

**Schedule**  
**The Fletcher Doctoral Conference**  
**October 11-12, 2007**

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**Thursday, October 11, 2007**

**9:00 am – 9:30 am:** Breakfast (Cabot 702)

**9:30 am – 11:30 am:** Strategies for Successfully Completing the PhD and Developing a Reputation as a Scholar (Cabot 702)

- Discussion between Fletcher Faculty and PhD Students moderated by Susanna Campbell, Fletcher PhD Candidate

**11:30 am – 1:00 pm:** Reform of the Fletcher PhD Program: A Brainstorming Session (Cabot 702)

- Discussion led by William Moomaw, Chair of the PhD Program

**1:00 pm – 2:00 pm:** Lunch with Fletcher Faculty and Current PhD Students (Faculty Dining Room/ Cheryl Chase Center)

**2:00 pm – 4:00 pm:** Discussion of Current Student Work (Cabot 7th Floor)

**5:30 pm - 6:00 pm:** Opening Remarks for the Conference (Cabot 703)

**6:00 pm - 7:00 pm:** Keynote Address (Cabot 703)

- G. Richard Thoman, F'67, '60, 71 [\[bio\]](#)

**7:00 pm - 9:00 pm:** Reception (Cabot 7th Floor)\*

**Friday, October 12, 2007**

**8:00 am – 8:30 am:** Breakfast (Cabot 7<sup>th</sup> Floor)

**8:30 am – 10:30 am:** Panel and Roundtable Session I

A) [Water: Sustainability and the Scale of Decisions](#) (Cabot 702)

- Peter Rogers (chair), Gordon McKay Professor of Environmental Engineering and Professor of City and Regional Planning, Harvard University [\[bio\]](#)
- Paul Kirshen, Research Professor & Co-Chair of Water: Systems, Science and Society (WSSS), Tufts University [\[bio\]](#)
- Susan Murcott, Senior Lecturer, Massachusetts Institute of Technology [\[bio\]](#)
- Edward Spang, PhD Candidate, The Fletcher School, Tufts University [\[bio\]](#)

B) [Trends and Tactics in Global Terrorism: When the Unconventional Becomes the Conventional](#) (Cabot 703)

- Richard Shultz (chair), Professor of International Politics and Director of the International Security Studies Program, The Fletcher School, Tufts University
- Hassan Abbas, Fellow, Belfer Center for Sciences and International Affairs, Harvard University [\[bio\]](#)
- Alejandra Bolanos, PhD Candidate, The Fletcher School, Tufts University [\[bio\]](#)
- Joshua L. Gleis, International Security Program Research Fellow, Belfer Center for Sciences and International Affairs, Harvard University [\[bio\]](#)
- Ronnie Olesker, Lecturer, Tufts University [\[bio\]](#)

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\* On Thursday, October 11<sup>th</sup> from 7 to 8pm, Prof. William Moomaw, Chair of the Fletcher PhD Program, and Prof. Bruce Everett, Fletcher Professor and PhD alumnus, will engage in the 4<sup>th</sup> Annual Moomaw-Everett Debate on the question: "Should the government act now to limit CO2 emissions?" All Doctoral Conference Attendees are invited to this event in the ASEAN Auditorium.

**10:30 am – 11:00 am:** Coffee (Cabot 7<sup>th</sup> Floor)

**11:00 am – 1:00 pm:** Panel and Roundtable Session II

A) [Peacebuilding, Statebuilding, and Stabilization: What is the Difference?](#) (Cabot 702)

- Deborah Brautigam, Associate Professor, International Development Program, School of International Service, American University [\[bio\]](#)
- Darren Kew, Assistant Professor, Dispute Resolution Program, University of Massachusetts Boston [\[bio\]](#)
- Peter Uvin, Academic Dean and Henry J. Leir Professor of International Humanitarian Studies, The Fletcher School, Tufts University [\[bio\]](#)
- Andrew Wilder, Research Director for Politics and Policy, The Feinsein International Center, Tufts University [\[bio\]](#)
- Susanna Campbell (panel moderator), PhD Candidate, The Fletcher School, Tufts University [\[bio\]](#)
- Christof Kurz (roundtable moderator), PhD Candidate, The Fletcher School, Tufts University [\[bio\]](#)

B) [The Implications of Cyber Power](#) (Cabot 703)

- William C. Martel (discussant), Associate Professor of International Security Studies, The Fletcher School, Tufts University
- Scott Borg, Director and Chief Economist United States Cyber Consequences Unit
- Andrea J. Dew, Assistant Professor for Strategy and Policy, Naval War College [\[bio\]](#)
- Col. Greg Rattray, USAF (Ret), Partner, Delta Risk, LLC
- Col. Jeffrey Kubiak (moderator), PhD Candidate, The Fletcher School, Tufts University [\[bio\]](#)
- Col. Stephen E. "Wilbur" Wright, Dean of Academic Affairs, Air War College

**1:00 pm – 2:30 pm:** Luncheon Talk

- Amy Sands, Provost and Academic Vice President of the Monterey Institute of International Studies (Cabot 703)

**2:30 pm – 4:30 pm:** Panel and Roundtable Session III

A) [Climate Change: Security and Sustainability, Politics and Policy](#) (Cabot 702)

- William Moomaw (chair), Professor of International Environmental Policy, The Fletcher School, Tufts University [\[bio\]](#)
- Elizabeth Chalecki, PhD Candidate, The Fletcher School, Tufts University
- Kelly Sims Gallagher, Director, Energy Technology Innovation Policy, Belfer Center for Science and International Affairs, Harvard University [\[bio\]](#)
- Marcus King, Globalization Planning Fellow, Office of the President, Georgetown University [\[bio\]](#)
- George Unruh, Director, Lincoln Center for Ethics in Global Management, Thunderbird, School of Management [\[bio\]](#)

B) [Next Frontier: Nuclear Weapons in the 21st Century](#) (Cabot 703)

- Robert Pfaltzgraff, Jr. (chair), Shelby Cullom Davis Professor of International Security Studies, The Fletcher School, Tufts University [\[bio\]](#)
- Amy Sands, (discussant) Provost and Academic Vice President, Monterey Institute of International Studies
- Natasha Bajema, PhD Candidate, The Fletcher School, Tufts University [\[bio\]](#)
- Emma Belcher, PhD Candidate, The Fletcher School, Tufts University [\[bio\]](#)
- Chen Zak Kane, Research Fellow, Belfer Center for Science and International Affairs, Harvard University
- Elizabeth Turpen, Senior Associate, The Henry L. Stimson Center [\[bio\]](#)

**4:30 pm – 5:00 pm:** Closing Remarks (Cabot 703)

## **Strategies for Successfully Completing the PhD and Developing a Reputation as a Scholar**

Discussion between Fletcher faculty members and PhD students  
Thursday, Oct. 11, 2007, 9:30-11:30am

Susanna Campbell moderated this discussion between professors Peter Uvin, Karen Jacobsen, Alan Wachman, Bill Moomaw, Pat Schena and some 30 PhD students and a few PhD alumni. The discussion was divided into three parts: the dissertation proposal phase (What is a good proposal and what is good methodology?), the research phase, and the writing phase.

### **Dissertation Proposal Phase**

The first speaker said that the dissertation proposal (DP) should be problem driven and not discipline driven, and because it takes lots of effort to elaborate the proposal you need to really care about it and want to do it. It should identify something that you want to know, which isn't known by others. In terms of what methods to use, this speaker said that the method follows from the question. Look at how others have answered similar questions, but most of all, step out of how others have done it and take risks. Be true to yourself and then you will be original and stand out. But, if you depart from the mainstream, then you must be more solid in your research and more convincing in your arguments.

The second speaker said that it is important to focus tightly on the research question and make it doable. The DP starts you off and makes you focus, but will change as you go along once you get to the field, although it is important to involve your advisors in all of the changes. The proposal is a hurdle to get over so that you can get to the field research. You will not be judged in the end on whether you conform to your proposal. It is important not to be overburdened by the proposal so that it wears you out. This speaker also suggested that students think in terms of hurdles to surmount and stressed the importance of networking, particularly during field research. This speaker emphasized the importance of finding a mentor who will help you to make connections and to find funding.

Speaker three said get used to the idea of others critiquing your work. If you want to publish later, your work will be subject to all kinds of even stronger critique and suggestions for change. Your topic may be broad, but you have to make it answerable and manageable. The Fletcher School produces a different breed of PhD, so don't be discouraged at conferences when you are not mainstream. The world of scholarship is a world of pluralism.

The fourth speaker said that if your committee thinks your proposal is good and that the methodology will lead you to a successful ending, then it is a good proposal. There can be a lot of variation, but your role in writing a DP is to be persuasive. You need to show why your research is important and how it fills a gap in the academic literature and why your question has scholarly relevance. The DP should explain this.

The final speaker summarized by saying that all four speakers had agreed on many points, but he emphasized the importance of being original and therefore standing out – “No risk, no gain!” He said the PhD is a solitary process like walking through the desert where nothing changes, but you have to keep on walking.

Discussion with students followed regarding the pros and cons of publishing during or post dissertation writing or accepting a job before one's dissertation defense. The faculty agreed that it should be in a function of what you feel comfortable with at that point in your work and what you want to get out of the PhD process. A PhD alumnus mentioned how the PhD Student

Colloquium had helped him along in the writing process and commented on the psychological challenges and how it was important to break the work down into smaller, more manageable tasks.

### **Research Phase**

Some of the questions tackled in this discussion included: “What is acceptable data collection?”, “What are the expectations in different fields for field research?” and “Can you overlap a consulting job with research?”

The first professor to speak suggested that one can overlap research with a job, because if one stays connected to the professional community one may have better access to data. A student then followed by saying that networking is so important if one does field work in a difficult environment. Her summer research job was disappointing but by networking she obtained access to an important sector of the population which provided her with 50 interviews.

Another professor commented on how dangerous field work can be nowadays and how important it is to always go with another person to the field. This also serves as someone to bounce ideas off of. She also suggested the importance of pilot studies before the major data collection phase to make sure that the study is viable. Additionally, she mentioned the importance of methodological preparation and suggested an excellent qualitative methods class at MIT. MIT also posts some course content online at iTunes U. A student mentioned another excellent course on narrative analysis at MIT and several at Harvard, but regretted that it is often difficult for Fletcher students to gain admission to these classes due to limited space. The request was made that this list of courses be sent around to all PhD students.

“There is no one right thing, so don’t worry about it” declared a professor. You may have plenty of data, but need to adjust your question, he suggested. It comes down to your judgment, and that of your committee. You need to demonstrate that you are an expert on the topic. Another professor reminded students of the need to get pre-approval for human subjects research through the Institutional Review Board, while another encouraged students to stay in close contact with their committee so that there would be no big surprises at the end. Another professor mentioned the importance of keeping your Dissertation Committee in the loop. The last thing that they need is surprises.

### **Choosing Your Committee and the Writing Process**

The first faculty member to speak suggested that the committee should be made up of an expert in the field, a person that will really support you emotionally, and a person with connections that will help you get dissertation done and provide you with future contacts for publishing and job searches. This speaker also commented, “Jettison the member who won’t get back to you in a timely manner!”

Another professor suggested the importance of just “getting it down on paper” and not agonizing over the wording, but then later to look it over, organize it and share it. Another said to organize a writing group with one or two others to share reading and feedback on a structured weekly or monthly basis. Another emphasized the importance of frequent contact with one’s adviser, but especially when doing poorly as that is when one really needs the help. This speaker also advised students to write their theory and case studies chapters first and to leave the introductory chapter and the conclusion until the end.

Students and alums commented on how writing a dissertation is like a job and one should be disciplined, consider preparing weekly progress reports, and set deadlines. An alumnus

emphasized the importance of just writing and starting somewhere, outlining chapters every few weeks and even starting with the acknowledgements section just to get some forward movement.

## **Reform of the Fletcher PhD Program: A Brainstorming Session**

Discussion led by Prof. William Moomaw, Chair of the PhD Committee  
Thursday, October 11<sup>th</sup>, 11:30am -1:00pm

Professor Moomaw opened this session by giving some background information on the PhD Program and how it has changed over the past decade. The requirements have been tightened up and the quality of applicants is much higher, but we still attract a very “undisciplined” group of students who ask very tough, complicated questions and who know that they need more than what simple social science disciplines can give them. He discussed the idea of requiring two fields in more depth, rather than the present three fields, but leaving open the option of doing a third field if one wanted. Students gave reasons for generally preferring three fields – understanding more at conferences, the focus on interdisciplinarity at Fletcher, greater knowledge when writing dissertation which is interdisciplinary, not enough depth in many fields to support only two fields.

When discussing where our graduates go and whether Fletcher prepares them adequately, Prof. Moomaw said that we prepare academics with real world experience and vice versa. Ours is a diverse group and we try to give students the tools for the career paths they wish to follow. There ensued a discussion among PhD students and faculty about time it takes to complete a doctoral program and the different rates at which students progress due to the need for many to work outside the university in order to support themselves. There was also a wish to strengthen institutional partnerships at the PhD level with local universities so that Fletcher PhDs could more easily take courses, particularly methodology courses, at other Boston-area institutions. This would help prepare students better to use multiple methodologies in their research. Another student mentioned the importance of methods training – not just classes but the opportunity to go to conferences and work with professionals. He added that students need help with identifying how to get the best training. Another student suggested that faculty give workshops on how to do methodology in their field.

Other students brought up questions having to do with the flexibility of choosing members for the dissertation committee, with being more specific in the names of Fletcher degrees (PhD in ISS, PhD in Finance, etc.), with the need for more PhD only courses that go into theoretical depth and build a critical analysis capacity by combining theory and methodology – perhaps in the 5<sup>th</sup> semester – with more interdisciplinary rigor. Another student suggested that there needs to be an order of taking classes with prerequisites for higher level classes. She agreed with the suggestion of PhD-only classes, and also suggested the creation of a PhD track in the MALD and PhD discussion sessions over and above what MALD students have to do for a class.

The session ended with an alumnus commenting that the strength of Fletcher is that professors are policy wonks with an academic background.

In summary, there were several proposals that came out of this meeting.

1. PhD Process:
  - a. Make the benchmarks in the PhD process explicit so that PhD students know what they are being judged against.
2. Teaching
  - a. Provide more opportunities for PhD students to get experience teaching.

### 3. Methods

- a. Strengthen the institutional agreements with other universities and with other departments at Tufts so that PhD students can have easier access to methodology courses.
- b. Distribute a list of available methods to PhD students so that they are familiar with what is out there.
- c. Increase the number of methods courses offered at Fletcher.
- d. Faculty should give seminars on the methodology that they use in their research.

### 4. PhD-only Courses

- a. Integrate discussions of methodology into thematic courses. Method should be linked to the theory that underpins it.
- b. Develop a seminar for doctoral students during the 5<sup>th</sup> semester, and other PhD-only courses.
- c. Create a PhD track for MALD's who know that they want to pursue the PhD.

### 5. Specifying the discipline of the Fletcher PhD

- a. Develop sub-categories of Fletcher PhDs so that each graduate can specify a particular discipline, other than the general "International Relations" label. It is important for graduating PhDs to be able to signal to the market in which they want to compete.

