on terms that a committed conventional security type can find intelligible.

While the studies of the Toronto and Oslo groups are inherently interesting to scholars of comparative politics and those interested in violent conflict in developing countries, the conflicts these works study such as the one between the white Moors and the black Africans at the mouth of the Senegal River may be less compelling to foreign policy practitioners or scholars who study the behavior of great powers. Scholars interested in this class of cases or in these particular instances will be untroubled by this observation. This is not to meant to be a gratuitous dig at the environmental

conflict scholarship nor deny that these cases may have some relevance for U.S. foreign policy (such as conflict and cooperation over water rights in the Middle East). However, the price of a more analytically rigorous definition of environmental security may be a substantive agenda that looks rather less ambitious fifteen years on.

Why then the focus on U.S. foreign policy? Thomas Homer-Dixon in an exchange with his critic Marc Levy argued that it is "parochial" to only look at U.S. security threats (Homer-Dixon and Levy 1995). Indeed, the problems Homer-Dixon identifies in developing countries are important ones – for them. However, as Levy argued, much of the environment and security literature ultimately asks for a "re-orientation" in U.S. policy to take these concerns seriously. If U.S. policy is supposed to embrace these concerns, Levy argues that U.S. policymakers would surely want to know why it is in their interest to do so. Levy thought that the potential for a foreign aid bill to reduce violence in developing countries would not on its own be enough to convince members of Congress (Homer-Dixon and Levy 1995,195).

Levy goes a step further and, citing evidence from the success of the ozone negotiations, suggests de-linking the environment from high politics (and implicitly, security concerns). In his view, the Montreal Protocol succeeded precisely because it was a low-level concern taken up by technocrats away from the gaze of intense political scrutiny that otherwise threatened to de-rail the agreement. Climate change, in his view, could benefit from less high-level exposure rather than more since more attention offered more heat than light (Levy 1995,50).[7]

However, ozone and climate change are very different problems which Levy seems to recognize. Whereas the former was an acute problem for which there were a few main producers, a

[7] This view is supported by Gregg Easterbrook who argues that the Bush Administration developed an ambitious under-the-radar methane reduction initiative called Methane to Markets (Easterbrook 2005). This effort had the potential to reduce methane emissions of the U.S., UK, India, Ukraine, Mexico, Italy, and a number of other countries that have now joined the partnership by 50 million metric tons of "carbon equivalent" by 2015. This is equivalent to about a 1% reduction in total greenhouse gas emissions, about as much as the Kyoto Protocol would provide if implemented (USEPA 2004).

relatively small number of major users, and an emerging set of technological substitutes, climate change is a longer-term risk and the sources of greenhouse gases are more numerous, more central to the economy, and come from technologies for which there are no easy substitutes. Because the stakes for the potential losers are so high and the changes demanded so extensive, it is difficult to argue that climate change could have had a technocratic trajectory along the lines Levy specified. For certain policies, like capturing methane from landfills, reducing the use of adipic acid in nylon production, and energy efficiency, the apolitical bureaucratic functionaries exchanging information and designing collective programs may be apt. Indeed, much progress in Europe stems precisely from those kinds of programs. However, these kinds of initiatives are limited without more fundamental changes. In any case, global warming already is an issue of high politics so it may be difficult to walk back down that road entirely. As Levy noted, climate change is more like defense policy than an environmental problem. Where the ozone hole was akin to Iraq's invasion of Kuwait that needed to be immediately rolled back, climate change is more like the Soviet Union which could be contained: "It requires a grand strategy to guide actions in the face of distant, uncertain threats, and an overarching commitment from high levels of leadership to stay the course through the ebbs and flows of popular sentiment" (Levy 1995,54).

If an issue qualifies as a security threat when states are prepared to go to war to defend them, would the U.S. go to war to protect the climate? This sounds nonsensical given that military means are not particularly useful for this purpose. Having said that, some analysts have raised the specter of a militarized response to climate change if the U.S. faced clearer evidence of intolerable harm from climate risk (i.e. Miami under water, outbreaks of malaria, etc.) and were to identify the source of the threat beyond its borders (i.e. China, India) (Conca 1998). As Levy notes, the anticipated physical effects on the United States may in time come to threaten core values (inundated coastlines, large-scale incidence of hurricanes, more extreme weather events resulting in large-scale loss of life), but

as yet, despite fairly severe negative effects, most analysts do not suggest the U.S. will be as threatened in the near term (Homer-Dixon and Levy 1995; Levy 1995). In making this caveat as a point of departure, my case becomes more difficult to make, but I evade the problem of predicting omens, portents in the future that are known unknowns. As Gleditsch wrote:

> Environmental organizations and other advocacy movements are prone to argue that we are now at a turning point in human history...In saying this, one may easily slip into prophesy. 'There will be water wars in the future' is no more a testable statement that than the proverbial 'The End of the World is at Hand,' unless terms such as 'the future' and 'at hand' are clearly specified (Gleditsch 1998,394).[8]

What follows is an effort to identify how climate change has implications for American national security, even if it is not, on its own, a direct existential threat to the United States. Climate change can be linked to security threats and challenges as I defined them based more on what we have already observed, even as the longer-term developments are as yet unfolding before our eyes.

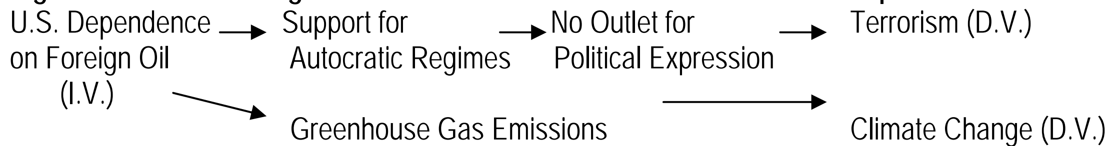
Part II: War for Oil – Petroleum Dependence, Climate Change, and Terrorism

While it may beggar belief to imagine climate wars, the U.S. has in the past fifteen years gone to war twice for reasons having very considerable relation to its dependence upon petroleum. This has created an untenable situation in which the United States has become the main patron of regimes—namely Saudi Arabia--that uses the proceeds of its oil sales to pay off domestic discontent in its religious base. That religious base, in turn, exports a virulent brand of Wahhabi Islam around the world through religious schools or *madrassas*. Because those countries do not allow democratic expression, the only outlet for the populace is through the sanctioned religious sphere which is deeply anti-American because the United States is seen as the guardian of the corrupt, sclerotic regimes upon which it depends for sources of oil.[9] This animosity has given rise to international

[8] For works of this kind, see (Myers 1993; Klare 2001b; Roberts 2004).
[9] For a similar argument, see (Zakaria 2003,155). Zakaria writes: "The frustrations of ordinary Arabs are not about the clash of civilizations or the rise of McDonald's or the imperial foreign policy of the United States. They are a response to living under wretched, repressive regimes with no political voice. And they blame America for supporting these regimes."

terrorism as the Al-Qaeda network seized upon these resentments to mobilize the disenchanted (Johnson 2000; Anonymous 2004). Not only is oil dependence a cause of terrorism, but it also is a major contributor to greenhouse gas emissions. As diagrammed in *Figure 1*, oil dependence is therefore the cause of two social bads, terrorism and climate change.

Figure 1: Climate Change and Terrorism as Common Outcome of Oil Dependence



Both neo-conservatives like former CIA Director Jim Woolsey and left-wing Democrats like Arianna Huffington have reached this conclusion.[10] Even if the link between oil dependence and terrorism is not proven, this supposed causal chain is enough to create the conditions for common cause, a coalition of what Kaufmann and Pape called the "saintly logroll" of morally-motivated advocates (in this case, environmentalists) and those worried about more direct utilitarian concerns (here, terrorism) (Kaufmann and Pape 1999).[11] National security enables the green community to hitch their ride (their set of solutions) to a problem that commands more attention of decision-makers than either one on their own could achieve (Kingdon 1995). While policy change has not yet occurred, the alliance is being forged (Bryce 2005).