## **Water: Sustainability and the Scale of Decisions**

October 12, 2007

Moderator: Paul Kirshen, Research Professor & Co-Chair of Water: Systems, Science and Society (WSSS), Tufts University

Panelists:

- Peter Rogers (chair), Gordon McKay Professor of Environmental Engineering and Professor of City and Regional Planning, Harvard University
- Susan Murcott, Senior Lecturer, Massachusetts Institute of Technology
- Georgia Kayser, PhD Candidate, The Fletcher School, Tufts University
- Edward Spang, PhD Candidate, The Fletcher School, Tufts University
- Caleb McClennan, PhD, The Fletcher School, Tufts University

Paul Kirshen opened the panel with a description of the interdisciplinary water program (WSSS), which is a joint effort by all Tufts University Grad Schools to address the complex nature of water resource issues. He then introduced each of the panelists and suggested the audience keep the following questions in mind while listening to the panelists: How multiple disciplines can be effectively integrated for improved water management? What is the role of stakeholders? How do you measure sustainability at various scales?

### **“Water Governance Matters, But How Much?” – Peter Rogers**

Peter Rogers discussed the importance of water governance, the lack of appropriate national IWRM, Integrated Water Resources Management, plans and stressed the need for better ways of integrating water management and water priorities into politics. He encouraged practitioners in water to get involved in the political process. He also discussed the importance of evaluating water projects objectives for their sustainability, ecosystem maintenance and the benefits and costs to society.

### **“Challenges and Opportunities for Managing Water at the Household Scale” – Susan Murcott**

Susan Murcott provided a quick overview of the links between human health and various interventions in household water management, including: water quantity, water quality, hygiene and sanitation. Her work focused on improving water quality through household treatment. Through a local NGO in Northern Ghana, Susan and some of her graduate students are working to distribute locally available water treatment systems in an economically sustainable manner. Currently, the systems are subsidized, but they are hoping that increased production will decrease costs and an appropriate equilibrium price can be attained. They have had significant success in distributing the technology and hope to expand the enterprise throughout Ghana, and then hope their business model can catch on worldwide to assist underserved populations.

### **“From Ridge to Reef: A Rapid Watershed Assessment for the Mesoamerican Barrier Reef Systems Project” – Georgia Kayser**



Georgia Kayser discussed the results of a collaborative NOAA-TUFTS-MBRS, GEF-funded rapid watershed assessment. The rapid watershed assessment was administered in Belize, Guatemala, Honduras and Mexico for the Mesoamerican Barrier Reef Systems Project with the objective of assessing the main anthropogenic threats to water quality in the major transboundary watersheds that empty into the Gulf surrounding the MBRS, which lies off the coast of the four countries and is a major resource to the bordering countries. Georgia reviewed the findings from the assessment on one major watershed, the Rio Motagua, and some of the challenges of interdisciplinary transboundary watershed assessments. She also presented recommendations for future interdisciplinary watershed assessments.

#### **“Searching for the ‘Soft Path’: System Dynamics for Improved Water Management in Barbados” – Edward Spang**

Edward Spang presented his research on the potential for system dynamics to help identify opportunities for improved efficiency (the critical objective of “Soft Path” water planning) in water management. Considering the complexity of actors and objectives in a typical water regime, system dynamics seems to be an appropriate tool to map the interactions of various pressures on the water system. Edward has developed a draft model of the water-tourism-economy system in Barbados and hopes to improve the model through upcoming fieldwork. Furthermore, since both the system dynamics and water resource management fields are increasingly emphasizing the role of stakeholder participation, Edward will rely on a group-modeling approach to refine the model and develop policy recommendations.

#### **“Water Resource mgmt in an urban pacific atoll” – Caleb McClennan**

Caleb McClennan discussed the challenges of IWRM in the Marshall Islands, where he is currently an advisor to the Marshall Islands Marine Resources Authority. He discussed traditional water management and its environmentally sustainable characteristics. He then went on to describe the impacts of urbanization, population growth, the influx of US development assistance and the growth of unsustainable solutions to water management. It is only very recently that efforts have begun to incorporate some of the tenants of IWRM—public participation, water quality monitoring, health standards for water, sewage and solid waste and the use of GIS to assist local water managers in this process.

#### **Discussion:**

The discussion revolved around questions of stakeholder participation and scale of management.

Q: One challenge of stakeholder participation is that consensus may not be reached, so while inclusion and democratization of decision-making is theoretically ideal it is difficult to put into practice.

A: In terms of water resource management, there is definitely a lot of potential for conflict, but the range of opinions do need to be represented (no matter how difficult) to craft relevant policy.

Q: Another challenge of public participation is the inclusion of relevant stakeholders. While many mid-level bureaucrats and NGO representatives might be enthusiastic to discuss these issues, it can be hard to find adequate representation from the poorest of the poor.

A: Of course, the process of identifying of stakeholders should attempt to get broad representation, and this can happen through targeting “key stakeholders” specifically, or through randomized selection. Ideally, the poorest of the poor should be represented, but special care needs to be taken that their voices are not manipulated for political purposes, i.e. promises are made to the poor neighborhoods for improved services in exchange for party votes.

Q: Why haven't aid agencies focused sufficient attention on something as fundamental as water?

A: There have been significant declarations of commitment in the past and present: the 1980s was declared the decade for water (with the goal of universal coverage), the millennium development goals aim to cut the underserved populations by half by 2015, and 2008 is the year of sanitation. However, declarations are one thing and service provision is another and we still have a long way to go. Furthermore, if the human right to water is given more attention, maybe there will be greater efforts towards improving service, as there has been in South Africa.

Author: Caleb McClennen

## **Water Resource Management in an Urban Pacific Atoll**

Abstract.

An urbanizing Pacific has brought many environmental and development challenges to Pacific Island countries, one of which is water resource management. In islands typically populated by sparse groups of fishing and farming communities that grew within the limits of their natural resources, urban densities have emerged in the past few decades that rival dense urban centers around the world. Atoll Island communities are particularly challenged in the lack of a larger watershed in which to extract necessary resources. Traditionally, groundwater was collected from shallow and seasonally variable fresh and brackish water lenses supplemented by coconut water. In Majuro Atoll, the capital of the Republic of the Marshall Islands with an urban population density of roughly 30,000 people per square mile, water management is challenged by both supply and sanitation issues. Supply is met by large 15 million gallon water catchments, that supplement the only remaining natural water lens located 20 miles from the urban center. Though supply is a constant challenge with severe El Nino droughts, growing population, and climate change, water quality at the household remains a significant issue for the Atoll. Research was conducted in 2005 via household survey to measure the effect of urbanization on waterborne illness, including geographic analysis of illness related to urban waste dumps. Econometric analysis of survey results revealed diarrheal rates during the survey period to be more than double in urban areas than their rural counterparts, and at least three times higher within urban areas when in close proximity to unsanitary waste facilities. These results suggest that while water management must continue to address growing supply side issues, urban water quality and sanitation at the household level remain significant unmet challenges for future development, health and environmental planning.

Author: Georgia Kayser

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**From Ridge to Reef: A Rapid Watershed Assessment for the Mesoamerican Barrier Reef Systems Project**

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Abstract:

The Mesoamerican Barrier Reef System (MBRS), the second largest barrier reef in the world, a biodiversity sanctuary, a world heritage site, and an economic resource for the bordering States, is at risk from anthropogenic threats to the inland waters that feed it. The MBRS is like many coastal waters around the world that are currently threatened by human-driven changes to land and water use. Watershed assessments are a critical research tool for informing policy makers so that they can improve human and environmental health. This overview of a Mesoamerican Barrier Reef Systems Project / Tufts University / National Oceanic and Atmospheric Administration rapid watershed assessment analyzes these threats for the impacted countries of Belize, Guatemala, Honduras and Mexico. The empirical research for the watershed assessment took place in May through August 2004 in nine major watersheds and incorporated three major sectors: hydrology-ecology, socio-economic and legal-institutional. Secondary data from related ministries and government agencies in all four countries, key-informant interviews with public health and municipal officials and direct observations of drinking water, wastewater and agricultural systems revealed that the major sources of pollution are agricultural run-off, untreated wastewater and deforestation. A stakeholder conference held in 2005 served as a forum to present the research findings and utilized a participatory approach to make policy recommendations for the region. The challenges faced in conducting this rapid-watershed assessment are reviewed and recommendations are made for future assessments of this and other watersheds. Rapid water assessments are necessary if human and environmental health is to be improved where anthropogenic use threatens inland and coastal waters.

Author: Peter Rogers

## **Water Governance Matters: But How Much?**

### **Some quotations**

Rogers and Hall, (2005, p. 37)

To achieve more effective water governance it is necessary to create an enabling environment which facilitates efficient private and public sector initiative. This requires a coherent legal framework with a strong and autonomous regulatory regime. Clear transactions between stakeholders is needed in a climate of trust with shared responsibility for safeguarding water resources whose management affects many people but is at present the responsibility of none.

Grey and Sadoff (2007, p. 569)

The only demonstrated path to achieving water security at a national scale has been through investment in an evolving balance of complementary institutions and infrastructure for water management.

Mark Sagoff, personal communication, 2004:

In the 19th century, Congress encouraged settlers to migrate to the West and sought to build a Jeffersonian democracy of small freeholders throughout the arid West. These landowners were supposed to form associations patterned on town meetings to settle controversies that might arise among them. The idea was not that Congress should deal with water and other resources—but that the people in those places would manage them. What happened, of course, was mayhem.

By the end of the 19th century, timber, cattle, railroad and mining *barons*, after concentrating their economic and political hold on Western land and water. The result was that Congress asserted its power over Western resources basically to keep the robber barons from usurping them. Bureaucracies justified their power by appealing to expertise—the Progressive era faith that science could replace politics by identifying the public interest objectively. However, as the West became populated and the States gained power—and local interests became more diverse—layer upon layer of authority formed—leading to, gridlock, paralysis, and a never-ending policy loop.

Deborah Stone (2002, p. 261)

“policy is more like an endless game of Monopoly than a bicycle repair.”

This comment emphasizes the continuous dynamic nature of political decisionmaking—it is not a one shot affair.

### **Views of water Governance**

Traditional views of national water governance in the U.S. appear to be based upon a set of assumptions about how the federal system works. Those assumptions may no longer be relevant. The rational, top-down approach whereby laws and regulations are promulgated by Congress and implemented by the federal agencies in concert with the state and local authorities and with the concurrence of stakeholders and interest groups is only a sketch of what really happens. There are several versions of that sketch.

### **The Rational Model/The Economic Model of Politics**

Rational Model taught in schools of Public Policy as:

- Identify objectives,
- Identify alternative courses of action for achieving the objectives,
- Predict the possible consequences of each alternative,
- Evaluate the possible consequences of each alternative, and
- Select the alternative that maximizes the attainment of objectives.

These steps can be recognized as constituting most of what we do, or attempt to do, in our professional and intellectual lives. They are the foundation of documents like the U.S. Water Resources Council’s *Principles and Guidelines* of 1983. So what could possibly be wrong with such an approach?

The highly diffuse nature of the multiple benefits available from a river and its water challenge the assumption of the rational model that it is possible to plan for and develop rivers like any other resource. The realities of information processing are also important in describing political behavior. With humanly limited capacities to absorb and judge, legislators are so overloaded with information that they have to be extremely selective in committing their attention. Legislators deal with this by specializing in a particular and limited subject area. In other areas they take cues from sources (colleagues, outside groups, committee reports) that they trust.

Stone’s response to the rational model is that it misses the point of politics:

A model of political reasoning ought to account for the possibilities of changing one’s objectives, of pursuing contradictory objects simultaneously, of winning by appearing to lose and turning loss into victory, and most unusual, of attaining objectives by portraying oneself as having attained them...Political reasoning is reasoning by metaphor and analogy (Stone, 2002, p. 9).

Moreover, the principle motivation for political behavior in democracies is that representatives are *single-minded seekers of reelection*. It follows from this that representatives’ goals are to improve the welfare of their constituents in the shortest possible time frame.

### **Rational Model**

Social welfare is defined as the efficient national economic development goal, taken roughly to mean maximizing regional income to the citizens in the basin, constrained by environmental and ecosystem sustainability requirements and other social objectives such as income distribution and fulfillment of treaties with the tribal groups and Mexico. Supporters of more and better governance in this framework tend to stress sustainability, protection of endangered species, economic efficiency and the public interest.

### **Polis Model**

Powerful symbols have been invoked in the water conflicts in the Colorado River Basin. States' rights, public interest, autonomy for the tribes, environmental sustainability, extinction of species, freedom from government interference, saving the family farm, protecting a way of life, economic efficiency and water for the poor have all been widely advanced. Proponents stress freedom from federal interference and saving the family farm.

The Colorado River Basin is rich in explanatory and persuasive stories. The lone farmer struggling against the aridity to settle the land, produce crops and ultimately develop an independent and resilient society; settlers struggling against all odds to make a living in a hard and unforgiving landscape. We are all aware of the cowboy culture followed by the "Chinatown" stories of exploitation by city slickers; also stories of noble savages, wise land management and a landscape managed for millennia.

The issues boil down to the rights of individuals and states to decide upon their own local environments. The fight goes on through the courts and, hence, the need to find sympathetic plaintiffs (for example, small family farmers damaged by federal reduction in water supplies) and other controversial issues with federal laws, such as the Endangered Species Act (ESA) favoring animals rather than people.

### **Where does this leave us?**

Water governance is only a small set of the governance framework of a country. In many places the financial flows going to water and its management are typically quite small. As a result the amount of political effort expended on them is typically quite small. The small projects are dealt with in the US by "gentlemen's agreements—the pork barrel." It is only when large mega-projects, or policies, are under consideration do we see the full implementation of the "political" model. It is also here where the possibility of choosing "rational" model may work to get the project implemented, but which could be a disaster in the making from the point of view of "national" development. Examples of these are the river linking projects in China and India, where rational planning of the water sector is likely to conflict with national development goals and have major social, economic, and environmental problems at the national, and also the local, level.

Our discussion could imply that we are in danger of creating too many institutions to deal with water. Both India and China have monumental centralized agencies devoted to water- maybe they would be better off with more attention paid to integration of local and regional concerns into the overall planning. I know that this is implicit in IWRM, but the nature of politics that once the institutions are created they have a vested interest in maintaining their own power and developing their own clients

Overtly using specifically *political* models of water governance, as suggested in this presentation, rather than clinging only to *rational* methods could have major implications for how centralized institutions do business in the water arena. Since it emerges that most of the control and protection of the public interest comes at all levels down the chain from national, to state, to river basin, to county, to city. These should be the areas of institutional strengthening, both in the overtly political sense and in the more institutional sense. Moreover there is no end point to the process—the continual game of monopoly--preference and tastes change, institutions come and go, the management and control of the water resources must go on for as long as we can maintain demands placed on them by changing human and ecosystem needs. The irony is that as the need for water governance changes along the line of the Polis model, rational analysis of options for altering historical uses of rivers to meet contemporary interests remains essential. This not a call to abandon rational analysis! BUT we have fundamental conflict between models of governance and political behavior

#### References.

Rogers, P, et al, *Political Decisionmaking in Real Political Contexts*, draft, 2006.

Rogers, P and A Hall, *Effective water Governance*, TEC Background papers No. 7, Global Water Partnership, 2005.

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Author: Edward Spang

**Searching for the “Soft Path”:  
System Dynamics for Improved Water Management in Barbados**

Abstract:

As a water scarce nation, Barbados has suffered numerous water crises in drought years, forcing the island to import water from neighboring islands, and eventually leading to the construction of a large desalination plant. However, both of these solutions are expensive, resource-intensive and supply-based responses. These qualities are in direct conflict with “Soft Path” water management, as defined by Peter Gleick, where water management solutions should be more decentralized, efficient and demand-oriented.

With tourism representing a critical sector of the economy, Barbados must manage its water carefully to meet the needs of the local population as well as the fluctuating number of tourists – a challenge common to many Small Island Developing States (SIDS). While increased tourism represents a demand-side pressure on freshwater resources, it may also serve as a potential solution to the problem. This study uses system dynamics methodology to help identify potential “soft path” policy opportunities for improved water resource management in Barbados.

**Trends and Tactics in Global Terrorism:  
When the Unconventional Becomes Conventional**  
12 October 2007

Panel Organizer: Ronnie Olesker

Panelists:

- Richard Shultz (chair), Professor of International Politics and Director of the International Security Studies Program, The Fletcher School, Tufts University
- Hassan Abbas, Fellow, Belfer Center for Sciences and International Affairs, Harvard University
- Alejandra Bolanos, PhD Candidate, The Fletcher School, Tufts University
- Joshua L. Gleis, International Security Program Research Fellow, Belfer Center for Sciences and International Affairs, Harvard University
- Ronnie Olesker, Lecturer, Tufts University

Hassan Abbas *The Pashtun Insurgency in Pakistan-Afghanistan Border Areas*  
Abbas explained his wish to consider how the present-day insurgency in Afghanistan is different from the 1980s jihad of the Afghan and Arab mujahidin. The term Pashtun insurgency is a new one, describing the phenomenon of Talibanization in southern Afghanistan and northwestern Pakistan. This border area involves a series of seven semi-autonomous agencies within the region: Taliban and al Qaeda seem to reside across this belt. In the last two years, these agencies have expanded into the interior of Pakistan beyond the immediate border belt, a reflection of the Taliban's spreading influence. Many of these militants were groomed in the Pakistani tribal belt during the jihad against the Soviets, but now militant elements have begun to target tribal leaders accused of collusion with the American government. When Pakistan has employed extensive military force to counter this rising threat, collateral damage in the form of civilian casualties has proved to be a dangerous unintended consequence. In combination, the Pashtun identity, a history of survival of the fittest and historical patterns of invasion have all hardened these individuals in their habits of revenge, violence, and selective hospitality.

He framed the insurgency's hold in the border areas with four Ts: training, tracking, trucking, and trafficking. He also pointed to the opium factor, a steady source of income. Regional interests in an oil pipeline and the persistence of a "Great Game" mentality facilitate the persistent involvement of many countries in Afghanistan's fate and future. He concluded by suggesting that, if the insurgency continues, the Pashtun-dominated territories of Pakistan could merge with Afghanistan or the Pashtun belt could shift into Pakistan's realm. In either scenario, the strength of militancy in this part of the world would only increase.

**Alejandra Bolanos *Information Technology and Global Salaffi Jihadism***

Bolanos asked the question: can information technology enhance the capabilities of the jihad? She described five trends that reflect an evolution in the approach to jihad as facilitated by internet technology. (1) Exponential growth and presence of terrorist groups in the internet: 15 organizations (1998) had presence, 5000+ organizations on the web now. (2) Functional

diversification on the rise: their activities on the internet are growing in number, fundraising, propaganda, training, recruitment, communication, interorganizational networking, procurement, denial, deception. These activities happen in a safe environment of anonymity and secrecy. This is a virtual safe heaven, substituting for territorial safe havens. (3) Multiplication of strategic efforts: there are a variety of media outlets and companies that are able to disseminate the message globally. (4) Increasing sophistication in the technical employment of the internet as well as the substance and content. (5) A tailored message for a progressively larger, global audience. They are employing the internet in order to tailor their message to very specific audiences. One particular message targeted on the Chechen jihad is translated into over 20 languages with specific messages.

The internet, according to Bolanos, has enabled these networks to disseminate information, intelligence and knowledge throughout their ranks. The other function of the internet of crucial import is recruitment: the training and education available online *results* in recruitment. Curricula have been developed and delivered to those online that provide the intellectual and philosophical foundation of these movements. There are also chatrooms that enable these movements to reflect on the pulse of those who visit their forum. There is a communal commitment that begins to form at the virtual level.

#### Joshua Gleis *Typologies of Insurgency*

Gleis first defined insurgency as a political and military struggle. He outlined the various forms of insurgency that have historically existed: rural, urban, anarchist, egalitarian (often socialist), traditionalist (restoration of old order, including reactionary traditionalists like radical Islamists), apocalyptic-utopian (seeking divine intervention), secessionist, and preservationist. He then identified the components of insurgency, including leadership, combatants, political cadres, auxiliaries and their base. These components engage in dynamic ways that involve shifts and evolution in leadership, objectives, ideology, narrative, environment and geography, external support, phasing and timing. Josh surveyed the variety of tactics available to insurgents, pointing out that the approaches of counterinsurgency can play into the insurgent tactics. With regard to counterinsurgency, a state power can choose to permanently engage versus maintaining a temporary presence: the former involves the Chinese approach in Tibet or the Americans in Iraq. The latter can be seen in the approach Israel has taken in the Gaza strip, once Israel decided to withdraw.

#### Ronnie Olesker *Israel's Security Doctrine and the Palestinian-Arab Minority*

Olesker posed the question: how is the security doctrine formulated? Most of the literature that covers the Jewish majority and the Palestinian minority focuses on the constitution as defining Israel as a Jewish democracy, the Arab-Israeli conflict as a larger operating context, and, finally, the approach to policy that consistently frames it in the context of security. Ronnie sought to unpack, therefore, the formulation process of security policy in order to understand its impact on the relationship between the majority and the minority in Israel. She reviewed a five-step process, as defined in the literature on the cultivation of security doctrine: threat assessment; prioritization of interests; objective-resources matching; translation of doctrine into action; execution by actors, including the media, judiciary, legislature, public opinion, non-governmental organizations. In applying this framework, she found that the Israeli defense establishment has identified the Palestinian citizenry within Israel as a potentially disloyal,

destabilizing fifth column. Israel has elevated the principle of security beyond an “interest” into a value, which then competes within the institutions of the state with other values, including the rights of the individual.

With regard to actors, then, she perceived the military as an active partner (not a subordinate) in the setting of policy. Judicial review, a conventional check on the cultivation of policy, is tentative and cautious with regard to issues that can be framed in the context of security. Therefore, given the perception of Palestinian citizens as a potential threat to “Jewish democracy,” Olesker argued that a misguided security doctrine has emerged. There has been a recent materialization of this fear, in that a correlation has emerged between Palestinian violent activity in the occupied territories and such activity within Israel by Palestinian citizens. She argued that, as a function of the Israeli-Palestinian tension in the occupied territories, the perception of fear on the part of the Israeli establishment rises. As a result, Palestinian Israelis perceive injustice and become alienated from the state and grow more inclined to engage their Palestinian counterparts in the occupied territories: this is an ongoing cycle of concern.

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## **The Implications of Cyberpower**

October 12, 2007

Moderator: Col. Jeffrey Kubiak, PhD Candidate, The Fletcher School, Tufts University

### Panelists:

- William C. Martel (discussant), Associate Professor of International Security Studies, The Fletcher School, Tufts University
- Scott Borg, Director and Chief Economist United States Cyber Consequences Unit
- Andrea J. Dew, Assistant Professor for Strategy and Policy, Naval War College
- Col. Greg Rattray, USAF (Ret), Partner, Delta Risk, LLC
- Col. Stephen E. "Wilbur" Wright, Dean of Academic Affairs, Air War College

The term cyberspace, although now a commonly used term, is relatively ill defined. Cyberspace is used in common parlance to describe any number of phenomena related to the existence and use of technology making use of the electromagnetic spectrum, technology which is now ubiquitous in modern (and even not-so-modern) societies worldwide. These technologies are also central to another related, ill-defined term...globalization.

It is the ubiquitous nature and its growing role in global social relations that dictates that we come to a deeper understanding of the issues that are generated with the creation of this reasonably new media for social exchange. It is this objective...the search for clearer understanding...around which this panel is organized. Specifically, how best do we conceptualize cyberspace and what are the important implications for national power and national security?

The panel's first presenter was Greg Rattray who joined the discussion, suitably enough, via internet video teleconference. Dr Rattray (1998 Fletcher PhD) is a retired U.S. Air Force colonel who's published dissertation on cyberspace security and work on cyberspace defense issues on the NSC staff, made him uniquely qualified to provide us with a framework with which we can analyze the pertinent issues. After providing us the Dept of Defense definition of cyberspace as "a domain characterized by the use of electronics and the electromagnetic spectrum to store, modify, and exchange data via networked systems and associated infrastructures," Dr Rattray argued that the best way to approach an analysis of cyberspace is to view it "through the lens of an ecosystem – many factors in the environment; many types of actors; complex, non-linear interactions." He continued by arguing that while the enormous increase in cyber-activity has decreased transaction costs in many economic and social activities increasing productivity and national soft power, cyberspace is a dual edged sword as it multiplies the vulnerabilities of modern societies and provides weak actors in the international system with copious asymmetric capabilities. With relatively low barriers to entry, cyberspace capabilities and vulnerabilities of modern society increase the destructive power of small state and non-state actors.

Up to this point, Dr Rattray pointed out, regulation of cyberspace has been relatively ad hoc by a collection of international NGOs and IGOs that have focused more on the functioning and

technological challenges of the internet than on the security vulnerabilities generated by it. He claims that the holistic nature of cyberspace makes it very difficult to breakdown in any functional way and therefore governments have a difficult time coherently and comprehensively dealing with the security challenges presented by cyberspace. Rattray highlights that keys to effective U.S. government efforts in cyberspace include: working towards establishing holistic policy mechanism for national strategy on cyberspace use with an emphasis on engaging the private sector; breaking through the current “network security culture” to develop mechanisms to aggressively manage risk attending cyberspace use; and aggressively seek partnerships and involvement in Internet governance.

Our second presenter was Col Steve Wright (Fletcher PhD 2007), the Dean of the Air War College. With his background in Air Force information operations, Col Wright could provide the panel with a detailed insight into the development of cyberspace concepts from their inception in the military branch at the forefront of cyberspace security policy. Wright starts with physics, claiming that the electro-magnetic spectrum is the physical medium that makes up the cyberspace war fighting domain. Similar to other domains in which the AF operates (air and space), the AF executes missions and creates effects in the areas of network operations, control and superiority in the cyberspace domain. Part and parcel to these missions are the material, organization and doctrine that make up AF operations in cyberspace. Col Wright was quick to point out that the “stuff” of cyberspace, the hardware, software and applications of cyberspace material, showed up quickly and in large quantities over the last two decades while the AF is just now beginning to build the organizational structure for cyberspace operations and still lack comprehensive doctrine for operations in cyberspace. As might be expected, the parochial interests of various segments of the bureaucratic AF are engaged in battles over the resources that have and will flow to cyberspace operations, adding to the confusion of issues.

Next, Scott Borg, the director and chief economist for U.S. Cyber Consequences Unit (U.S.-CCU), a noted national expert on the security vulnerabilities created by societies embracing cyberspace. U.S.-CCU is now affiliated with Fletcher for the exploration of cyber security issues. Borg started his talk by reciting a CNN story covering a mock-cyber attack against a generic electrical generator during which the generator was literally physically destroyed. He then proceeded to explain the risk analysis posed to the country’s economy from an organized cyber attack against the U.S. electrical generation industry. Analytically exploring the ramifications of a concerted attack on electrical generation in the northeast, for example, resulted in a conclusion that 8-10 days following the attack only about 28% of normal economic activity would still be conducted. The thumbnail sketch he provided was truly alarming. The good news, Mr. Borg explained, was that the countries currently capable of conducting such a sophisticated cyber-attack were all great powers too fully tied to the U.S. economy to attempt it and rogue nations or non-state actors currently are not assessed as having the required sophistication...but this is a transitional condition.

It is Mr. Borg’s sense that we are entering a new security era as different from the previous era as the nuclear era was from its predecessor. He claims that it is so different from previous eras that all previous security and foreign policy analogies and paradigms are inapplicable. Retaliation and deterrence will continue to be impossible against a threat that is conducted with near perfect



anonymity. The keys to national security become critical industry infrastructure: electrical power generation, gas/oil, etc.

Prof Bill Martel provided a wrap up of the panel with his comments on the ubiquitous nature of technology that uses cyberspace. Everyday life revolves around technology that relies on the constellation of satellites operated by the U.S. military known as GPS...the Global Positioning System. He claimed that the military clearly sees the vulnerabilities and security issues raised by the societal reliance on cyberspace, but not unlike the Y2K scare of the late 1990s, there is enormous uncertainty as to how much danger these vulnerabilities place modern society in.

The roundtable discussion was very energetic. The ecosystem analogy was challenged...consensus was that many aspects of the analogy are useful in thinking about cyberspace and that those nations that adapt best survive; U.S. offensive activity in cyberspace was debated...legal issues, perishability of technology and techniques confound offensive use; redundancy or publication (like investing in Galileo, the EU version of GPS) does not bring resiliency because they are too similar...only back ups that are qualitatively different in their design (like inertial navigation vs. GPS) actually add to resiliency.

Finally, all the panelist were asked to provide their thoughts on the role that can be played by the Fletcher PhD community in this issue area. As is frequently noted, Fletcher's location at the nexus of theory and practice, is uniquely equipped to play a leadership role in the exploration, understanding, and theory development in the area of cyber security that would provide policymakers a more sound background to deal with the problem and not just symptoms. The holistic nature of cyberspace issues is something more comprehensible by graduates from Fletcher who based upon their education tend to see the connectedness of it all.

## **Peacebuilding, Statebuilding, Stabilization and Reconstruction: what is the difference?**

Friday, October 12, 2007

Organizers: Susanna Campbell and Christof Kurz

Panelists:

- Deborah Bräutigam, Associate Professor, International Development Program, School of International Service, American University
- Darren Kew, Assistant Professor, Dispute Resolution Program, University of Massachusetts Boston
- Peter Uvin, Academic Dean and Henry J. Leir Professor of International Humanitarian Studies, The Fletcher School, Tufts University
- Andrew Wilder, Research Director for Politics and Policy, The Feinstein International Center, Tufts University
- Susanna Campbell (panel moderator), PhD Candidate, The Fletcher School, Tufts University
- Christof Kurz (roundtable moderator), PhD Candidate, The Fletcher School, Tufts University

### **Panel summary:**

Susanna Campbell, a PhD candidate studying the connection between the structures of intervening organizations and the antecedents to peace agreements, and Christof Kurz, a PhD candidate studying the notion of state failure in West Africa and how it relates to conflict in the region, moderated the session. Susanna opened the panel by asking the panelists to speak about the connections between each of the concepts from the perspective of their research with attention to definitions of success and the ways in which these concepts resonate with local people and institutions. From the remarks of the panelists and the following discussion emerged a sense of the challenges inherent in connecting the overarching objectives of peace, democratization, engaged civil societies, functioning states, and security to actual practice and the specific processes of diverse local contexts.