What research questions emerge from this asserted causal chain? First, one would have to show that there is indeed a situation of oil dependence and then demonstrate that both terrorism

[10] See Woolsey's comments at two Brookings Institution events in 2004 (The Brookings Institution 2004c; The Brookings Institution 2004b). The following excerpt is typical: "I think it's important for us to realize that it's not just that 15 of those 19 hijackers were from Saudi Arabia. It's that what underpins much of the, I'll call it, malevolent--as distinct from malignant--the malevolent interference that has occurred and will come again and again with our networks is fueled heavily by our dependence on the Middle East." Huffington sponsored the Detroit Project and its trenchant internet ads that linked SUV's and terrorism with the following text: "This is George. This is the gas that George bought for his SUV. This is the oil company executive that sold the gas that George bought for his SUV. These are the countries where the executive bought the oil, that made the gas that George bought for his SUV. And these are the terrorists who get money from those countries every time George fills up his SUV. (The Detroit Project Undated).

[11] For a similar formulation, see Yandle's argument on "Baptists and bootleggers" (Yandle 1983; Yandle 1999).

and climate change were consequences of the same phenomenon. Second, it is unclear whether or not a set of solutions exists that would do anything to mitigate either problem.

In terms of dependence and the links to terrorism and climate change, we can make some tentative steps here. U.S. oil consumption is rising and domestic production is falling.[12] Despite diversification of production in Russia, Central Asia, Africa and South America, the majority of known oil reserves are in the Middle East, much of it in Saudi Arabia. Thus, the U.S., for as long as it is dependent on oil, will be intimately linked to the Middle East.[13] Diversifying to other suppliers is not an option that reduces U.S. vulnerability entirely since oil is a global market. Shocks in one geographic area affect the global price of oil. Thus, the goal of independence is a chimera, though reduced vulnerability may indeed be possible

Another way to get at dependence is to discuss the economic impact. Petroleum is vital to the functioning of the modern economy. Without adequate and affordable supplies of oil, it is not an understatement to suggest this would have devastating effects on the U.S. economy.[14] A primary objective of U.S. grand strategy has and remains preventing a single or few suppliers from holding the U.S. hostage by singly controlling most of the resources or collectively functioning as a collusive cartel. This was thus the reason for repelling Iraq from Kuwait in the first Gulf War and is part of the reason why the U.S. intervened in the second (Art 2003,58-64). Trying to undermine OPEC efforts to increase prices beyond reasonable bounds has been a core part of American strategy,

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[12] The U.S. is the largest consumer of petroleum, accounting for more than a fourth of world demand. As Guy Caruso, head of the DOE's Energy Information Agency, noted in a 2004 Brookings Institution event: "Net import [of petroleum] is 54 percent last year growing to 70 percent, under these assumptions, the already peaked and declining U.S. domestic oil and the growing demand in the transportation sector for oil. These lead to an outlook where we are consuming 29 million barrels a day and only producing about 11
of all forms of liquids by 2025. So we have imports going from 11 million barrels a day to 20 million barrels a day." (The Brookings Institution 2004a).

[13] As Telhami noted: "More than 60 percent of world oil deposits are clustered in and around the Persian Gulf. Saudi Arabia alone sits on fully 25 percent of global reserves, with Iraq following at 11 percent, and Kuwait, the United Arab Emirates, and Iran at 9 percent each" (Telhami and Fiona Hill 2002).

[14] As Stephen Brown and his colleagues at the Federal Reserve Bank of Dallas found, nine of ten U.S. recessions between WWII and 2002 followed oil shocks (Brown 2004; Brown, Yücel et al. 2004). Having said that, because developed economies use half as much oil as a share of real GDP as they did in the 1970s, the economic effects of temporary surges in prices are not as acute (The Economist 2004).

though this has been circumscribed by the need to prevent prices from falling precipitously low which would drive domestic producers out of the market.[15] America is not alone in being vulnerable because of its oil dependency. Indeed, other countries may be more vulnerable since the U.S. is also an oil producer and buys from other sources.[16] While vulnerability may be shared, responses may be individualized as countries seek to shore up new sources of petroleum in a scramble to get new supply – in Central Asia, Russia, Africa, etc. It is this pursuit of new supply and competition over pipelines that has conjured images of resources wars among the more histrionic (Klare 2001a; Roberts 2004).

While the effects of such competition are more speculative in nature, we can say that there are negative security externalities of oil dependence not captured fully by market prices of oil. These include, if we believe that oil is any part of the first and second Gulf Wars, the costs of intervention, the maintenance of bases in the region, the reconstruction costs in Iraq, and the costs of occupation. Many of the expenses of the first Gulf War were defrayed by America's allies. America did pay a number of costs in the interim decade plus to maintain its presence in Saudi Arabia. In the second Gulf War, unlike the first, the U.S. both fought and largely paid for the effort. Efforts to calculate these costs would be helpful to provide some estimates of the size of those externalities. Chalmers Johnson estimated that it cost the U.S. defense budget $50 billion per year to maintain access to the oil in the Persian Gulf, including aircraft carriers, protecting sea lanes, and maintaining air forces in readiness in the region. He compared this with the cost of importing oil from the region at $11bn (Johnson 2000,87).[17] The Iraq war, while not exclusively about access to oil, has something to do with oil as an Iraq with WMD could have threatened its neighbors and forced them into collusive oil

[15] These dynamics are documented in

[16] Johnson estimated that Middle Eastern oil accounts for 10% of U.S. consumption, 25% of Europe's and about half of Japan's (Johnson 2000,87).

[17] Yetiv reported a DOE-contracted study that estimated these costs in 1996 to be $32 billion per year (Yetiv 2004,226).

policies detrimental to the United States. What are the costs of the war in Iraq? Charles Pena of the Cato Institute estimates them as follows:

> The White House will ask Congress for an $80 billion supplemental to fund military operations in Iraq and Afghanistan this year. That's on top of the $25 billion for Iraq and Afghanistan that was part of the Pentagon's fiscal year 2005 budget signed by the president last August. Added to previous supplemental requests - $75 billion in 2003 and $88 billion in 2004- the cost of the Iraq war now exceeds [former White House economic advisor Lawrence] Lindsey's prediction of $200 billion (Pena 2005).

If the above was only a preliminary sketch of U.S. oil dependency, what about the relationship between petroleum and climate change? Oil accounted for 42% of global carbon dioxide emissions in 2001 (EIA 2004). Carbon dioxide emissions were responsible for about 71% of greenhouse gas emissions in 2000 (WRI 2004). Thus, we can say with pretty high certainty that if one believes the scientific evidence about climate change, oil is a pretty big part of the problem.

What about the relationship between oil dependency and terrorism? Post 9/11, there is increasing concern that the rents that have accrued to the oil-rich countries have been a mixed blessing at best, a curse at worst. Countries dependent upon natural resources often find themselves sitting on a cash cow that proves attractive to rent-seekers who capture the state for their own enrichment and opulent lifestyles, leading to inadequate investment in human development, entrepreneurial activity, and technological innovation. Scholars point to Japan and Singapore as examples of countries not burdened by the oil curse that have developed more diversified, rich economies (Zakaria 2003; Birdsall and Subramanian 2004). Like the famed Dutch disease, oil in the Middle East has protected the regimes from modernizing, from dealing with problems by innovation. Instead, Middle Eastern countries sought to buy off dissent through transfers from the central government, including pay-offs to religious charities that ended up indoctrinating Muslims around the world to embrace a particularly anti-Western vision. As the rents from oil became harder to sustain, failure to modernize and liberalize their economies manifested itself in political violence

at home and terrorism against their government's patrons both at home and abroad.[18] As the 9/11 Commission Report concluded:

> At the level of high policy, Saudi Arabia's leaders cooperated with American diplomatic initiatives aimed at the Taliban or Pakistan before 9/11. At the same time, Saudi Arabia's society was a place where al Qaeda raised money directly from individuals and through charities…. Funding charitable works is an integral function of the governments in the Islamic world…. This ministry uses zakat and government funds to spread Wahhabi beliefs throughout the world, including in mosques and schools.... Saudi Arabia is a troubled country. Although regarded as very wealthy, in fact per capita income has dropped from $28,000 at its height to the present level of about $8,000….The problems in the U.S.-Saudi relationship must be confronted, openly. The United States and Saudi Arabia must determine if they can build a relationship that political leaders on both sides are prepared to publicly defend-a relationship about more than oil (9-11 Commission 2004,374).