**Darren Kew**, whose current research interests include the connections between democratization, civil society, and peace-building in theory and practice on the African continent, spoke of the importance of fostering a democratic political culture. He suggested that there exists a consensus that democracy should be the outcome of post-conflict processes and consolidated democracies in Africa are doing better than undemocratic or unstable regimes in terms of GDP growth. Peacebuilding requires permanent structures for resolving conflict peacefully, and democratic institutions provide such structures. However, for democratization processes to be successful political culture needs to change. Prof. Kew argued that political culture can only change by exposing individuals to positive experiences in democratic decision that allow them to question prevalent values. He identified civil society organizations that are

democratically constituted as a key element in providing such positive experiences. His research also showed that the participation of civil society groups in peace negotiations and as signatories to peace agreements has a positive effect on the successful implementation of the agreement.

**Peter Uvin** outlined the results of his recent research on meanings of peace among war-affected populations in Burundi. He highlighted the parallels and disconnections between local perceptions and academic theories of peace-building and post-conflict reconstruction. A significant number of Burundians define peace as “negative” peace, i.e. as the absence of war. However, many respondents in Prof. Uvin’s research also considered the ability to make a living, to restore relationships among people and to regain mobility as key elements in their understanding of peace. Prof. Uvin concluded that Burundians’ own definitions of peace roughly coincide with a broad human security definition of peace including the post-conflict peace-building objectives of security, development, democracy and reconciliation. However, there are also significant differences, in particular with respect to low priority Burundians place on elections, good governance, and truth commissions or tribunals as vehicles to bring about reconciliation.

**Andrew Wilder**, who recently returned from three years in Afghanistan, emphasized the large challenges that the U.S. and Western governments are facing in Afghanistan. He criticized the technocratic nature of all post-conflict aid programs and their a-political and simplified assumptions of a social contract based on greater government capacity and service delivery. The international reconstruction project in Afghanistan is made even more difficult by the meshing of counter-insurgency, Western security concerns, and development projects. Dr. Wilder suggested that in the process of moving from a patronage system based on personal connections to a more rule-based rationalized system, much more attention needs to be paid to the political and cultural context, rather than an overly technocratic approach. He is skeptical of Western governments’ and international organizations’ skills and capacity to successfully tackle political issues through skilled diplomacy.

**Deborah Brautigam** is currently working on the interactions between institutions of economic governance and the private sector, as well as the impact of China’s growing foreign assistance programs on the global aid regime. Her most recent book examines the relationship between taxation and state building. Prof. Brautigam defines statebuilding as increase in capacity of government to pursue its goals and interact with society. Successfully raising taxes is a key ingredient in this process since it helps forge stronger state-society relationships through a “fiscal contract” and helps society to hold government accountable. Countries that rely to a large degree on natural resources or foreign aid or foreign loans for their income have few incentives to build up their capacity to tax the population and hence make for weaker states. Her research indicates that decentralized tax collection leads to better government service delivery as people hold local representatives accountable.

Summary of Q&A: A successful approach to peace-building, reconstruction and stabilization, and state-building, requires working at multiple levels at the same time. In this process, it is important for practitioners to be aware of their role coming from the outside and to be mindful that interventions do not hinder processes of state-building that would occur. Darren Kew argued that post-conflict peacebuilding processes are too focused on elite bargaining and

much more attention needs to be paid to civil society and grassroots processes. Deborah Brautigam suggested that outside intervenors have to be careful not to interfere too much with local statebuilding processes. This could be achieved by giving aid tied to increasing agricultural or economic production, matching grants for taxes collected, and rewarding communication about revenue levels to promote transparency, as the types of actions that encourage accountability between governments and citizens. Andrew Wilder drew attention to the need for adjustments in expectations and standards that external intervenors impose —nation-building is a long-term endeavor and the current timeframes are not realistic. He also cautioned to be more honest about the importance of national security concerns in post-conflict development in Afghanistan, even though Afghans generally do not distinguish between aid given by the U.S. military or other Western non-military organizations.

## **Climate Change: Security and Sustainability, Politics and Policy**

October 12, 2007

Moderator: William Moomaw, Professor of International Environmental Policy, The Fletcher School, Tufts University

Panelists:

- Elizabeth Chalecki, PhD Candidate, The Fletcher School, Tufts University
- Kelly Sims Gallagher, Director, Energy Technology Innovation Policy, Belfer Center for Science and International Affairs, Harvard University
- Marcus King, Globalization Planning Fellow, Office of the President, Georgetown University
- George Unruh, Director, Lincoln Center for Ethics in Global Management, Thunderbird, School of Management

Summary Notes by Andrew Freedman

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### **Presentation by Elizabeth Chalecki: PhD candidate, The Fletcher School, Tufts University; “US Exceptionalism and Climate Change.”**

Chalecki’s presentation focused on U.S. exceptionalism in the Kyoto Protocol and on the legal distinctions of global environmental treaties compared with treaties tackling other areas of international law.

Chalecki argued that the United States’ refusal to join Kyoto is eroding the international legal system on climate change, and that America’s exceptional behavior on Kyoto is out of step with customary international law.

She asserted that rules governing environmental commons, such as the atmosphere in the case of climate change, are binding to nations because they are parties to the environment. Also in support of her assertion that the US may be in violation of international customary norms in this regard, she cited the demonstrated norm practices within the US State system of Governors and Mayors signing on their States and cities to meet the Kyoto challenges. Furthermore, she said that science sets many international environmental treaties apart from other issues that lack an objective scientific basis for policy making.

She pointed out that environmental treaties are created not just between nations but between national governments and the natural world.

Brief Q+A following Chalecki’s talk focused on the interaction between trade law and climate change, among other issues.

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**Presentation by Kelly Sims Gallagher (F PhD '03): Director, Energy Technology Innovation Policy, Belfer Center for Science and International Affairs, Harvard University; "China's Approach to Global Climate Change."**

Sims Gallagher presented conclusions from a forthcoming paper she wrote for the journal *Current History*. The paper, and her talk pertain to China and climate change.

She proposed that the U.S. and China form a bilateral partnership to reduce greenhouse gas emissions and foster cleaner development pathways for China, rather than continue the current bickering between Washington and Beijing over the other nation's obligation to reduce emissions and develop cleaner technologies.

She said such a partnership should be based on the shared challenges facing both nations as major emitters of greenhouse gases that rely on coal resources for the majority of their electricity production. She said the partnership would include policy coordination, a fund to pay for clean energy projects in China, capacity building measures and a joint innovation initiative.

Sims Gallagher discussed the scale of China's energy challenge and cited statistics showing that, for example, within five years China could have the same amount of electricity generation as the United States, with most of the electricity coming from carbon intensive power sources.

She said it's critical to avoid allowing China to become further "locked in" to polluting technologies, and to instead help them "leap frog" to more efficient technologies.

"We just can't afford to wait," Sims Gallagher said. "The next five years, the next ten years will make it or break it."

She said the United States should help China reduce its emissions for several reasons ranging from trade interests to moral obligations. She said the U.S. should acknowledge it has a duty as the world's biggest emitter of greenhouse gases in the 20<sup>th</sup> Century to help the biggest emitter in the 21<sup>st</sup> Century reduce their emissions.

Brief Q+A following Sims Gallagher's presentation focused on how to sell her proposal to lawmakers who may see the task of protecting American jobs from Chinese competition as more of a priority when dealing with China's environmental impact.

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**Presentation by Marcus King: PhD Candidate, The Fletcher School, Tufts University; "Global Warming and U.S. National Security: Informing the Policymaker."**

King discussed climate change as a national security concern. For his dissertation research, King has examined how to convince the U.S. national security establishment that climate change poses sufficient national security risks to warrant a National Intelligence Estimate (NIE) on climate change.

King said a white paper on climate change and national security should accompany an NIE because NIE's frame issues in terms of military solutions rather than root causes and don't offer policy prescriptions.

King pointed out that the notion of a climate change NIE has taken on significant momentum in recent years. Recently the Senate voted to require a climate change NIE, but that measure has run into resistance and has not been enacted into law.

He outlined findings from a forthcoming study from the Center for Strategic and International Studies (CSIS) on "climate cataclysms" that will outline some of the geopolitical and diplomatic ramifications of climate change.

He also discussed the findings of other recent reports on climate change and national security, and how useful they are likely to be for policy makers. He said the average finding of all of the recent research reports is that "climate change is unlikely to cause wars in and of itself but that it acts as an accelerator to existing conflicts."

Brief Q+A following King's talk focused on whether resource scarcity could bring people together to solve common problems rather than causing strife.

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**Presentation by Gregory Unruh (F PhD '99): Director, Lincoln Center for Ethics in Global Management, Thunderbird School of Management; "Climate Change, Technology and the Anthropogenic Earth."**

Unruh discussed the sources of inertia in the energy system. More broadly, his presentation discussed the role of energy technology and development in a carbon-constrained world.

As an example, Unruh demonstrated the potential for one type of technology, which he termed "synthetic trees," to dramatically lower atmospheric carbon dioxide concentrations.

Unruh said one company, Global Research Technologies, is currently developing and testing this technology and that he envisions it as a potential last resort if climate change from CO2 concentrations turns out to be worse than anticipated.

He said the technology could remediate stationary and mobile sources of CO2, as well as address both future and past emissions, while buying time for the optimization of clean energy technologies. It would be, he said, "an industrial closing of the carbon cycle."

Unruh explained that the synthetic trees concept would be in accordance with the polluter pays principle and would allow the industrial world to go back and clean up the mess that it created.

He said while technology may be progressing on the synthetic trees concept, human society is not yet ready to adopt it. The value of the technology is that it demonstrates some of the new ideas still being explored to help meet the challenges of rising CO2 concentrations in the earth's atmosphere.

Brief Q+A following Unruh's presentation centered around whether synthetic trees would actually help postpone the clean energy transition by providing an excuse for political leaders to put off potentially expensive actions to reduce emissions.

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The general discussion following the panelists' presentations focused on the question of whether there is too much emphasis on the role of technology in reducing greenhouse gas emissions, as well as climate change and national security issues.

The panel members and the audience discussed the multiple dimensions of climate change beyond its direct impacts. This macro-level issue challenges traditional concepts of international law based on state sovereignty, creates a potential to re-define political and economic relationships among large powers such as the U.S. and China, and it requires a rethinking of national intelligence assessments. The panel has demonstrated that climate change requires bold new thinking about the role of technology as well. This discussion revealed the ability of Fletcher students and graduates to identify complex international issues and to pursue their multiple interconnections in an interdisciplinary manner.

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## **Science Before Law: American Exceptionalism in the Kyoto Protocol and the Development of a Global Norm of Environmental Compliance**

*Sic utere tuo ut alienum non laedas*: the duty to exercise one's rights in ways that do not harm the interests of other subjects of law

"The legislature's job is to write law. It's the executive branch's job to interpret law."  
- *George W. Bush, Austin, TX, 11/22/00*

### **Abstract**

This article will argue that a new norm of compliance with agreements is becoming customary with regard to the global environmental commons, particularly in the case of climate change and U.S. behavior towards the Kyoto Protocol. While the United States' repudiation of its signature on the Protocol in 2001 was legal under the practice of traditional international law, this same practice is no longer sufficient in scope or in time to keep pace with the rapid advances in our scientific understanding of global environmental processes. Because every member of the international community can suffer significant harm from climate change, the presumption of compliance with restrictions on greenhouse gases is emerging as a customary norm of international law. Section I of this article will determine whether the United States has any outstanding legal obligation to reduce greenhouse gases under either the United Nations Framework Convention on Climate Change or the Kyoto Protocol. Section II will examine the common understanding of how customary norms of international law are formed and whether the United States is bound by these norms to take steps to reduce greenhouse gases in lieu of an explicit agreement. Section III will consider why the United States is continuing to remain an exceptional nation under this norm and whether its arguments for not participating in the regime are legally and politically valid. Section IV will examine any levers to compliance with the global environmental regime that custom may provide. Finally, this article will examine directions for future legal consideration of global environmental norms.

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## **Introduction**

Customary international law is perhaps the most vague of legal doctrines. A norm, custom or general principle that appears germane to the fundamental interests of the international community can be thorny or tenuous when implemented. With the international community itself not always able to agree upon or even identify its fundamental interests, these norms can seem like figures in the fog, indistinct and always moving. It is especially difficult to determine when a new norm has emerged from this fog.

This article will argue that a new norm of compliance with agreements is becoming customary with regard to the global environmental commons, particularly in the case of climate

change and U.S. behavior towards the Kyoto Protocol. While the United States' repudiation of its signature on the Protocol in 2001 was legal under the practice of traditional international law, this same practice is no longer sufficient in scope or in time to keep pace with the rapid advances in our scientific understanding of global environmental processes. Because every member of the international community can suffer significant harm from climate change, the presumption of compliance with restrictions on greenhouse gases (GHGs) is emerging as a customary norm of international law. Section I of this article will determine whether the United States has any outstanding legal obligation to reduce GHGs under either the United Nations Framework Convention on Climate Change (UNFCCC) or the Kyoto Protocol. Section II will examine the common understanding of how customary norms of international law are formed and whether the United States is bound by these norms to take steps to reduce GHGs in lieu of an explicit agreement. Section III will consider why the United States is continuing to remain an exceptional nation under this norm and whether its arguments for not participating in the regime are legally and politically valid. Section IV will examine any levers to compliance with the global environmental regime that custom may provide. Finally, this article will examine directions for future legal consideration of global environmental norms.

Two key assumptions must be stated at the outset of this article. First, the intellectual concepts behind the creation of customary norms of international law are valid regardless of the application of those norms. In other words, states are expected to comply with existing law and norms, even if there is currently no real-world forum for their adjudication. Second, for the practical purpose of this discussion, there is little if any operational difference between a nation that is not a party to a global environmental treaty and a party that is out of compliance with that

same treaty.<sup>1</sup> In both cases, the desired end-state is that all nations are parties and that they comply with the treaty's terms.

**I. Is the United States bound by any treaty or other specific instrument of international law to reduce greenhouse gases?**

While political traction has been gained by stressing the uncertainties surrounding climate change, the actual science behind the theory is not in doubt by any reputable scientist. Ultraviolet light from the sun passes down through the upper atmosphere and is absorbed by the earth. It is then re-emitted in the form of infrared heat, most of which passes back up through the atmosphere, and escapes into space. Some of the heat, however, is reflected back down to the earth's surface; without this effect, there would be no life on earth, since the planetary surface would be as cold as outer space. Before the Industrial Revolution, the average concentration of carbon dioxide (CO<sub>2</sub>, the most common GHG) in the atmosphere was 280 parts per million (ppm). However, over the last 150 years, a combination of fossil fuel burning and land use changes have caused the average CO<sub>2</sub> concentration to rise to 379 ppm and it is still rising.<sup>2</sup> Nor is CO<sub>2</sub> the only gas that traps heat: methane (CH<sub>4</sub>), nitrous oxide (NO<sub>2</sub>), hydrofluorocarbons (HFCs), and others all contribute to the greenhouse effect, some having many times the global warming potential of CO<sub>2</sub>.<sup>3</sup> The effects of climate change will be varied across space and time,

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<sup>1</sup> Legally, there is a world of difference between the two. A nation out of compliance with a treaty to which it is a party is in breach, whereas a nation that has accepted no legal constraint in this matter can be said to be doing nothing wrong. However, scientifically, an out-of-compliance party and a non-party nation are equally responsible for furthering global warming by failing to reduce their GHG emissions. Hence, they are equally culpable for creating the international situation that gives rise to the emerging norm, and thus are equally problematic from the scientist's point of view.