While not conclusive by any means, this preliminary evidence demonstrates pretty close links between oil, the Saudi government, and export of Wahhabi Islam overseas. Having said that, would less U.S. energy dependence have any impact on terrorism? Policies might reduce U.S. vulnerability to oil price shocks (such as expanding the strategic reserve and diversifying sources of oil) but fail to stem the tide of terrorism nor contribute to climate mitigation efforts. Some policies might reduce U.S. dependence on foreign oil and contribute to climate mitigation efforts but indirectly contribute to failed states in the Middle East. Thus, the research agenda that would follow would seek to flesh out the consequences of efforts to make the U.S. less dependent upon oil and thereby simultaneously satisfy both communities of interest.

With the war in Iraq, political instability in Saudi Arabia, Venezuela, and Nigeria, and soaring demand, particularly in China, oil prices have been quite high over the last years, remaining at more than $40 a barrel.[19] The old system that bounded prices from dipping too low or rising too high

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[18] This is largely the conclusion of the 9/11 Commission. (9-11 Commission 2004). For a nuanced portrait of internal dynamics in Saudi Arabia, see (Doran 2004).

[19] Demand in 2004 soared to 82.5 million barrels of oil per day (MBD), 3.4% above the previous year of 79.8 MBD. North American demand increased by 2.4% in 2004. On a large base, this was an increase in demand of .60 MBD for the year. Chinese demand increased by 15.6% in 2004, after having increased by 11% the year before. On a smaller base, this huge spike thus amounted to an increase of .86 MBD (IEA 2005).

seems to have broken down, with OPEC producers now angling for a price of $35 per barrel rather than settling for the old price band of $22-28 per barrel.[20] One potentially attractive option is to try to fix the system and restore price stability among several regional providers in the Middle East (Iraq has thus far been a disappointment on that score) but also through diversification with the development of new sources. The Saudis with their so-called excess swing capacity should be able and willing to increase their production allow prices to return to lower levels, though instability in the Kingdom (and difficulties in tapping those resources), coupled with exceedingly strong demand from China, make this more difficult.[21]

However, given that even moderately high prices levels insulate the Saudi and other oil dependent regimes from reform, there may be incentives to move in a different direction to try to push the price of oil down further, or at least, insulate the U.S. economy more fully from oil shocks through strategic accumulation of reserves. Fred Bergsten of the International Institute for Economics contends that petroleum prices have been kept artificially high with a negative impact on the global and hence American economy. He called for tough action to induce the Saudis and others to lower their prices through a collective effort by consuming nations to purchase additional reserves and work together to prevent price gouging by oil exporters.[22] This call for pressure on oil producers to lower their prices also fits with the neoconservative anger at the Saudis for their culpability for 9-11. A solution that brought down oil prices would encourage additional consumption, unless accompanied by an effort to capture some of the consumer surplus for public

[20] For a more optimistic view of the various factors that support more oil price stability, see (Yetiv 2004).
[21] The National Commission on Energy Policy noted that Saudi Arabia controls 90% of the world's spare capacity in 2004 which was only 2% of world demand, compared to 8% spare capacity in 1990 (National Commission on Energy Policy 2004).
[22] In a Brookings forum, Bergsten argued that: "Every $1 increase per barrel in the world oil price leads to a reduction of something like $25-30 billion in global economic output, of which about $8-10 billion per year occurs in the United States, about one-third of that total." He suggested that a $20 per barrel excess in the price of oil in mid-2004 took $500 billion of the world economy (The Brookings Institution 2004c). See also (Bergsten 2004).

purposes (such as recovery of security externalities, tax incentives for energy efficiency and hybrid autos, support for bio-fuels, development of carbon sequestration and hydrogen fuel cell technology, or items un-related to oil consumption like deficit reduction and Social Security reform). More detailed proposals that linked security concerns and environmental protection could provide the robust analytical support for policy change (Lugar and Woolsey 1999; Wirth, Gray et al. 2003; National Commission on Energy Policy 2004).

Having said that, analysts proposing these kinds of policy solutions would also have to take into account what impact this might have on regime stability in the Middle East. Would state failure in Saudi Arabia or the rise of a more radical Islamist government be in the interests of the United States? How likely would this be? The Bush Administration has seemed, in its Broader Middle East and North Africa Initiative and through early speeches of the second term, to believe the premise that tyranny causes terrorism and that it is possible for the United States to lean on these regimes to modernize and liberalize in the absence of changes in its own energy consumption. Much of the analysis of the political impact of such policies is speculative, but one could examine the historical effects of declining natural resource revenues on innovation. For many developing countries, one is likely to find mixed evidence, of states failing to respond to crisis by drifting into further stagnation. If the West cares at all about the fortunes and aspirations of the Saudi people and others from oil-rich regimes, they should think more carefully about how to nurture autochthonous democratic development and liberalization in those societies. One suggestion is to develop trust funds by which oil-rich regimes distributed oil revenues directly to their people (with some oversight from the international community). This would be more like the way Alaska (and now Chad) distribute oil revenue to spread the gains more widely (Birdsall and Subramanian 2004). Pressure on oil producers from the West to distribute the revenues more widely or invest in education might be ideas that gain traction, though one would be wise to find local champions for those proposals like those who

wrote the Arab Human Development Report of 2003 (United Nations Development Programme 2003).

In any event, this section has provided preliminary evidence to support the view that both terrorism and climate change stem from a common antecedent and noted that interesting policy proposals that seek to address those twin problems merit further investigation.

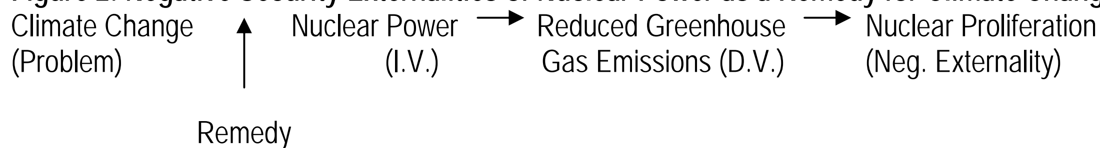
<u>Part III</u>: Towards Carbon-Free Technology -- Nuclear Power and Nuclear Proliferation[23]

In addition to energy security concerns related to oil dependence, a second security issue stems from a potential solution that might be applied to address climate change – nuclear power. After years of stagnation in the industry in which no nuclear plants have been ordered in the U.S. since the late 1970s, nuclear power is on the table again, driven in part by climate concerns and worries about soaring energy demand.[24] Civilian nuclear power is being re-considered again by some even in the environmental community as a possible option to combat global warming. As engineers and analysts have projected the potential contribution of nuclear power to limiting global greenhouse gas emissions, they have been confronted by the limits of what energy efficiency and wind, water, and solar can provide to prevent greenhouse gas emissions from rising above twice pre-industrial levels.[25] What once was unthinkable—nuclear power—is again being given a closer look because it is, in fact, one of the few carbon-free sources of electricity.[26] Thus, climate change as a

[23] I thank colleagues at the Belfer Center and from the Managing the Atom Project for their suggestions on readings and the general subject matter. Thanks go to Jim Walsh, Matthew Bunn, and John Holdren especially.
[24] Looking at electricity demand alone, the prospects are frightening. Between the developed and developing world, electricity consumption is set to rise from, 12,435 kilowatt hours (kwh) in 2000 to 37,125 kwh in 2050, an increase of nearly 300%. In developed countries, consumption is estimated to rise from 8,211 kwh in 2000 to 15,810 in 2050 and in developing countries from 4,224 kwh to 21,315 kwh in 2050 (MIT 2003,112-114).
[25] Fetter and Gulden estimate that to stabilize greenhouse gas concentrations at twice pre-industrial levels, fossil fuel carbon emissions would have to be limited to about 5± 2 PgC/y (petagrams of carbon per year), equivalent to an energy consumption of about 300± 120 EJ/year (exajoules per year). In 2000, emissions and consumptions were 6.6PgC/y and 360 EJ/y respectively. With energy demand projected to increase to about 800-1200 EJ/y in 2050, carbon-free energy resources would have to supply between 500-900EJ/y. In 2000, carbon free energy sources supplied only about 60 EJ/y, most of it nuclear. This led the authors to conclude that nuclear power might have to increase eight-fold (Fetter and Gulden 2005,6, 14).See also (MIT 2003; Stokes Forthcoming 2005).
[26] (Barringer 2005). In 2003, nuclear power provided about 70% of the nation's non-carbon electricity generation and about 50% of the world's carbon free energy. (National Commission on Energy Policy 2004,57).

problem is now being identified with a potential remedy—nuclear power--which might contribute to significant avoided emissions of greenhouse gases. However, as diagrammed in *Figure 2*, there may be serious negative security externalities that arise if nuclear power becomes a policy option again, stemming from the potential for civilian nuclear power to contribute to nuclear proliferation both by states and non-state actors. In addition, nuclear power plants (and pools of spent fuel in particular) themselves may become targets for international terrorism, creating both localized and diffuse security risks for surrounding populations.[27]

Figure 2: Negative Security Externalities of Nuclear Power as a Remedy for Climate Change



Two questions emerge from this renewed interest in nuclear power. First, how serious and likely are these proposals to move forward? Second, if the proposals are likely to get traction, could the proliferation problems associated with civilian nuclear power be overcome?

Aside from the general unwillingness of the public to countenance nuclear power in light of the very real disposal and safety issues,[28] any climate change research that seeks to consider the revival of nuclear power must discuss the proliferation challenge and whether or not it can be avoided. This section provides a preliminary sketch of those arguments for a more detailed research agenda to take up in more detail.

A 2003 MIT study considered *The Future of Nuclear Power* and identified four main problems if nuclear power is going to have any future: 1) costs 2) safety (both in terms of accidents and acts of terrorism) 3) disposal and 4) proliferation (MIT 2003). The next generation of light water nuclear

[27] On the risk associated with spent fuel pools, see (Alvarez, Beyea et al. 2003).
[28] An MIT survey found people were less enthusiastic about nuclear, coal, and oil than renewable sources. While 9.2% did not want any use of nuclear, larger percentages of respondents wanted to reduce oil and coal than nuclear by a lot or somewhat. If you combine not use/reduce a lot/reduce somewhat, the three fare as follows: nuclear (47%), coal (58%), and oil (56.7%) (MIT 2003,167).

reactors may meet some of the needs for safety and cost. While nuclear power is currently more costly than coal, a cap and trade regime that put a price on carbon would make nuclear power more attractive from an economic perspective, though the waste disposal challenge, given the continued political contestation over Yucca Mountain (coupled with other concerns about public acceptance and proliferation), may make nuclear a dicey investment prospect.

Even if the other three concerns could be met, this still leaves the proliferation challenge which may be the hardest issue to resolve if nuclear power is to have a future and make an appreciable contribution to mitigating climate change. The MIT study demonstrated how daunting the challenge is for nuclear to play a major role in mitigating climate change. In 2002, nuclear power supplied 20% of electricity in the United States and 17% of world electricity. They projected a scenario of 1000-1500 reactors of 1000 gigawatt capacity in service by 2050, up from the 366 gigawatt capacity in operation in 2002 (100 of which are in the U.S). Given current energy use projections, those plants would avoid 1.8 billion tonnes of carbon emissions per year annually from coal plants, reducing carbon emissions by 25% than in a business as usual projection (MIT 2003).

However, there are only a few places actively seeking the construction of new nuclear plants, China, Russia, Japan, South Korea, among them. Moreover, plans for each of those countries are modest, especially compared to coal and gas. While China plans to expand the number of nuclear power plants by about two per year by 2020, it will build many times more the number of coal plants during that period.[29] Even then, its capacity to greatly expand nuclear power is likely limited by the trained expertise in the country. One danger is that growth in the country's nuclear sector could outstrip its ability to manage them.[30] In the event of an accident or terrorist attack in China or anywhere, the nuclear sector's future would be bleak, destroying confidence everywhere (Bunn

[29] By 2012 alone, China and India are expected to build 562 and 213 coal plants, respectively. The U.S. may add 72 coal plants of its own by 2012 (Clayton 2004).

[30] (French 2005). This expansion of nuclear power in China from 8 to nearly 30 plants might increase its share from 2-4%. Today, coal provides 80% of China's electricity needs.

1999). If the expansion envisioned in the MIT paper were to take place, the disposal challenge would be significant, on the order of another Yucca Mountain every few years. Proliferation concerns loom as large.

How real is the proliferation problem associated with civilian nuclear power? While thirty years ago, some doubted that civilian nuclear power could contribute to proliferation problems, the evidence is now clear from India, Iraq, Iran, and North Korea; civilian nuclear power programs can be used to mask activities designed to pursue nuclear weapons. At the very least, having a civilian nuclear power sector creates a trained constituency empowered to seek some use for nuclear energy in their country. Bunn catalogs the various instances in which nuclear power programs masked or facilitated the pursuit of nuclear weapons (Bunn 2001; Miller 2001a; Bunn 2004).

In the civilian nuclear power sector, proliferation risks stem from states enriching uranium and/or reprocessing spent nuclear fuel for potential recycling. Both enriched uranium and spent nuclear fuel can potentially be used to create a nuclear weapon. Aside from "rogue" regimes that may use nuclear weapons, a separate worry is that these materials will be stolen or sold to the black market to terrorist groups and then be used to produce a dirty radiological bomb or a more sophisticated nuclear device. In the early 1990s, the dissolution of the Soviet Union spurred fears of the potential for under-employed nuclear scientists and employees sharing their knowledge and wares with unsavory characters. The Nunn-Lugar program was initiated to try to rein in those "loose nukes" by destroying and securing them and providing the Russian nuclear sector with employment.[31]

Leaving aside the threat of theft and diffusion of nuclear material to non-state actors and other states, Western foreign policy analysts are particularly worried about two routes to nuclear

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[31] Because this program has not been fully funded, proliferation remains a concern for scholars like Graham Allison and has been depicted in popular entertainment by such films as Tom Clancy's *The Sum of All Fears* and, more recently, HBO's *The Dirty War* (Allison 2004).

weapons from civilian energy sources, (1) on the front-end of the nuclear fuel cycle from states seeking to enrich uranium and (2) on the back-end of the fuel cycle from states seeking to reprocess spent nuclear fuel. While at least twenty-seven different countries possess stockpiles of highly enriched uranium (HEU) in research reactors around the world, commercial enrichment is limited to a smaller number of states, France, Germany, Netherlands, UK, USA, and Russia the main ones.[32] Only a few states have reprocessing plants in operation—France, Japan, Russia, and the United Kingdom.[33] There are a handful of new states that potentially desire to develop uranium enrichment or reprocessing facilities -- South Korea, North Korea, Iran, and Brazil foremost among them.[34] Two of those are hard cases—Iran and North Korea—countries whose aspirations for possessing nuclear weapons are pretty clear. If the countries were to give up their nuclear weapon ambitions and still seek civilian nuclear power with reprocessing or enrichment, they still might seek nuclear weapons through clandestine, parallel programs. States with reprocessing facilities could make the leap to making nuclear weapons with their spent fuel (or terrorists could get their hands on the material to make a crude weapon). As a consequence, the MIT study and other reports recommend that reprocessing and enrichment be highly regulated. The Nuclear Nonproliferation Treaty (NPT) currently allows states to pursue civilian nuclear power (including enrichment and reprocessing) if they provide safeguards against proliferation, but aside from the difficulty of finding and inspecting clandestine nuclear sites, the rules are rather powerless to stop signatories from withdrawing from

[32] Enrichment facilities, under IAEA safeguards, exist in: Argentina, Brazil, China, Germany, Iran, Japan, Netherlands, and the United Kingdom. Enrichment facilities not under safeguards exist in France, India, Pakistan, the Russian Federation and the USA. The leaders in uranium enrichment include the URENCO consortia of German, Dutch and British nuclear providers, the French-led consortia EURODIF, Russia's Rusatom, and Japan's Japan Nuclear Fuel Limited. The United States Enrichment Corporation is pursuing a new commercial venture (IAEA 2005,49-50).