<sup>2</sup> *Climate Change 2007: The Physical Science Basis Summary for Policymakers* [hereinafter IPCC AR4 Working Group I SPM]

<sup>3</sup> For the latest IPCC Fourth Assessment Report findings on global warming, see IPCC AR4 Working Group I SPM; *Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability Summary for Policymakers*; and

and can range from sea level rise to ecosystem changes to droughts and floods to more extreme weather events to an increase in negative human health effects, though all of these outcomes are predicted with varying degrees of certainty.<sup>4</sup> With such a range of negative effects possible, the international community has enacted two treaties to deal specifically with climate change.

#### A. The United Nations Framework Convention on Climate Change

The United States is a party to the United Nations Framework Convention on Climate Change,<sup>5</sup> the umbrella agreement under which the Kyoto Protocol was designed to operate. Signed on June 12, 1992 and ratified on October 15 of the same year, the UNFCCC contains several general obligations that the United States is required to fulfill. Article 3.1 recognizes that parties have “common but differentiated responsibilities” with regard to their ability to protect the climate, and commits the developed countries to “take the lead in combating climate change and the adverse effects thereof.” Article 3.3 sets forth the precautionary principle, stating that parties should “anticipate, prevent or minimize the causes of climate change[...].” However, the chapeau to Article 3 states that the parties “shall be guided” by these articles, not be required to

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*Climate Change 2007: Mitigation of Climate Change Summary for Policymakers*, all at <http://www.ipcc.ch>. For further discussion of the scientific basis of global warming, see *Global Warming*, Union of Concerned Scientists, at <[http://www.ucsusa.org/global\\_warming/](http://www.ucsusa.org/global_warming/)>; *Climate Change 2001: Synthesis Report*, Intergovernmental Panel on Climate Change (IPCC), at <<http://www.ipcc.ch/pub/syreneng.htm>>; *Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change*, U.S. Global Change Research Program, at <<http://www.usgcrp.gov/usgcrp/Library/nationalassessment/overview.htm>>. For the most recent data on U.S. greenhouse gas emission levels and sources, see *Environment: Greenhouse Gas Emissions*, Energy Information Administration, at <<http://www.eia.doe.gov/environment.html>>.

<sup>4</sup> The IPCC consistently assigns levels of certainty representing the collective judgment about an outcome based on observational evidence, modeling results, and theory. If something has a greater than 99% chance of happening, it is referred to as “virtually certain,” if something has a 90%-99% chance of happening, it is referred to as “very likely,” and so forth, all the way down to “exceptionally unlikely” with a probability of less than 1%. IPCC AR4 Working Group I SPM states that, “Most of the observed increase in globally averaged temperatures since the mid-20<sup>th</sup> century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations.” (emphasis in original) The complete range of certainty estimates can be found at *Summary for Policymakers*, IPCC, 5, at <<http://www.ipcc.ch/pub/un/syreneng/spm.pdf>>.

<sup>5</sup> U.N. Framework Convention on Climate Change, March 21, 1994, S. TREATY DOC. No. 102-38, 31 I.L.M. 849 [hereinafter UNFCCC or Framework Convention]

comply with them. Article 4 lays out basic tasks for the parties, such as “develop a national inventory of GHGs,” “publish regional programs containing measures to mitigate climate change,” and “promote sustainable management.” However, nothing in Article 4, or indeed in the entire Framework Convention, commits signatories to any specific reductions by any specific dates.

The parties did not set out to produce an agreement free of required action. During the negotiation, specific proposals were made to commit the parties to either binding targets and timetables or to further study. These ranged in action from Denmark’s proposal of a 20 percent reduction from 1990 GHG levels by 2005 to the Netherlands’ proposal that the parties analyze the feasibility of and options for any GHG reductions at all. However, the main holdout to the establishment of any sort of targets and timetables for GHG reductions was the United States, which argued that in lieu of actual emissions reductions, the Framework Convention should adopt an approach that encouraged “the development of better information, national strategies and action plans.”<sup>6</sup> With most of the other nations lined up in favor of concrete restrictions, the United States strategically decided to hold off announcing whether or not then-President George H.W. Bush would attend the Rio environmental summit that same year. Concerned that the summit would be judged a failure if the president of the world’s largest GHG emitter did not attend, the other nations agreed to a vaguely-worded Framework Convention, with no binding timetables and no commitments to do anything at all.<sup>7</sup>

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<sup>6</sup>Daniel Bodansky, *The United Nations Framework Convention on Climate Change: A Commentary*, 18 YALE J. INT’L L. 451 (1993).

<sup>7</sup>Rose Gutfeld, *Earth Summitry: How Bush Achieved Global Warming Pact with Modest Goals*, WALL ST. J., May 27, 1992, at A1. This was an “achievement” that the Bush Administration had no desire to keep secret. Fearing political repercussions for the President in the 2004 election, the Department of Energy, the State Department, and the Office of Management and Budget all argued publicly and forcefully against any action to head off global

## B. The Kyoto Protocol

In 1995, negotiations were begun at the UNFCCC first Conference of the Parties specifically to strengthen the commitments under UNFCCC articles 4.1 and 4.2, which were deemed “not adequate.”<sup>8</sup> On November 12, 1998, the United States signed the Kyoto Protocol to the UNFCCC,<sup>9</sup> the first protocol to contain binding targets and timetables for reduction of GHGs. Carrying further the idea of “common but differentiated responsibilities,” the developed countries listed in Annex I of the UNFCCC (the “Annex I countries”) were assigned targets based on the assumption that since the developed countries contributed the most to the climate problem with their historically high emissions levels, they would be the first ones to undertake emissions reductions. The developing countries, in light of their economic conditions and priorities, were not assigned specific targets and timetables in this Protocol.

Article 3.1 is the binding part of the Protocol, stating that,

The Parties included in Annex I **shall**, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts...<sup>10</sup>

Annex A commits the United States to a 7 percent reduction from its 1990 GHG emission levels by 2012 at the latest. The phrasing of this sentence establishes that the United States and other Annex I Parties have a legally-binding commitment to meet their emission commitments by the use of the word "shall." This contrasts with the Framework Convention, where the commitment to return emissions to 1990 levels was only an "aim." Even though binding targets and

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warming. For a lengthy discussion of why each article in the Framework Convention does not constitute a legally binding requirement, see Bodansky, *supra*.

<sup>8</sup> Joanna Depledge, *Tracing the Origins of the Kyoto Protocol: An Article-by-Article Textual History*, FCCC/TP/2000/2, 8 (2000).

<sup>9</sup> *Kyoto Protocol to the U.N. Framework Convention on Climate Change*, Dec. 10, 1997, U.N. Doc. FCCC/CP/1997/L.7/Add.1, 37 I.L.M. 22 [hereinafter Kyoto Protocol or the Protocol]

<sup>10</sup> Kyoto Protocol, Art. 3(1).



timetables were politically unpopular, the Clinton Administration intended to submit the Protocol to the Senate for ratification,<sup>11</sup> but when the Byrd-Hagel Resolution stating the Senate's opinion that the Protocol should not be ratified was passed 95-0<sup>12</sup>, Kyoto was shelved.

The United States has since repudiated<sup>13</sup> the Kyoto Protocol, now in force in 141 other countries,<sup>14</sup> on three grounds. First, the White House contends that the scientific judgment surrounding the causes and effects of climate change is "uncertain." Second, compliance with the targets established in the Protocol is alleged to do irreparable harm to the American economy. Third, the Protocol itself unfairly excludes developing nations such as China and India from being required to meet their own binding targets and timetables.<sup>15</sup> The merits of each of these points will be discussed in Section III, but under customary international law, the United States has the right to repudiate a signed agreement before it has been ratified, and because the United States publicly repudiated Kyoto before ratification, it is not legally bound by its terms.<sup>16</sup> Since there are only two international legal instruments that specifically address climate change,

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<sup>11</sup> Ackerman, David M. 2002. "Global Climate Change: Selected Legal Question About the Kyoto Protocol" CRS Report for Congress, Congressional Research Service, October 1, 2002, p. 1.

<sup>12</sup> S. Res. 98 (1997). The U.S. Senate never formally voted on ratification of the Kyoto Protocol, but the Byrd-Hagel Resolution was taken as indicative of its voting position.

<sup>13</sup> The Vienna Convention on the Law of Treaties does not specify any particular method by which a nation can repudiate a signed treaty before ratification, though the CRS (see Ackerman, *supra*) opines that a letter from the Secretary of State to the depository would suffice. However, the Bush Administration has stated repeatedly in news conferences, press briefings, articles and other media that the United States considers Kyoto dead. Given the widespread publicity of this position and its grumbling acceptance by the other Parties, there can be no doubt that the United States has *de facto*, if not *de jure*, repudiated the Protocol, and no legal challenge to its having done so has been mounted.

<sup>14</sup> On November 18, 2004, Russia became the last major country to ratify Kyoto, thus triggering the entry-into-force requirement of at least 55 nations accounting for at least 55% of the world's GHG emissions. Ninety days later, on February 16, 2005, the Protocol entered into force.

<sup>15</sup> "An Analysis of the Kyoto Protocol" White House press release, June 2001, p. 1. As found at [www.whitehouse.gov/news/releases/2001/06/climatechange.pdf](http://www.whitehouse.gov/news/releases/2001/06/climatechange.pdf) (hereinafter White House Analysis).

<sup>16</sup> Vienna Convention on the Law of Treaties, May 23, 1969, art. 18(a), 1155 U.N.T.S. 331 [hereinafter Vienna Convention] states that, "A State is obliged to refrain from acts which would defeat the object and purpose of a treaty when ... it has signed the treaty ... until it shall have made its intention clear not to become a party to the treaty ..." The United States has not signed the Vienna Convention, but still accepts Article 18 as customary international law.

and since the first requires no actual GHG reductions and the United States is not a party to the second, no explicit legal instrument requires the United States to mitigate or reduce its GHG emissions in any way.

Had it become a party, it is doubtful that the United States could have met its Kyoto goal of a 7 percent reduction from 1990 levels by 2012. In fact, total U.S. GHG levels have gone up significantly since the Protocol was signed, and the United States now emits approximately 15 percent above its 1990 levels.<sup>17</sup> However, since the overwhelming consensus of international scientific judgment indicates that continued atmospheric accumulation of GHGs will cause significant climate impacts, it is expected that reductions will benefit the entire international community. Consequently, the U.S. repudiation of the Kyoto Protocol is unacceptable from a scientific point of view.

## **II. In the absence of a treaty, is the United States bound by custom to curtail GHG emissions?**

Having concluded that neither the UNFCCC nor the Kyoto Protocol legally bind the United States to make any reductions in GHG emissions, why is the United States required to do anything? And, having decided to do nothing, why are so many other nations displeased at the Americans' attitude of refusal?

The United States could very well be a spoiler in the whole climate change mitigation regime. Because the United States accounts for approximately 30 percent of current global CO<sub>2</sub>

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<sup>17</sup> *Climate Change: The Big Emitters*, BBC, July 4, 2005, at <<http://news.bbc.co.uk/2/hi/science/nature/3143798.stm>>.

emission levels<sup>18</sup> and so far has refused to curtail those emissions in any credible way, climate change will continue in spite of attempts by other nations to stabilize the climate under international agreements such as Kyoto. In other words, non-compliance by the United States can nullify compliance by other Annex I nations.<sup>19</sup> However, in lieu of the explicit treaty requirements to curtail GHG emissions, emerging custom may provide some guidance. Custom is traditionally defined as “a pattern and practice of behavior motivated by a sense of legal obligation.”<sup>20</sup> But determining the exact point at which behavior crystallizes into custom is extremely difficult. How is custom catalyzed and what is the tipping point between custom and mere widespread behavior? And what are the bars to the creation of custom and to its recognition as such by all nations?

#### **A. What constitutes custom and how is it generally created?**

Customary international law is in operation when states both practice a particular norm and subjectively believe that they have a legal obligation to do so. Custom is important in the evolution of international law because while treaties bind only the signatory states, customary norms bind all states.<sup>21</sup> In a world with over 200 separate states, identifying a pattern of practice can be difficult, and tying that pattern to a sense of legal obligation (*opinio juris sive necessitatis*) even more so. Several important cases have contributed to the formation of

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<sup>18</sup> Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2004*, DOE-EIA/0573(2004), at <<http://ftp.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/ggrpt/057304.pdf>>.

<sup>19</sup> Australia is the only other Annex I nation that has not ratified the Kyoto Protocol. Since they only account for one percent of global GHG emissions, however, their non-compliance does not have the potential to spoil the global regime. For further discussion of the spoiler concept, see Jonathan I. Charney, *Universal International Law*, 87 AM. J. INT'L L. 529 (1993); see also Geoffrey Palmer, *New Ways to Make International Law* 86 AM. J. INT'L L. 259 (1992).

<sup>20</sup> Restatement (Third) of Foreign Relations Law § 102 (1987).

<sup>21</sup> Charney, *supra*, at 531.

custom,<sup>22</sup> but none has yet provided the definitive roadmap of how an idea goes from common behavior to customary norm.

“Pattern and practice” means that most states generally recognize that a certain behavior is accepted and expected of them.<sup>23</sup> Although there is no precise definition of what constitutes state practice, the ICJ has held that such a practice must be widespread and virtually uniform. It is not required that the practice be either traditional or completely consistent, but it is required that states who fail to practice the custom be regarded as guilty of violating a legal obligation of some sort.<sup>24</sup> “Legal obligation” is a trickier matter to identify because it is extremely subjective: a state knows that the international community expects this behavior and the state itself recognizes that this is something it ought to do; maybe it does not always comply, but it knows it should. A legal obligation can be identified by a wide range of evidence, including diplomatic correspondence, official policy statements, judicial decisions, UN resolutions and declarations, and so forth.<sup>25</sup>

Such soft law can serve a number of useful purposes. It can change the political thinking on an issue, it can expand the circumstances in which an issue is considered, and it can cause opinion to coalesce.<sup>26</sup> Some specific principles and practices are currently being examined as environmental customary norms, though not all states agree on this designation. For example, the Beef Hormones case illustrates that the European Union (EU) considers the precautionary principle as customary international law, the United States considers the precautionary principle

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<sup>22</sup> See, e.g., *Paquete Habana*, 175 U.S. 677, 20 S.Ct. 290, 44 L.Ed. 320 (1900), *Trail Smelter Arbitration* (United States v. Canada) (1941), 3 UN Rep. Int'l Arb. Awards 1938 (1949), and *North Sea Continental Shelf* (FRG/Denmark; FRG/Netherlands), 1969 ICJ Rep. 3 (I.C.J. 1969) [hereinafter *North Sea Continental Shelf case*].

<sup>23</sup> An exception may apply if the nation casts itself as a “persistent objector.” See subsection B.4, *infra*.

<sup>24</sup> David Hunter, James Salzman, and Durwood Zaelke. INTERNATIONAL ENVIRONMENTAL LAW AND POLICY (2<sup>nd</sup> ed.) 311 (2002).

<sup>25</sup> *Ibid.*, at 312.

<sup>26</sup> Palmer, *supra*, at 269. Palmer goes further to assign soft law and norm creation to the intersection of international law and international politics; in the climate change debate, this means the intersection of Kyoto compliance and anti-regime politicking by the Bush Administration.

not as customary international law, but more of an “approach,” and Canada falls somewhere in between.<sup>27</sup> Other principles such as “polluter pays” are beginning to gain traction in the field as well.<sup>28</sup> The question for legal scholars then becomes, how to determine when a new custom emerges from the fog? And is such a custom emerging vis-à-vis compliance with a GHG emission reduction regime?