[33] For information on HEU, (United Nations 2004,40). In 1976-1977, Presidents Ford and Carter discontinued commercial reprocessing in the United States (MIT 2003,106).

[34] Iran and Brazil are primarily a concern because they fall into the first camp (i.e. they want to enrich uranium). North Korea developed uranium enrichment clandestinely through designs from the A.Q. Khan network and is reputed to be processing spent nuclear fuel. South Korea has done a bit of both at the experimental level.

the NPT and kicking out the inspectors—as North Korea has done—and then diverting their civilian nuclear energy sector for military purposes.

As a result, it is very hard for institutions like the International Atomic Energy Agency (IAEA) to exercise sufficient control over would-be nuclear weapons states since enrichment and reprocessing can be pursued legally as part of civilian nuclear programs. There really is no particular need for states to enrich their own uranium or have their own reprocessing facilities since natural supplies of uranium are plentiful enough to make it more cost effective to employ "once-through" nuclear reactors that do not recycle spent fuel. That said, states may want to enrich uranium or maintain their own processing facilities to reduce their dependence on nuclear fuel providers. However, the proliferation risks from reprocessing and enrichment are generally regarded as too high. Picking up an idea mooted by IAEA chief Mohamed ElBaradei, the MIT study suggests enrichment and reprocessing of nuclear fuel be limited to states that already have such facilities.[35] These "privileged" fuel cycle states would guarantee would-be civilian nuclear power states with fuel and agree to accept the waste. [36]

One way this could be done is for all enrichment and reprocessing to be placed under the auspices of an international consortia overseen by the IAEA. While the consortium idea is likely to be resisted by the nuclear power states, another option would be for states simply to buy fuel and return waste to the existing nuclear fuel producing states. A two-tiered system where there are fuel producers and users might be resisted by states like Iran, worried about their contracts being abruptly canceled for political reasons. Some alternative scenarios would have those contracts be backed by IAEA guarantees with standby contracts in case an order was cancelled. Another idea is

[35] There are a few serious re-processors in the U.S., France, and Russia. The Japanese have a plant and are in the process of building one at Rokkashomura. India operates three small plants (IAEA 2005,60).

[36](MIT 2003). These findings were supported by the final report of the UN's High-Level Panel on Threats, Challenge, and Change (United Nations 2004). Similar concerns were echoed by Matthew Bunn of Harvard's Managing the Atom project and the bipartisan National Commission on Energy Policy. That report, an American effort looking to design a centrist energy policy, did not go as far in promoting an international consortium to manage nuclear fuel reprocessing. (Bunn 1999; National Commission on Energy Policy 2004).

for the IAEA to have an actual physical supply available in case of a contract cancellation.[37] The failure of the 2005 NPT review conference to move on this issue demonstrates the political difficulty of moving forward on an acceptable solution to both the United States and would-be producers of civilian nuclear power like Iran.

Should this question be revisited, whatever idea is proposed would be particularly important in a world where lots of nuclear power stations were being built again. Improved design of light water reactors might yet yield "plug and play" models that the major nuclear power countries would export and build in other countries. These reactors could be relatively cheap and be installed to accompany the proliferation regime. Such "once-through" reactor designs could be, as Bunn notes, "shipped to a site, operated for 10-20 years without refueling, [and] returned to factory" (Bunn 2004).

The difficulty with any scheme to revitalize nuclear power is that states with the most capacity to manage an expanded nuclear sector like the United States are the least likely to pursue them. Where there are market-driven, deregulated systems of energy provision, nuclear—with its high capital costs and inherent political and economic uncertainty—is going to have trouble. In more centralized systems like France and China, nuclear could well have a future. In other states, particularly those in other parts of Europe, public resistance is likely to pose another major barrier. The public, as the MIT study notes, does not really connect nuclear power with carbon free sources of energy. Therefore, much analytical work would need to be done in various national settings to get a better handle on (1) the nature of energy system decisions (how political, how market-driven?) (2) public opinion and knowledge about nuclear power and climate change, and, finally (3) the interaction between energy investments decisions, public policy, and citizen acceptance.

[37] These ideas and others are summarized in (IAEA 2005).

Given rising energy demands which pose such grave climate risks, the environmental community is in an unenviable position of having to put a lot of options on the table, including nuclear power. No single answer is likely to be successful on its own, but there may be (maybe) room for nuclear in a mix with energy efficiency, renewables, combined cycle gas plants, and even clean coal and carbon sequestration. As scholars and advocates of climate mitigation reconsider nuclear power, they will have to engage the broader foreign policy community to see if the very real security challenges associated with its use can be overcome.

Part IV: No More Darfurs and Somalias -- Natural Disasters, Climate Change, and Humanitarian Intervention[38]

The tsunami of 2004 killed more than 300,000 people in East Asia (more than 200,000 in Indonesia alone), reminding us of the terrible power of nature (Center for Research on the Epidemiology of Disasters 2005). While climate change was not the cause of these incredibly massive waves of water which destroyed villages and towns, we now have a better sense of what extreme climactic events can mean in terms of large-scale loss of life. A simple comparison may be illustrative. In Iraq, maximal estimates put the death total of Iraqi civilians, including victims of crime, between 26,400 and 44,700 as of January 31, 2005 (The Brookings Institution 2005). Far more people died in the tsunami than have in Iraq. Put more broadly, more people are affected by natural disasters than armed conflict.[39]

The global response to the tsunami of 2004 was astounding in its generosity, totaling more than $6 billion. It was a moral act of solidarity with fellow human beings buffeted by tragedy. It also

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[38] This section is based on a paper I co-authored with Nigel Purvis while at the Brookings Institution for the UN's High-Level Panel on Threats, Challenges and Change (Purvis and Busby 2004). I thank Geoff Dabelko of the Woodrow Wilson's Environmental Change and Security Project and the United Nations Foundation for convening a working group on this topic. I also thank staff at the secretariat of the United Nations International Strategy for Disaster Reduction (UN/ISDR) for their helpful cooperation, specifically Sálvano Briceño and Reid Basher.

[39] Between 1990 and 1999, an estimated 188 million people per year were affected by natural disasters, six times more than the 31 million annually affected by armed conflict. The report defined affected by natural disaster as those people who for a time either lost their home, animals, their crops, their livelihoods, or their health as a result of a natural disaster. See (UN/ISDR 2003).

provided an undesired and yet important strategic moment in the West's relationship with the Muslim world. Indonesia has the world's largest Muslim population and, like Iraq, has a fragile government whose people could be another major source of international terrorism should the Indonesian state founder. The Bali bombings could foreshadow worse things to come. More than 15,000 U.S. military personnel supported the relief operation which delivered 24.5 million pounds of relief equipment and supplies to the region (Porth 2005). The strategic aspects of the tsunami were not lost on then-Secretary of State Colin Powell. The United States supports tsunami relief, he said because:

> …we believe it is in the best interest of those countries, and it's in our best interest. It dries up those pools of dissatisfaction that might give rise to terrorist activity... It turns out that the majority of those nations affected were Muslim nations. We'd be doing it regardless of religion, but I think it does give the Muslim world and the rest of the world … an opportunity to see American generosity, American values in action (Associated Press 2005).