## **B. Can the obligation to reduce GHG emissions be considered custom?**

### **1. The global environmental commons is different from other areas covered by international law**

Its non-adherence to the Kyoto Protocol is not the only time that the United States has been exceptional with regard to international law, and yet the global legal system has not crumbled. The system contains laws and treaties governing every sort of behavior and commitment, from bilateral and multilateral trade agreements to international human rights conventions to multilateral environmental agreements, and American exceptionalism has apparently not doomed any of it. However, because the global environmental regime involves problems that are literally global in scope and source, it is different – in fact, one might say that it is by definition

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<sup>27</sup> OECD. “Uncertainty and Precaution: Implications for Trade and Environment” Joint Working Party on Trade and Environment. COM/ENV/TD(2000)114, p. 19. The Beef Hormones case was brought by the United States against the EU, which had banned imports of beef that had been raised with growth hormones due to health concerns about their long-term effects. The United States claimed that the ban had no basis in scientific fact since the hormones had not been demonstrated to have an adverse effect. Even though the WTO twice found the ban to be illegal, the EU maintains the ban to this day.

<sup>28</sup> For elaboration on the “polluter pays” principle, see Ursula Kettelwell, *The Answer to Global Pollution? A Critical Examination of the Problems and Potential of the Polluter-Pays Principle*. 3 COLO. J. INT’L ENVTL L. & POL’Y 437 (1992) and Sanford E. Gaines, *The Polluter-Pays Principle: From Economic Equity to Environmental Ethos*. 26 TEXAS INT’L L.J. 462 (1991).

exceptional. As previously suggested, the non-compliance of the United States may act as a spoiler for the rest of the climate change mitigation regime.<sup>29</sup>

In the area of international trade law, non-parties or parties out of compliance with a particular treaty may face economic deprivation or, at worst, sanctions. If recalcitrant parties decide to comply, the sanctions can be reversed relatively quickly with appreciable harm only to certain sectors of domestic society. Laws governing trade govern essentially bilateral relationships between states, and other nations generally are not affected by violations. For example, if a country prohibits importation of a good, the exporting parties will suffer a financial loss, but the trade regime in general is not imperiled by non-compliance, nor is the ability of other nations to engage in trade. If the trade barrier is removed by a WTO arbitration panel, imports of the good in question can be resumed.

In areas of human rights law, non-parties or parties out of compliance may face sanctions, diffuse reciprocity (shunning or shaming, for example), and bad publicity. Non-compliance may also render appreciable harm to women, ethnic or religious minorities, or other sectors of domestic society. This harm may be felt across local borders in the form of refugees or diaspora-driven ethnic strife, but it generally does not affect distant nations. If parties decide to comply, harm can generally repair itself within the domestic society in a few years, perhaps over a generation. Sanctions and other punitive measures can be lifted immediately and their effect mitigated quickly. It has been argued that human rights laws are essentially unilateral statements

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<sup>29</sup> When the Convention on International Trade in Endangered Species (CITES) was being negotiated, Japan, as the world's largest consumer of illegal wildlife, could have acted as a veto state for the wildlife trade regime if it had refused to participate. At the time, Japan imported over 80 percent of the world's trade in African ivory and was expected to veto a proposal to move the African elephant from threatened status on Appendix II to endangered status on Appendix I. Under heavy pressure from NGOs, the United States and the EC, however, Japan agreed to the proposal, and the resulting ban caused ivory prices to fall by over 90 percent. See Porter, Gareth, Janet Welsh Brown, and Pamela S. Chasek. 2000. "The Development of Environmental Regimes: Ten Case Studies" Chapter Three in Global Environmental Politics, Third Edition. Boulder, CO: Westview Press, pp. 100-101.

of position,<sup>30</sup> and whether a state complies or does not comply, or is not a party, will not generally affect the dealings and interests of other states, or the existence of the regime itself.

However, the area of global environmental law is critically different from trade and human rights law, because it is neither unilateral nor bilateral, but truly multilateral. The regime attempts to address behavior not between human beings themselves, but between human beings and the natural world. This relationship is one that we do not fully understand and certainly cannot control, though we can affect it. Our assessment of what this regime should look like and what sorts of behavior it should include are governed by the best scientific judgment we can apply at the time, so the very purpose of the regime itself can change over time as our scientific knowledge advances.<sup>31</sup> The scientific component drives the qualitative argument that the global environmental regime is different from trade or human rights because the behavior of one nation can affect the viability of the entire regime for every other participant.

Thus a nation's non-compliance or non-party status is much more significant in this area than in other areas of international law because the level of harm resulting from non-compliance or non-participation has the potential to be much greater. Specifically, large polluters can negatively affect the viability of the treaty regime, even if they are not parties, by the sheer magnitude of their contamination. The United States puts out approximately 30% of global CO<sub>2</sub> emissions and is the largest emitter on a per-capita basis.<sup>32</sup> Even if every other nation on earth

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<sup>30</sup> Oona Hathaway. *Do Human Rights Treaties Make A Difference?* 11 YALE L. J. 1935 (2002).

<sup>31</sup> Ian Brownlie. *A Survey of International Customary Rules of Environmental Protection* 13 NAT. RESOURCES J. 180 (1973). Brownlie argues that while existing customary law for the environment tolerates a certain level of "ordinary use" pollution, the relevant standards may be changed by new expertise, by particular complaints of states and competent international organizations, and *by standards set in multilateral conventions*. Extending this logic, the standards set in the Kyoto Protocol can be seen to capture the emerging norm until such time as they are superseded by better scientific information about the effects of GHGs on the climate.

<sup>32</sup> World Resources Institute. 2002. "Contributions to Global Warming" map, as found at [http://climate.wri.org/topic\\_data\\_trends.cfm](http://climate.wri.org/topic_data_trends.cfm). Recently the Netherlands Environmental Assessment Agency calculated that China had overtaken the United States in total emissions in 2006, with China producing an estimated 6.2 billion metric tons CO<sub>2</sub> to the United States' 5.8 billion tons CO<sub>2</sub>. See "China Now No. 1 in CO2 Emissions"

was a compliant party to a climate regime, global warming would still proceed because of the non-compliance of the “indispensable party.” This means that one non-party nation can render the entire regime ineffective and useless because the regime would not, and could not, achieve its goal of stabilization of atmospheric GHG levels. Depending on the type of pollutant, the effects of non-compliance can affect every nation on the globe, whether contiguous to the non-party or not. For example, chlorofluorocarbon emissions came largely from the United States and Europe, but they had the greatest effect on the nations around the South Pole (Chile, Argentina, New Zealand) because that is where the most acute damage to the stratospheric ozone layer occurred. GHG emissions are predicted to cause a sea level rise sufficient to inundate major areas of entire Pacific island nations and archipelagos.<sup>33</sup> These effects can take decades or perhaps centuries to reverse. The ozone hole, for example, won’t close till 2050, and we have no idea how long it will take to reverse global climate change, if it is even possible at all. Because the very nature of the global environmental regime is different than that of other areas of international law, the traditional formation of customary norms has proven inadequate to deal with global environmental problems. Indeed, international law as a whole has never been confronted with a set of problems of the nature and quality of global environmental change.<sup>34</sup>

## **2. Universal observance not always required**

A particular practice is generally required to be widespread, and not particular to one area of the world, before it is recognized as custom. However, some legal scholars argue that while a

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<http://www.mnp.nl/en/dossiers/Climatechange/moreinfo/Chinanowno1inCO2emissionsUSAinsecondposition.html> (accessed June 22, 2007).

<sup>33</sup> Shea, Eileen L. 2001. *Preparing For a Changing Climate: The Potential Consequences of Climate Variability and Change: Pacific Islands*. A Report of the Pacific Islands Regional Assessment Group, for the U.S. Global Change Research Program. October, 2001. Honolulu: East-West Center, p. 28.

<sup>34</sup> Palmer, p. 282.



practice must cover more than one area of the world, it need not be universal.<sup>35</sup> This can muddy the waters as to what constitutes a customary norm, since many observed practices such as Shari'a do not rise to the level of global legal norm, though they may be observed in more than one area.<sup>36</sup> This issue arose in the 1969 North Sea Continental Shelf case, where the ICJ noted that an "insufficient" number of states had ratified the 1958 Continental Shelf Convention to render its provisions into custom.<sup>37</sup> Other scholars note that, in creating new laws and norms, states must break old ones, thereby ensuring that a norm is, at least at the beginning, not universally observed.<sup>38</sup> However, this presupposes that the only source of new laws and customs is old laws and customs. The global environmental threats that we now face render this constriction inapplicable, since most of the laws that we now have to deal with these threats were created *de novo*. Certainly the number of signatories to a treaty or agreement can be informative as to whether or not a customary norm is being created. Due to the American withdrawal from the Kyoto Protocol, virtual unanimity of all other industrialized nations and the agreement of some developing nations was needed to meet the 55/55 entry-into-force trigger.<sup>39</sup>

If a possible customary norm cannot be assigned to all states as uniform behavior, it may be more relevant to consider the range of the physical area covered by the norm. For example, the preamble of the U.N. Law of the Sea states that the seabed and its resources are "the common

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<sup>35</sup> Weston, Burns H., et al, 1997. International Law and World Order. Third Edition. New York: West Publishing Company, as cited in Avery, Rachel J. 2002. *Killing Kids Who Kill: An International Perspective on the Juvenile Death Penalty in the United States* UCLA JOURNAL OF INTERNATIONAL LAW AND FOREIGN AFFAIRS. Vol. 7, pp. 323.

<sup>36</sup> For further discussion on the extent of Shari'a, see Noel J. Coulson, *Law and Religion in Contemporary Islam*, 29 HASTINGS L.J. 1447 (1977-1978), and Ahmed Zaki Yamani, *The Eternal Shari'a*, 12 N.Y.U. J. INT'L L. & POL. 205 (1979-1980).

<sup>37</sup> North Sea Continental Shelf Case, at §73. The dissenting opinion by Judge Lachs, however, points out that there are any number of reasons why states that have signed treaties do not ratify them in a timely fashion, and one cannot conclude that disagreement with the principle or intent to follow a different principle is the main reason. Hence the number of parties that have ratified a convention is irrelevant to its norm-creating character.

<sup>38</sup> Jonathan I. Charney, *Agora: May the President Violate Customary International Law?* 80 AM. J. INT'L L. 916 (1986).

<sup>39</sup> John F. Temple, *The Kyoto Protocol: Will It Sneak Up on the U.S.?* 28 BROOK. J. INT'L L. 229 (2002). See also footnote 10, *supra*.

heritage of mankind” and every state has the right to benefit from them regardless of their location.<sup>40</sup> The idea of an environmental resource being common to all nations is rooted in basic ecology: the oceans are all interconnected, and an action taken by one littoral state can affect many others. The atmosphere and the climate can certainly be considered in the same fashion: the earth has one atmosphere, and emissions from anywhere on the globe can affect the entire climate. The joint implementation and bubble concepts specified in the Kyoto Protocol speak to this ecological reality by allowing nations to count their emissions together and benefit from common climate mitigation measures.<sup>41</sup>

### **3. Custom can be created over a short time period**

Most custom is created over time, but as global climate change progresses, we may not have decades or centuries to wait for a new custom of environmental compliance to emerge. The North Sea Continental Shelf case stated that, “the passage of only a short period of time is not necessarily, or of itself, a bar to the formation of a new rule of customary international law.”<sup>42</sup> This has been referred to as “instant custom,” a phenomenon which legal scholar Prosper Weil argues is not just acceleration of the custom-formation process, but is a revolution in the theory of custom because rules that have been accepted by a very large number of states are now

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<sup>40</sup> *United Nations Convention on the Law of the Sea*. U.N. Doc A/CONF.62/122, reprinted in 21 I.L.M. 1261 (1982) [hereinafter *Law of the Sea*].

<sup>41</sup> Joint implementation allows Annex I nations to take credit for emissions-lowering projects in other Annex I countries. The bubble concept allows a group of Annex I countries, like the individual member states of the EU, to meet their commitments the best they can as long as the overall group emission level decreased by the required amount. For further discussion of these concepts, see EIA, *Greenhouse Gases and the Kyoto Protocol* Executive Summary, Report #SR/OIAF/98-03, as found at <http://www.eia.doe.gov/oiaf/kyoto/excsum.html> (accessed June 21, 2007).

<sup>42</sup> North Sea Continental shelf case, at §74. The dissenting opinion agrees in principle, stating that, “the great acceleration of social and economic change, combined with that of science and technology, have confronted law with a serious challenge; [t]he dimension of time in law, being relative, must be commensurate with the rate of movement of events which require legal regulation.”

instantly extended to all states, whether or not they agree.<sup>43</sup> Geoffrey Palmer, however, argues that this is exactly the evolution in the formation of custom that the international environmental arena needs.<sup>44</sup> While this development may alarm traditional practitioners of international law, this is exactly where environmental law based upon ecological science takes us. Rules governing the global environmental commons, if rooted in rational science, become binding on all states because all states are *de facto* parties to the environment, whether or not they are *de jure* parties to a particular agreement.

Furthermore, our scientific knowledge about climate change and its causes and effects has increased considerably over a relatively short period of time. Before the Intergovernmental Panel on Climate Change (IPCC), most scientific pronouncements on climate had come from the Advisory Group on Greenhouse Gases, a small scientific body founded in 1985 under the auspices of WHO and UNEP. The larger IPCC was created in 1988 and the U.S. Global Change Research Program in 1990, and these international collaborations of scientists have made huge scientific strides in our ability to understand the causes and effects of climate change. Only four years elapsed between the formation of the IPCC and the signing of the Framework Convention, and only another five until binding emissions reductions were negotiated. As environmental science moves quickly, environmental law, especially soft law in the form of custom, must keep up or be rendered irrelevant.

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<sup>43</sup> Prosper Weil, *Towards Relative Normativity in International Law?* 77 AM. J. INT'L L. 435 (1983).

<sup>44</sup> Palmer, pp. 277-278. He cites the 1989 Hague Declaration on the Environment, which the United States did not sign, as promoting, "the principle of developing ... new institutional authority ... which, in the context of the preservation of the earth's atmosphere, shall be responsible for combating any further global warming ... and shall involve such decision-making procedures as may be effective even if, on occasion, unanimous agreement has not been achieved." The import of this declaration is that decisions made by some states could now instantly be binding on all states, a radical new development in traditional international law.