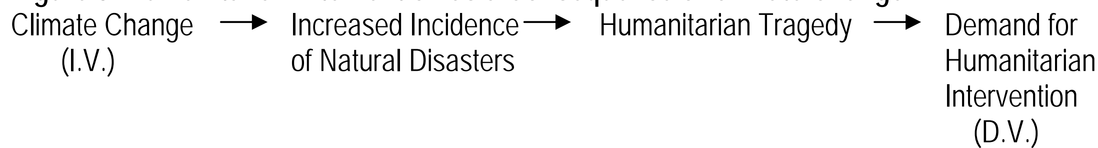
What lessons does this crisis have for climate change? Since the 1990s, there have been a number of instances of extreme weather events—acute and persistent droughts, floods, and hurricanes. In each of these cases, there were calls, some of them unanswered, for relief, often military intervention to intercede. In December 1992, for example, President George H.W. authorized Operation Restore Hope, dispatching the American military to Somalia to prevent hundreds of thousands from starving to death after a severe drought--coupled with state collapse and infighting between clans--left them vulnerable. At its peak, nearly 30,000 U.S. military personnel were deployed to Somalia before the situation turned disastrously wrong (Global Security Undated). In another example, anywhere between 100,000 and nearly three million North Koreans starved to death between 1995 and 1997. The causes? Severe floods in 1995 and 1996, coupled with an incompetent and uncaring state apparatus that refused to allow in sufficient food aid to save them (The Economist 1999). In 1998, Hurricane Mitch hammered Central America; flooding and

mudslides claimed the lives of more than 10,000 people and left hundreds of thousands homeless. U.S. soldiers and others were called upon to provide disaster relief with 5,300 U.S. military personnel in the region at the height of the operation (The White House 1999). In 2002, Zimbabwe faced food scarcity, brought on by a continued drought and the disastrous policies of land confiscation by the Mugabe government. Some called for his ouster. In May 2004, America's neighbors on the island of Hispañola--Haiti and the Dominican Republic--experienced torrential rains and mudslides which claimed more than 1700 lives. American soldiers, among others, still stationed there from the earlier outbreak of political instability that year, were called upon to rescue poor villagers trapped by rising waters and in desperate need of aid (Press 2004). Months later, four hurricanes in succession buffeted southern Florida, leading to $43.5 billion in damages and requiring the Governor to call a state emergency and summon the National Guard to prevent against looting and to care for those trapped or displaced by the storms (Stewart 2005). Even as Haiti and Florida found themselves lashed by nature's tempests, another crisis was brewing in Africa. In Darfur in the western part of the Sudan, the effects of persistent drought dating back to the 1980s began to have ugly manifestations. Nomadic cattle herders, mostly Arabs, driven by drought had settled in an area populated by sedentary farmers, mostly Africans. In-group tensions were seized upon by the central government to foment ethnic violence, thereby contributing to a wide-scale episode of mass death which has already claimed at least 77,000 lives by early 2005 (Anderson 2004; Kristof 2005). Calls for international military intervention largely went unheeded.

It is unknowable whether or not these particular instances were climate-change related, but they are consistent with what we would expect to see accompanying climate change. With climate change, there are supposed to be more of these extreme weather events.[40] Some of these events were among the most compelling in terms of moral and emotional heartstrings, but, like the tsunami

[40] See pages 6-7 of the "Summary for Policymakers" (IPCC 2001b).

example, there may be broader, strategic reasons for generosity. Because the United States is really the only nation with sufficient lift capability to send troops across large distances on short notice, the U.S. military will be called upon more to support and conduct these humanitarian missions if the frequency of disasters goes up.[41] If the incidence of these weather events does increase, the increased demand for humanitarian intervention will especially be in evidence if no or insufficient effort to minimize the vulnerability and improve the responsiveness to disasters takes place.[42] However, where there are regimes either unwilling or unable to protect their own citizens from harm, the U.S. may be faced with hostility from local insurgents and governments. Thus, the mission, as in Somalia, may have higher order political and military significance than a mere humanitarian operation. Again, as diagrammed in *Figure 3,* climate change is linked to an outcome of a security *challenge* for the United States.



While this causal chain is plausible, more research needs to be done both to ascertain whether or not the connections are or potentially are meaningful. Indeed, the evidence of increased frequency of extreme weather events is as yet inconclusive. Basher and Briceño in a forthcoming article on climate change in Africa argue that increased vulnerability to weather events and better reporting may account for the rise in death and damages rather than any significant change in the numbers of said events (Basher and Briceño 2005).[43] However, the scientific evidence on this

[41] U.S. humanitarian intervention would be, in Wolfers' parlance, part of the nation's "milieu" or system-maintenance goals. I thank Steve Miller for this point. (Wolfers 1962).
[42] While vulnerability to these events remains quite high, disaster responsiveness has improved markedly. In Africa for example, the number of reported deaths from disasters fell from 579,452 deaths over 1983-1992 to 43,078 deaths over 1993-2002 (Basher and Briceño 2005,271).
[43] They report, using data from the Belgian Centre for Research on the Epidemiology of Disasters, that the number of reports disasters worldwide increased from 1564 in the period 1973-1982 to 3721 (1983-1992) and 5967 (1993-2002). Disasters were defined as "10 or more people reported killed, 100 people

question is far from settled. A recent study in *Nature* by the UK's Hadley Centre on the European heatwaves of 2003--which contributed to the excess deaths of nearly 38,000 people[44]--found that human activity (from greenhouse gas emissions) has likely doubled the risk of heatwaves of that magnitude (Stott, Stone et al. 2004).

While plausible that increased incidences of extreme weather events will generate more demand for U.S. involvement, realpolitick considerations might suggest that the U.S. ignore these requests and focus on its own internal security or more vital threats to state interest. However, the response to disasters reflects changing notions of security and sovereignty, particularly when you have regimes that lack the capacity or will to protect their own citizens. The first section of this paper presented a rather straight-forward definition of security threats and challenges that might be recognizable to conventional security studies types but also potentially incorporate environmental threats like climate change. Despite these virtues, that account of security may have been still excessively state-centric. Just as markets and firms now cater more to the specific tastes of consumers, security increasingly is seen in more individualized terms as a right accorded to persons or small groups rather than purely to the larger collectivity (Rothschild 1995; Paris 2001). While implicit in the idea of democracy, this understanding of security was embedded in the human rights regimes that emerged after the genocide of World War II. With the waning of the Cold War and increased democratization in the world, states are expected to protect more than their borders from external attack. They must also protect the people against infringements against individual liberties by the state itself (International Commission on Intervention and State Sovereignty 2001; Evans and Sahnoun 2002). As interstate conflict has been superceded by intra-state violence as the major cause

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reported affected, a call for international assistance, or a declaration of a state of emergency. Africa accounted for about 20% of that total. Of African disasters over the thirty year period, about ½ were climate-related (floods [21%] and droughts [20%] being the most prevalent).

[44] The International Disaster Database reported excess deaths in Belgium (150), France (14,947), Germany (5,250), Italy (12,000), Netherlands (1,200), Portugal (2,007), Spain (141) and the UK (2,045) (Center for Research on the Epidemiology of Disasters 2005).

of mass death, no longer is state sovereignty perceived as inviolate.[45] This has been underlined by the recognition that states that possess weapons of mass destruction and/or shelter terrorist groups forfeit the sovereign right to be left alone (Haass 2003).