#### 4. Persistent objector status

If a state objects to the formation of a new rule and custom from its inception, it can claim “persistent objector” status.<sup>45</sup> Various legal arguments about the validity and usefulness of persistent objector status have been advanced, but the hallmark of the status is the persistence: the state must object to the norm from the beginning. Furthermore, if a state does not object to the norm while it is being created, any law based on that norm becomes binding on the state, even if it objects after the law is created.<sup>46</sup>

However, the U.S. negotiated and signed the Kyoto Protocol and intended to submit it for ratification. Far from failing to object, the United States initially embraced both this agreement and the norm it contained, walking away only in 2000. Consequently, the United States can hardly claim that it is a persistent objector to the particular principle of reducing GHG emissions. The United States is a party to many other multilateral environmental agreements (MEAs) that call for mandatory behaviors, reductions or restrictions. For example, the Americans led the negotiations for the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer and were instrumental in its passage.<sup>47</sup> Therefore, the United States cannot argue now that it objects to the principle of international interest in the environment, or the validity of the international environmental commons as a proper arena for law. Furthermore, many of its particular concerns and suggestions the United States made regarding economic development were added to the text

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<sup>45</sup> This rule states that parties who object to a norm as it is becoming law are subsequently not bound by it. This rule has surfaced in a number of cases and international conventions, such as the 1900 Paquete Habana case, the 1928 Havana Convention, and the 1950 Peru-Colombia asylum case. For an exhaustive examination of the legal justification for and usefulness of the persistent objector principle, see Ted L. Stein, *The Approach of the Different Drummer: The Principle of the Persistent Objector in International Law* 25 HARV. INT’L L. J. 457 (1985).

<sup>46</sup> Charney 1993, p. 537-8. He does point out that, unlike a bill before a legislature, the evolution of a norm may be so stealthy that states do not even know that customary law is being made, and may have formed no opinion about it. However, since the Americans actively helped create both the UNFCCC and the Kyoto Protocol and shaped their provisions to American preferences, the United States cannot now claim to be a persistent objector.

<sup>47</sup> For a complete account of the negotiations leading to the Montreal Protocol, see Benedick, Richard. 1998. Ozone Diplomacy: New Directions in Safeguarding the Planet. Cambridge, MA: Harvard University Press.

of the treaty,<sup>48</sup> so it is reasonable to assume that it must have had an intent to comply at some point.

### **5. *Obligations omnium*: formation of a new customary norm of compliance with the global environmental regime**

If a new norm of expected compliance with treaties addressing the global environmental commons is forming, what specific points of evidence argue for it? First, the importance of various MEAs addressing compliance with global environmental problems cannot be overstated. Both the UNFCCC and the Kyoto Protocol deal directly with the expected reduction of GHGs, and the Stockholm Declaration,<sup>49</sup> the Montreal Protocol (along with its framework convention)<sup>50</sup>, the Rio Declaration,<sup>51</sup> the Law of the Sea, and other MEAs deal with the expectation of environmental protection as a duty of states. Second, pressure from allies and public opinion bear on the formation of custom. This will be discussed further in Section IV, but the United States has faced pressure from close and longtime allies such as Canada and the United Kingdom as well as developing nations to either ratify Kyoto or take some other meaningful actions to reduce GHG emissions. Third, sub-national actors recognize the necessity to control GHGs and have taken actions themselves: California and most of the states in the Northeast have promulgated climate control measures, and individual cities such as Chicago and Seattle have

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<sup>48</sup> Paul Kevin Waterman, *From Kyoto to ANWR: Critiquing the Bush Administration's Withdrawal From the Kyoto Protocol to the Framework Convention on Climate Change* 13 *TRANSNAT'L L. & CONTEMP. PROBS.* 755 (2003). See Depledge for an article-by-article examination of each nation's contributions to the negotiations.

<sup>49</sup> *Stockholm Declaration on the United Nations Conference on the Human Environment*. U.N. Doc. A/CONF.48/14 (1972), reprinted in 11 *I.L.M.* 1416 (1972).

<sup>50</sup> *Montreal Protocol on Substances that Deplete the Ozone Layer*. Reprinted in 26 *I.L.M.* 1550 (1987); *Vienna Convention for the Protection of the Ozone Layer*. UNEP Doc. IG.53/5, reprinted in 26 *I.L.M.* 1529 (1987).

<sup>51</sup> *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26 (vol. 1) (1992), reprinted in 31 *I.L.M.* 874 (1992).

attempted to meet their *pro rata* Kyoto emissions at the city level.<sup>52</sup> Fourth, the best climate science we have argues for the need to reduce GHG emissions so as to avert possibly significant damage to the global environmental commons.

Taken alone, each of these points may not be dispositive, but taken together they argue persuasively for the recognition of a customary norm, with which the United States is out of compliance.<sup>53</sup> Because the global environmental commons is unique among areas of international law, the traditional requirements for the formation of custom and the ability of nations to opt out of it are significantly less applicable. In theory there is no room for exceptionalism in any of its forms in the global environmental regime.

### **III. If the United States is bound by customary norm to reduce its GHG emissions, why is it continuing to remain exceptional?**

What if a nation decides to be exceptional anyway, even in the face of demonstrable environmental and legal harm? So far, the United States has found no compelling reason to become a party to the Kyoto Protocol. This situation could continue, but since GHG emissions are increasing every year, it is scientifically axiomatic that the situation should not continue. If the United States could be convinced to ratify the Protocol, the chances of injurious greenhouse effect warming would be lessened.

All states benefit from the international law system because it imparts a degree of predictability and order to international relations. The rules of the system allow members to avoid conflict and promote peaceful cooperative relations. Fear of sanctions, the desire to be

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<sup>52</sup> For further discussion, see Section IV.B.1, and notes 71, 72, *infra*.

<sup>53</sup> “We are nowadays witnessing the appearance, alongside obligations *erga omnes*, of what one is tempted to call obligations *omnium*.” Weil, p. 422.; for similar arguments, see Brownlie, p. 183.

viewed as reliable and law-abiding, and general respect for the rule of law further impel states to obey customary international law. Yet these rules are undermined by free-riders, states that reap the benefits of the system without paying the costs. In the case of global climate change, the United States, wary of carrying free riders like India and China, has decided to become a free rider itself. Its example may encourage other nations not to follow customary international law, thereby derailing the entire regime.<sup>54</sup>

Modern legal experts such as Michael Ignatieff identify three distinct types of exceptionalism: exemptionalism, wherein the United States supports multilateral treaties and regimes but only if they contain exemptions for U.S. practices or citizens; double standards, wherein the United States criticizes other nations (particularly in human rights law) but ignores any criticism it receives; and legal isolationism, wherein the United States ignores other legal jurisdictions.<sup>55</sup> While all three types of exceptionalism carry significant consequences in the realm of international environmental law, American exemptionalism is what weighs most heavily on the climate change regime, particularly with regard to U.S. behavior toward the Kyoto Protocol. Legal scholars have postulated that there are three reasons why states do not comply with treaty requirements: 1) ambiguity of the treaty language, 2) limitations on the capacity of the party to comply, and 3) temporal dimension of the social, economic, and political changes the treaty would require.<sup>56</sup> Customary norms of international law govern international behavior in the same fashion that treaties do by regulating the conduct of states towards each other, and in fact govern a greater percentage of international decisions because they operate when there is no

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<sup>54</sup> Charney, 1993, pp. 530-533. He points out that, while individual states may gain short-term advantage by violating laws or customs in particular situations, their long-term interests are more likely to be served by acting in accordance with the system.

<sup>55</sup> Ignatieff, Michael, ed. 2005. American Exceptionalism and Human Rights. Princeton, NJ: Princeton University Press. While Ignatieff focuses on U.S. behavior towards human rights law, his contributors to this volume recognize the troubling impact of American exceptionalism on the environmental regime as well, particularly with regard to global warming.

<sup>56</sup> Abram and Antonia Handler Chayes. *On Compliance* 47 INT'L ORG. 188 (1993).

specific treaty to regulate that conduct. Consequently, the reasons that a nation might be reluctant to participate in a treaty stem from the same concerns that would prevent them from acknowledging a norm – that their obligations are unclear or too onerous, or somehow they are being treated unfairly. The reasons the United States government has put forward for refusing to ratify Kyoto refer to the former, but in reality, American objections have everything to do with the latter.

#### **A. “Developing countries are not participants”**

The Bush Administration has argued that the United States will not participate in the Kyoto Protocol because it does not include developing nations such as India and China.<sup>57</sup> These nations, while historical under-emitters, are developing rapidly and relying heavily on fossil fuels to do so. China alone is looking to build 562 new coal-fired power plants in the next eight years,<sup>58</sup> and the country’s overall CO<sub>2</sub> emissions are expected to surpass those from the United States as early as 2009.<sup>59</sup> Compliance with the Protocol would place the United States at a relative disadvantage economically, both vis-à-vis the EU, which has a denser population and different transportation patterns and can economically absorb emissions cuts more easily, and the developing countries, which could undercut U.S. goods on the world market since they would not be forced to spend money on climate control measures.<sup>60</sup>

Critics of Kyoto have based this objection on the traditional American idea of fairness: if the United States is required to cut back on its use of fossil fuels and suffer the attendant economic

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<sup>57</sup> White House Analysis, p. 1.

<sup>58</sup> Clayton, Mark. 2004. “New Coal Plants Bury Kyoto” *Christian Science Monitor*. December 23, 2004, as found at <http://www.csmonitor.com/2004/1223/p01s04-sten.html>.

<sup>59</sup> International Energy Agency. *World Energy Outlook (2006) Summary and Conclusions*. P. 5, as found at <http://www.worldenergyoutlook.org/summaries2006/English.pdf>.

<sup>60</sup> Cooney, Catherine M. 1997. “Nations Seek ‘Fair’ Greenhouse Gas Treaty in Kyoto” *Environmental Science & Technology*. Vol. 31, November 1997, as found at <http://pubs.acs.org/hotartcl/est/97/nov/nations.html>.



dislocation, then other countries that also rely on fossil fuels should share the pain, regardless of their Annex I status. However, the legal concept of “common but differentiated responsibilities” answers the purported fairness issue. Both the UNFCCC and the Rio Declaration, as well as the Protocol itself, refer to the responsibility of developed nations to take the lead in combating climate change not merely because they are the wealthiest countries and have the economic means to do so, but because the development process that generated their wealth also generated the GHG buildup that the entire world is now having to combat. Though both India and China have implemented various domestic GHG emission limitation strategies, they have stated that they will not accept binding emissions limits or timetables until the developing nations do<sup>61</sup>.

#### **B. “Economic harm”**

The Administration has argued secondly that the United States will not participate in Kyoto because to do so would cause significant harm to the American economy.<sup>62</sup> Estimates of the cost of implementing the Kyoto Protocol range from as low as one-tenth of one percent to as high as three percent of GDP, depending on differences in the methodology used.<sup>63</sup> However, the cost of implementing the Protocol does not have any bearing on the legality of the norm. Indeed, when compared to countries who violate clear *jus cogens* norms of genocide and torture for political, ideological or theological reasons, cost seems almost a mundane reason to violate a norm, especially when coming from the wealthiest country on earth.

The “economic harm” argument, unlike the “developing countries do not participate” argument, has less to do with actual economic harm and more to do with the political harm the

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<sup>61</sup> Peter Walker. “China speeds towards ‘biggest greenhouse gas emitter’ title.” *The Guardian*. April 24, 2007, as found at <http://www.guardian.co.uk/china/story/0,,2064484,00.html>.

<sup>62</sup> White House Analysis, p. 2.

<sup>63</sup> For a comprehensive economic analysis of different costing mechanisms, see EIA, “Comparing Cost Estimates for the Kyoto Protocol” Dept. of Energy, 2002, as found at <http://www.eia.doe.gov/oiaf/kyoto/cost.html>.

Bush Administration may face if the United States either ratifies Kyoto or implements any sort of compulsory GHG emission reduction measures. Environmental issues in general have acquired a liberal Democratic cast, and are unlikely to garner support from a Republican Administration. Furthermore, some political conservatives see compliance with any sort of global norm or treaty as a violation of American sovereignty.<sup>64</sup> Just as George H.W. Bush faced internal pressure from members of his own Administration and electoral pressure from some sections of his political base not to attend the Rio summit unless the Framework Convention contained no binding targets and timetables, George W. Bush's supporters and most of the members of his party in Congress are unlikely to throw their support behind global environmental regulation like Kyoto. The 2006 election that resulting in Democratic Party control of both houses of Congress has not yet translated into meaningful climate-related foreign policy.

### C. "Uncertain science"

The Administration has argued thirdly that the science that underlies the reductions contained in the Protocol, and indeed the whole climate change mitigation regime, is speculative and arbitrary.<sup>65</sup> Of all the arguments leveled against the Protocol, however, this is the only one that direct scientific evidence can overcome. As mentioned above, the IPCC was formed in 1988 by the WHO and UNEP,

to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation. The IPCC does not carry out research nor does it

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<sup>64</sup> Schlafly, Phyllis. 2000. "Allegiance: A Briefing on Issues of Independence and Sovereignty" The Phyllis Schlafly Report. Vol. 34, No. 4, November 2000, as found at <http://www.eagleforum.org/psr/2000/nov00/psrnov00.shtml>.

<sup>65</sup> White House Analysis, p. 1.

monitor climate related data or other relevant parameters. It bases its assessment mainly on peer reviewed and published scientific/technical literature.<sup>66</sup>

The IPCC is made up of thousands of scientists from around the world and is broken out into three working groups dealing with physical science, impacts, and mitigation and adaptation. Its job is to synthesize the best scientific, technical, and socio-economic information on the causes and effects of climate change.<sup>67</sup> These scientists rotate in and out of chair and lead author positions, and all of the organization's review procedures and finances are open for public scrutiny. The IPCC represents the best international scientific accord on the problem of global climate change, and its latest assessment report states clearly that, "[T]he understanding of anthropogenic warming and cooling influences on climate has improved since the Third Assessment Report (TAR), leaving to *very high confidence* that the globally averaged net effect of human activities since 1750 has been one of warming."<sup>68</sup>

Science is a new factor in the creation of customary norms of international law, though there is no better field in which to give scientific findings significant norm-creating weight than environmental law. Science, too, can help set the bar to treaty exceptionalism much higher. For example, if the United States could sequester its carbon with any measure of reliable success, it might have an argument for why it could be exceptional with regard to the Kyoto Protocol, because it would not be causing the same level of atmospheric harm per molecule of CO<sub>2</sub> produced as other nations who do not sequester their CO<sub>2</sub>. However, since it cannot sequester CO<sub>2</sub> economically, or at least no better than any other CO<sub>2</sub>-producing nation, it has no grounds for exceptionalism. This moves environmental law away from the traditional practice that a state

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<sup>66</sup> IPCC. "Mandate and Mission of the IPCC" As found at <http://www.ipcc.ch/about/about.htm>.

<sup>67</sup> IPCC. 2004. "Who is Who in the IPCC" December 2004, 4 pp., as found at <http://www.ipcc.ch/about/faq/IPCC%20Who%20is%20who.pdf>.

<sup>68</sup> IPCC AR4 Working Group I SPM, p. 5 (emphasis in original).

can be exceptional just because it desires to be. In the case of the global environmental commons, and facing an emerging norm of expected compliance with global environmental treaties, mere desire to be exceptional for whatever policy reason is not enough in the face of the ecological damage that could be done by an “exceptional” nation.

#### **IV. Even if a new norm has emerged, what levers to compliance does it provide?**

Non-compliance with or non-party status within the global climate change regime can damage not only the viability of the regime itself, but the very climate the regime is designed to protect. Thus, non-compliance in the global environmental regime should carry a greater penalty than non-compliance in other regimes.