This view is contested, not least by developing countries, wary that this will provide an invitation by stronger powers to violate their territorial integrity either by force or less violent forms of intrusion. Nonetheless, this perspective has gained adherents in the Western world, notably the United States, on the left and the right. On the left, the West's shame of having done little in the Balkans and virtually nothing in Rwanda to stop ethnic cleansing in the former and genocide in the latter spurred the creation of the International Criminal Court, a means by which to hold individuals accountable for crimes against humanity. On the right, the events of September 11th set in motion a deeper appreciation for the need to re-evaluate legal protections afforded sovereign states when they fail to live up to their responsibilities.[46]

What impact will this understanding of security have on the international system? Because countries, and this applies more to democracies, are expected to protect the lives of their own citizens, this makes them particularly risk-averse in subjecting their citizens to harm, whether it be internally-directed sources of harm (crime, terrorist attack, accidents, toxic waste) or threats that they must meet externally (offshore or other wars fought on foreign soil). Internally, this makes states especially sensitive to terrorist attacks on their home soil like September 11 which did not pose an existential threat to the country's existence yet killed large numbers of individuals.[47] Externally, this has made states, including the United States, seek to minimize casualties in war, either by foregoing war as an option (more the approach of Europe) or by waging war at a distance through airpower

[45] Krasner draws attention the fact that in practice sovereignty was often violated. However, the legal fiction itself is now under revision which has implications for the use of force (Krasner 1999).
[46] This was the most important outcome of the UN's High-Level Panel on Threats, Challenges, and Change which released its report in 2004. (United Nations 2004,33-34).
[47] However, like Pearl Harbor, this was an attack on the home soil so could be understood in more conventional notions of state sovereignty as opposed to individualized notions of protecting the most number of individuals from fear.

(more the approach of the United States). Even where boots on the ground are required, the U.S., for example, often goes to extraordinary lengths to minimize the potential casualties of its soldiers by housing them in highly fortified bunkers and encampments, even if this is at cross-purposes to the functional mission at hand (Priest 2003).

Internationally, for states that fail to live up to the responsibility to protect their own citizens, this emerging view of security may legitimate military intervention, particularly when the scale of the failure to protect aggregates to potential mass death of large numbers of individuals. While still only haltingly enforced by the international community (witness Darfur), this view of security has interesting potential consequences with respect to humanitarian intervention. Increasingly, there is the expectation that as states fail to protect their own from the risk of mass death, other states have the *obligation* to prevent those calamities from unfolding, whether they be a product of natural disasters (the tsunami, droughts, floods) or deliberate acts by malign governments or sub-national players committing acts of genocide (Darfur, Rwanda), ethnic cleansing (the Balkans), or wide-scale violations of human rights (Iraq). On one level, advocates of this obligation to protect make a moral claim. On another level, states may have strategic reasons to protect themselves against state failure, the breeding grounds for terrorism. This may be a convenient justification for intervention for other purposes. A third semi-pragmatic reason for this kind of interventionism might be related to soft power, what Joe Nye defined as the "ability to get what you want through attraction rather than coercion or payments" (Nye 2004).[48]

Engaging in successful humanitarian operations can create positive feelings of association among friends and potential adversaries. Failure to respond to calls for intervention (as in Rwanda and Darfur) may leave deep resentments and sources of weakness for which democracies that champion human rights will be derided as hypocrites, racists, anti-Muslims, anti-African. Of course,

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[48] For a similar discussion, see the following piece on hegemonic socialization.(Ikenberry and Kupchan 1990).

overzealous use of military power to respond to these crises (as in Somalia) may have the opposite effect. As a result, states need to be judicious about their use of force for humanitarian ends and have multiple tools at their disposal by which to address disasters, foremost among them early warning systems and rapid reaction capability to respond to problems before force is the only instrument that can work.

This discussion of soft power feeds into the very next section. In any case, this discussion of disasters has identified a rich research agenda. First, more studies are needed to establish the causal connection between climate change and increased incidence of natural disasters and the conditions under which natural disasters—state incapacity and/or authoritarian governments among the likely explanations--lead to mass vulnerability. If those hypothesized explanations are correlated with potential for mass suffering, the policy agenda that emerges is how to prepare for those episodes in advance, particularly if the military option is a last resort. Here, the discussion of early warning systems that incorporate climate risk and political risk in a single user-friendly matrix may be relevant (German Federal Ministry for the Environment 2002; Tänzler, Carius et al. 2002; Brauch 2003; Purvis and Busby 2004).

Part V: The Symbolic Politics of Climate Change – Soft Power and Reputation

The reputation of the United States in the world has, until a recent uptick in public opinion, not been this bad since Vietnam (*see Table 1)* (Chicago Council on Foreign Relations and the German Marshall Fund of the United States 2002; Pew Research Center For The People & The Press 2002; German Marshall Fund 2003; German Marshall Fund 2004; Pew Research Center For The People & The Press 2004). The unpopularity of U.S. policies has made it more difficult for governments to cooperate with the United States in Iraq, as witnessed by the withdrawal of coalition forces like those of Spain. One reason the U.S. is so unpopular is because of its cavalier treatment of its allies on issues of importance to them.

One of those is climate change. The U.S.'s high-handed withdrawal from the Kyoto Protocol at the start of the Bush tenure in 2001 only confirmed the Europeans' worst fears that Bush was a unilateral cowboy and in the thrall of oil companies. By brusquely rejecting the Europeans on climate change, the Bush Administration ultimately made it much harder to sustain the shared sense of empathy after the tragic events of 9-11. The Bush team made it more difficult for it to enlist its allies in the build-up to the war in Iraq because it was already seen as untrustworthy and uninterested in listening to the priorities of its allies. These mistakes cost the Administration crucial support in the build up to the war in Iraq, perhaps muddying the signal from the West about the potential intention of going to war. This opaque signal, like April Glaspie's maladroit diplomacy in the lead up to the first Gulf War, could have given Saddam sufficient reason to doubt the resolve of the United States to go to war. Once the war was fought, Bush's mistakes on climate diplomacy and other issues had created ill will among U.S. allies, meaning delay in reconstruction funds, troops and training, debt relief for Iraq, and ultimately, the cover of legitimacy which made the Kosovo bombing campaign technically illegal but nonetheless just. It has made it more difficult for pro-American Europeans to get a fair hearing for other issues of mutual concern such as Iran and Israel-Palestine (Grant 2003; Busby 2004a; Busby 2004b; Busby and Borchert 2004; Garton Ash 2004; Gordon and Shapiro 2004; Kagan 2004). In Joe Nye's terminology, the U.S. has experienced a precipitous decline in its soft power, making it more costly for the U.S. to get what it wants (Nye 1990; Nye 2003; Nye 2004).

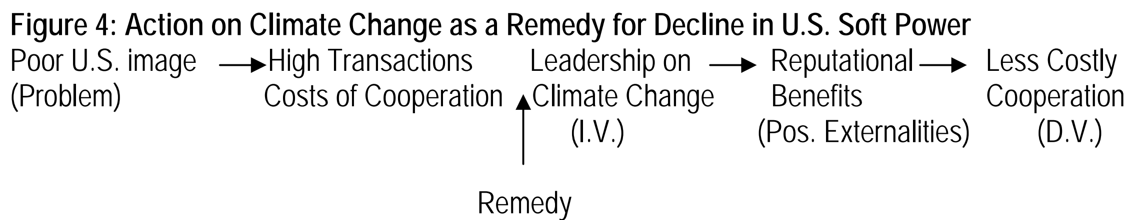
Multilateralism, self-restraint, and giving one's allies a voice in decision-making may be part of a sensible grand strategy for great powers. As John Ikenberry wrote in his 2001 book *After Victory*, the U.S. construction of institutions in the post World War II environment enshrined its influence and legitimated its rule in the West among its allies, making the system easier to manage and more durable over the longer-term (Ikenberry 2001; Ikenberry 2002; Ikenberry 2003). It is this kind of

pragmatism that led Ikenberry and Kupchan to call this account of why the U.S. should cooperate internationally as "liberal realism" (Ikenberry and Kupchan 2004). This line of argument is similar to Stephen Walt's balance of threat theory in which a state may have reasons to convince other states, namely status quo powers, of its benign intentions. Such a strategy of reassurance can be a means by which strong states like the U.S. are able to prevent automatic balancing behavior as structural realism would predict.[49] As Walt argued:

> This means that the United States has a strong incentive for genuine multilateral engagement, largely to convince others that it is not a selfish power bent on exploiting its strength solely for its own benefit. From this perspective, the Bush administration's undiplomatic rejection of the Kyoto Protocol, of the verification protocol for the biological weapons convention, of the Comprehensive Test Ban Treaty, of the international convention on land mines, and of the International Criminal Court were all steps in the wrong direction. Whatever the substantive merits of these various agreements, the United States pays a political price in consistently standing apart from the prevailing global consensus (Walt 2002a,25).

As I have written elsewhere, it may make sense for the United States to cooperate on issues the Europeans care more about (climate change) so that they are more willing and able to cooperate on issues the United States cares more about (terrorism) (Busby 2002; Busby 2003; Busby 2004c; Busby and Ochs 2005 Forthcoming).[50] This could under certain circumstances, as diagrammed in *Figure 4*, lead to reputational benefits for the United States, making it easier to achieve its core security objectives.

Figure 4: Action on Climate Change as a Remedy for Decline in U.S. Soft Power



There are probably better and worse ways of going about this. There are dangers that the U.S. pursuit of a climate strategy for reputational reasons could do little for the climate and little to

[49] See (Walt 1990; Walt 2002b). For other accounts of reassurance, see (Mastanduno 1997; Midford 2002).
[50] For a similar argument, see (Ruggie Forthcoming).

improve its international standing or might be successful but resented. As Stephen Krasner warned decades ago in response to the calls for a new international economic order, the United States might not be rewarded for trying to forge general cooperation with the Third World. Because such a move could lead to unmatched expectations like those that accompanied the Alliance for Progress in the 1960s, the hoped for "good feeling" could give way to disappointment, particularly if U.S. policies are captured for private purposes of U.S. special interests (Krasner 1974,82).

Similar reputational pitfalls may potentially be present in the climate arena. For example, at the heart of the Kyoto negotiations were flexibility mechanisms like emissions trading. These were, at the time, fiercely resisted by the Europeans and yet, they now form the core part of Europe's approach to greenhouse gas emissions reductions as part of its own emissions trading regime. Only now does Europe recognize the American ideas were pushing in the right direction. Reputational gains may not be immediately forthcoming. Similarly, the Bush Administration has championed the idea of reducing the carbon intensity of its economy, thus increasingly de-linking economic growth from increasing greenhouse gas emissions reductions. This is a sensible metric particularly for growing economies and should have great relevance to China and India where absolute emissions are likely to rise but concerted efforts to introduce cleaner energy technology should lead to lower emissions per unit of output. Convincing the Chinese and Indians to accept some sort of intensity target will be difficult but not necessarily impossible. However, because the Bush Administration's own intensity target basically mirrored the natural rate of efficiency gains that are already embedded in the economy, the good idea of intensity targets may have been sullied. If promoted by the United States, there are likely to be significant quarters of the environmental community unwilling to recognize anything as a major step forward. For those groups (sizable enough), anything shy of a short-run, significant emissions reduction target could be demagogued as insignificant. In the scheme of things, where net greenhouse gas emissions need to fall on the order of 70%, they are

right. The hardest part however may be getting started and getting a reasonably strong signal sent to the private sector that governments are serious and committed to limiting greenhouse gas emissions over the long haul.

In any case, the U.S. needs to evaluate what price it is willing to pay for reputational advantages. Some policy choices may prove to be very expensive ways of purchasing good will. For example, the U.S. pledged at Kyoto to reduce greenhouse gas emissions by 7% below 1990 levels by the 2008-2012 time period. Given that U.S. emissions grew more than 15% in the 1990s, meeting that target would effectively require more than a 20% reduction in emissions (WRI 2004). Different estimates of the costs of implementation of Kyoto were calculated and ranged anywhere from 0.42% to 1.96% of GDP (IPCC 2001a). While these may overestimate the costs of implementation, any Administration that is not wedded to climate protection goals for their own sake (which in this author's view they ought to be) must evaluate different strategies for re-gaining the good will of other countries, namely those in Europe.

There may be other issues and other ways to curry favor at lower cost, namely being nice (i.e. diplomatic) and acting like you are listening to your allies. Such was the nature of the early visits to Europe by Secretary of State Condoleeza Rice and President Bush in 2005. At some point, America's allies will demand more substantive action, particularly UK Prime Minister Tony Blair who stuck his neck out for the U.S. during the Iraq war. Indeed, Blair has made climate change a high priority issue for the G-8 summit the UK will host in July 2005. For Blair, progress on climate change would demonstrate that there are benefits of backing the United States. Otherwise, he will have subjected himself to a war fought on faulty premises in exchange for no reciprocity, hardly a basis for cooperation or re-election in the UK general election that is expected in 2005 (Keohane 1986; Oye 1986; Axelrod 1990).

If the Bush Administration decides that for reputational reasons it would like to embrace climate change as a cause, then it must do so credibly by actually incurring some costs and perhaps more significant costs, given the mistrust of its European allies. These need not be purely material, they could entail political costs of standing up to his core constituencies. Something surprising, against type, would do more to shift European opinion such as a carbon tax, a Patriot tax on gasoline as Thomas Friedman has suggested, a more precipitous end to the exemptions of SUVs from fuel efficiency standards, or embrace of a cap-and-trade emissions scheme among the reputation-enhancers likely to be effective (Tomz 1998).[51]

By disarming his critics with such a move, Bush could find his Allies are in a better position to support him on issues of more central concern to his Administration (success in Iraq, the war on terror). Such a move would also make it more difficult for his potential antagonists to use the symbolism of his obstructionism on climate for their own domestic grandstanding. By removing the domestic political gain of being anti-American, Bush would make it more difficult for Chancellor Schroeder in Germany, for example, to tag-team with France and smaller EU countries in an emerging quasi- or soft balancing counter-coalition to U.S. primacy (Joffe 2002). Again, this only works if Bush actually does something that European publics would give him credit for.

While this section could only be suggestive, from it emerges a research agenda on public diplomacy and soft power. The next generation of research could review the different potential courses of action that could (1) do something for climate change and/or (2) do something for the U.S. reputation. Through opinion poll research and assessments of costs and benefits, researchers could identify what are the best policies the U.S. government could employ, whether it be climate-related or otherwise, to foster a better image in Europe and the Middle East in particular.

[51] In the language of credible commitments, the U.S. could reveal its type—as a benign power that is less of a perceived threat to others--by taking costly action to reassure others (Morrow 1994).

Conclusion

This paper sought to stimulate a new research agenda on climate change and security, suggesting that the issue has implications and connections to the discipline in ways that hard-core security types would recognize. By discussing energy security, nuclear proliferation, humanitarian intervention, and the importance of soft power for grand strategy, the paper has linked climate change to security issues over which a state would ultimately be prepared to wage war or send troops into harm's way. While this is a step removed from more fanciful notions of "resource wars" or doomsday climate scenarios, the paper does relate climate change to core U.S. foreign policy concerns in ways that the existing environmental security field largely does not. If this paper has been successful, a generation of new studies will take these themes up for future inquiry.

Table 1: Foreign Opinion of the United States, 2004

Anti-American Views in Muslim World...

	Rating of the United States		
	Fav-orable	Somewhat Unfav.	Very Unfav.
Turkey	%	%	%
March 2004	30	18	45
May 2003	15	15	68
March 2003	12	17	67
Summer 2002	30	13	42
Pakistan			
March 2004	21	11	50
May 2003	13	10	71
Summer 2002	10	11	58
Jordan			
March 2004	5	26	67
May 2003	1	16	83
Summer 2002	25	18	57
Morocco			
March 2004	27	22	46
May 2003	27	13	53

...and in Europe

	Fav-orable	Somewhat Unfav.	Very Unfav.
Great Britain			
March 2004	58	24	10
May 2003	70	14	12
March 2003	48	24	16
Summer 2002	75	12	4
France			
March 2004	37	42	20
May 2003	43	38	19
March 2003	31	45	22
Summer 2002	63	26	8
Germany			
March 2004	38	49	10
May 2003	45	42	12
March 2003	25	41	30
Summer 2002	61	31	4
Russia			
March 2004	47	29	15
May 2003	36	32	23
March 2003	28	43	25
Summer 2002	61	27	6

Source: (Pew Research Center For The People & The Press 2004).

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