##### **A. Diffuse reciprocity and pressure from allies**

It is possible that nations who do not comply with a regime or customary norm will face diffuse reciprocity from their allies and other parties. This can take the form of obstructionism in other legal areas, such as imposition of tariffs or travel restrictions, or disagreement or non-enforcement of legal judgments, or bad publicity.<sup>69</sup> However, the author has found no specific actions against American interests that were performed because the United States continues to emit high levels of GHGs, so this seems to be an unproven strategy for pressuring the United States to comply with Kyoto and the norm underlying it. In order for diffuse reciprocity to be effective, the “reciprocity” part must be made clear: in this case, the United States must know that it is not receiving the full international cooperation it desires in a non-environmental area due to its non-compliance in the environmental area, specifically that it has not and apparently

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<sup>69</sup> Allan Dowd, *Canadian Leader Vents Anger at U.S.* BOSTON GLOBE. December 12, 2005, at A34.

will not ratify Kyoto. In other words, the link must be explicit, or the non-compliant party will not understand how it needs to change its behavior to avoid further reciprocity. Reciprocity also has the most value when the parties are more equal in size and power.<sup>70</sup> Thus, there is a limited amount of reciprocity that other parties can apply to the United States, since it is a critical player in world trade, finance, media, and many other global regimes.

## **B. Moral condemnation**

Failing any sort of concrete reciprocity, the last weapon of the international law-abiding is moral condemnation.

### **1. Failure to live up to our stated commitments and principles**

In ratifying the Rio Declaration, the UNFCCC, the Montreal Protocol, and other MEAs, the United States has signaled its public belief in, and intent to live by, certain principles, such as the precautionary principle, sustainable development, and common but differentiated responsibility. Each time the United States walks away from an agreement or a commitment, it is damaging its ability to be taken seriously when it proposes a new agreement or principle. Chayes and Chayes argue that, “outrage when solemn commitments are treated as ‘scraps of paper’ is rooted in U.S. history. It is unlikely that this kind of reaction is unique to the United States.”<sup>71</sup> Hence, either the United States does not consider the Kyoto Protocol, and by reference the UNFCCC, as a solemn commitment, or this outrage is selective by topic.

Interestingly, rather than waiting for the federal government to act, state governments, local governments, private companies, and individuals all can and have acted to curb GHG emissions

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<sup>70</sup> Robert O. Keohane, *Reciprocity in International Relations* 40 INT’L ORG. 6 (1986).

<sup>71</sup> Chayes and Chayes, p. 186.

to the best of their ability. In 2002, California passed a first-in-the-nation law requiring strict emission controls on every car sold in the state, starting in model year 2009. Environmental groups hope and automakers fear that, due to the size of the car market in California, this law could force changes in vehicles sold nationwide.<sup>72</sup> California governor Arnold Schwarzenegger has since pledged to reduce the state's GHG emissions to 1990 levels by 2020. This year, ten northeastern and mid-Atlantic states have joined a landmark pact called the Regional Greenhouse Gas Initiative to reduce GHG emissions from their power plants.<sup>73</sup> The mayors of Seattle, Minneapolis, Albuquerque, and nearly 200 other cities have signed onto the Climate Protection Agreement, pledging to reduce their cities' GHG emissions, to 7% below 1990 levels by 2012, exactly the target the United States was to have achieved under Kyoto.<sup>74</sup> These actions help to bolster the acceptance of the norm at the sub-national level – the more entities (sub-national, national and supra-national) that accept this norm, the more it emerges from the fog of nascent custom and begins to impact the behavior of states. That these sub-national actors feel they have a responsibility to comply with the norm of compliance with international environmental agreements indicates how widespread and powerful it is, and just how exceptional the U.S. position is.<sup>75</sup>

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<sup>72</sup> Zachary Coile and Jane Kay. 2003. *EPA Says It Can't Limit Car Emissions* SAN FRANCISCO CHRONICLE. August 29, 2003 at A1.

<sup>73</sup> Massachusetts and Rhode Island originally pulled out of this pact due to a disagreement over price caps for power plants, the lack of which they felt would have passed inordinately high energy costs on to consumers. However, in February of 2007, both states re-joined. Further information on RGGI can be found at

<http://www.rggi.org/index.htm>.

<sup>74</sup> Charles J. Hanley, 2005. *U.S. Cities, States Fault Climate Effort* BOSTON GLOBE. Friday, December 9, 2005 at B2.

<sup>75</sup> For an examination of the benefits to the climate regime of sub-national actions and why it does not have to be economically irrational as "tragedy of the commons" theory suggests it would be, see Kirsten H. Engel and Scott R. Saleska. *Subglobal Regulation of the Global Commons: The Case of Climate Change* 32 ECOLOGY L. Q. 183 (2005).

## 2. Erosion of the stability of international law

As long as the American government is out of compliance with this norm, is it contributing to the erosion of international law? The answer to this question depends on whether the norm is considered to be contained in, or at least substantively represented by, the targets and timetables set by the Protocol. Kyoto is the first international environmental agreement to provide specific binding targets and timetables for the coordinated international reduction of greenhouse gases. Lacking any predecessor agreement except for the non-binding Framework Convention, some scholars would argue that Kyoto can be recognized as the only viable agreement to enshrine the principle of GHG reduction by states.<sup>76</sup> Others would disagree, pointing out that the United States, in attempting to reduce GHGs on a voluntary basis and negotiating separate climate-related agreements such as the Asia-Pacific Partnership on Clean Development and Climate,<sup>77</sup> has recognized the norm and is attempting to comply in the best way it can.<sup>78</sup> However, the overarching purpose of the norm, as stated in the objective of the UNFCCC (Article 2) is “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” This hints at yet another role for science to play in adjudicating, if only in an epistemic scientific court of opinion, that one method of attempting to comply with a norm is acceptable because it achieves its aim, while another method is not acceptable because it tries and fails.

Citing scientific uncertainty about the exact processes and outcomes of climate change as justification for the U.S. withdrawal from Kyoto may itself violate international law.<sup>79</sup> Article

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<sup>76</sup> Brownlie, p. 180. In effect, Brownlie would be arguing that the norm tracks the treaty, at least at present.

<sup>77</sup> “President’s Statement on U.S. Joining New Asia-Pacific Partnership” White House press statement, July 27, 2005, as found at <http://www.whitehouse.gov/news/releases/2005/07/20050727-9.html>.

<sup>78</sup> Temple, p. 232.; see also Kara K. Davis, *The United States’s Obligation to Lower Greenhouse Gas Emissions: An American Perspective of the Kyoto Protocol* 10 *MIAMI J. OF INT’L & COMP. L.* 97 (2001).

<sup>79</sup> Waterman, p. 763.

3(3) of The UNFCCC states that “lack of full scientific certainty shall not be used as a reason postponing” measures aimed at combating global warming.<sup>80</sup> There is considerable debate as to whether or not the precautionary principle as captured above is itself a customary norm, but Waterman argues that it is particularly applicable in this case because the United States, in using the “uncertain science” argument to reject Kyoto, is doing exactly what it promised it would not do when it ratified the UNFCCC.<sup>81</sup>

### **3. *Jus cogens*?**

Could protection of the global environment and expected compliance with international environmental treaties even be lifted from customary norm to *jus cogens*?<sup>82</sup> There are some legal scholars that point out the negative and confusing effects of breaking the normative regime into *jus cogens* norms on one hand and “ordinary” norms on the other.<sup>83</sup> However, the development of *jus cogens* norms seems to be a positive one, since only the most heinous crimes of slavery, torture, and genocide are currently contained in this category,<sup>84</sup> crimes which the international community seems uniformly prepared to banish in theory if not always in practice. Furthermore, the identification of a *jus cogens* norm, even if unenforceable, carries its own prohibitive weight. For example, a state may still choose to engage in genocide, but if it does so, it knows it is doing something illegal and reprehensible, even if it may never come to trial.

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<sup>80</sup> UNFCCC, Art 3(3)

<sup>81</sup> *Ibid.*

<sup>82</sup> Vienna Convention on the Law of Treaties, May 23, 1969, art. 53, 1155 U.N.T.S. 331, 344.

<sup>83</sup> Weil, p. 423.

<sup>84</sup> Some scholars have argued that rape and the juvenile death penalty ought to be *jus cogens* norms as well, which means the category is open for expansion beyond its current limits. See Dean Adams, *The Prohibition of Widespread Rape as a Jus Cogens*, 6 SAN DIEGO INT'L L.J. 357 (2004); and Rachel J. Avery, *Killing Kids Who Kill: An International Perspective on the Juvenile Death Penalty in the United States* 7 UCLA J. INT'L L. & FOREIGN AFF. 303 (2002).



Slavery, torture, and genocide are prohibitive norms; states are forbidden from carrying them out. Compliance with agreements and treaties which apply to the global environmental commons, however, would be the first prescriptive norm to be elevated to the level of *jus cogens*. This means that states would be required to carry them out. This becomes problematic when states do not have the resources to carry out prescriptive norms, leaving them in violation of customary international law due merely to financial circumstances and not due to any overt choice of action.<sup>85</sup>

*Jus cogens* norms would operate upon the whole international community, but Weil points out “a tendency to vague personification of the international community,”<sup>86</sup> something which he finds unsettling. Which nations are part of this international community and who can speak for it? It must be a number less than the whole, or any nation would have what Weil calls “an inconceivable veto” over the development of any norm, *jus cogens* or otherwise. Yet it falls within the legal rights of a nation to opt in or out of this community with regard to certain regimes of international law. Nations who choose not to have capitalist economies can opt out of the WTO or any other body of trade law. Nations who define their social structures in certain ways can opt out of human rights law; while the moral value of this is questionable, the legal value is not. Yet no nation on earth can opt out of the international environment. No nation can pronounce, “We choose not to be affected by climate” or “We choose not to need fresh water, so these rules don’t apply to us.” This is where science, particularly global environmental science, can play its part in both delineating the international community and identifying norms that are in its fundamental interests and, by extension, norms that each state must abide by without abrogation. In the case of the global environment, the international community includes every

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<sup>85</sup> Chayes and Chayes, pp. 193-195.

<sup>86</sup> Weil, p. 426.

nation on earth and abrogation of any state's fundamental responsibilities negatively affects each member.

## **Conclusion and Future Considerations**

American greenhouse gas emissions reached a record high of 7.15 billion metric tons CO<sub>2</sub> equivalent in 2005, up 0.6 percent from 2004 and up 16.9% from 1990,<sup>87</sup> and there appears to be no slowing down. Should the United States accede to the Kyoto Protocol, however, the benefits would include the restoration of the American reputation for multilateral leadership which many countries feel that it has abandoned, the avoidance of diffuse reciprocity from other Annex I countries, and the partial mitigation of the ecological harm incurred by global warming. There would be no legal costs, though the Bush Administration has argued that it would be very expensive economically to retool the national economy to comply with GHG restrictions. But the prolonged absence of the United States from meaningful participation in the global climate regime raises the question of how to avoid non-compliance from an indispensable party in the future.

Does the global community need a new international environmental organization to enforce compliance with the emerging norm of environmental protection? In a United Nations General Assembly debate in 1989, New Zealand proposed the formation of an "Environmental Protection Council" as a new body in the U.N. system that would make binding decisions on global environmental issues. New Zealand argued that,

[T]he traditional response of international law, developing legal standards in small, incremental steps, each of which must be subsequently ratified by all countries, is no longer appropriate to deal with the highly complex environmental problems of the future.<sup>88</sup>

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<sup>87</sup> EIA. Emissions of Greenhouse Gases in the United States 2005. Office of Integrated Analysis and Forecasting, Energy Information Administration. DOE-EIA/0573(2005). November 2006, p. ix.

<sup>88</sup> Palmer, p. 279.

More recently, scholars have proposed the creation of a World Environmental Organization for this purpose, an environmentally-focused version of the WTO.<sup>89</sup> This, however, is a step that the United States and most nations would think twice before agreeing to. The United Nations is ponderous enough without adding another agency with its attendant secretariat, diplomats, and scientific advisors. Yet New Zealand's point that unanimity is too slow and unwieldy to deal with problems such as global climate change is valid. The recognition of a customary norm in favor of compliance with treaties addressing the global environmental commons could help bridge the gap between the erosion of sovereignty and the anarchy that characterizes the current international system.

Perhaps such an international body will not be necessary. Other nations, and sub-national actors within the United States, have already begun to implement this customary norm, as represented by the Kyoto Protocol. Since globalization will require higher levels of harmonization of standards across countries, the EU and the other Kyoto parties will set the terms. Manufacturers, transportation companies, and other industries will find it economically more efficient to comply with one standard rather than make different products with different processes for different markets.<sup>90</sup> Even energy producers such as BP-Amoco and General Electric have stated that they believe that regulation on GHG emissions is inevitable, and the sooner standards are fixed, the more lead time they will have to make the most economic transition possible.<sup>91</sup> In the meantime, however, the formation of a customary norm of

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<sup>89</sup> Frank Biermann, *The Emerging Debate on the Need for a World Environment Organization* 1 GLOBAL ENVIRONMENTAL POLITICS 45 (2001); see also Adil Najam, William Moomaw, Ioli Christopoulou, *The Emergent "System" of Global Environmental Governance* 4 GLOBAL ENVIRONMENTAL POLITICS 23 (2004).

<sup>90</sup> Temple, p. 243.

<sup>91</sup> "Big Biz Warms Up to Climate Change" 2005. CNN Money, April 22, 2005, as found at [http://money.cnn.com/2005/02/03/news/international/climate\\_change\\_business/](http://money.cnn.com/2005/02/03/news/international/climate_change_business/).

compliance with global environmental agreements can both contribute to the evolution of international law to deal adequately with worldwide environmental problems and can help preserve the biosphere from irrevocable climatic change.

## **The Next Frontier: Nuclear Weapons in the 21st Century**

October, 12 2007

Moderator: Robert Pfaltzgraff, Jr., Shelby Cullom Davis Professor of International Security Studies, The Fletcher School, Tufts University

Panelists:

- Amy Sands, (discussant) Provost and Academic Vice President, Monterey Institute of International Studies
- Natasha Bajema, PhD Candidate, The Fletcher School, Tufts University
- Emma Belcher, PhD Candidate, The Fletcher School, Tufts University
- Chen Zak Kane, Research Fellow, Belfer Center for Science and International Affairs, Harvard University
- Elizabeth Turpen, Senior Associate, The Henry L. Stimson Center

Given recent developments in Iran and North Korea, the threat of widespread nuclear proliferation has re-emerged as a key concern for the 21st century, reinvigorating the 1960s debates of the 1960s, which have now been recast using new terminology such as nuclear tipping points or nuclear cascades. To assess the status of the nuclear tipping point, Natasha Bajema, PhD candidate at the Fletcher School, examined what we can learn about the present situation from theoretical models developed to explain the past. Ms. Bajema argued that there are three competing models of nuclear proliferation at the systems-level, each of which is derived from a school of thought in international relations theory and each of which implies different sources of nuclear restraint and potential triggers for a nuclear tipping point. The security model argues that states develop nuclear weapons when they face a significant military threat and suggests that security alliances

serve as the primary restraint against nuclear proliferation among such states. The norms model suggests that states go nuclear because they perceive nuclear weapons to be beneficial. The norm against nuclear weapons, coupled with reputational, political and economic sanctions, undermines the perceived benefits of a nuclear arsenal and has curbed nuclear proliferation. The institutions model argues that states go nuclear because they are uncertain of other states' intentions. By providing for transparency and information about the intentions of states through IAEA safeguards, nonproliferation institutions can ameliorate the effects of anarchy that would otherwise compel a state to develop nuclear weapons. Ms. Bajema contended that all three sources of nuclear restraint (security alliances, nonproliferation norm and IAEA safeguards) are either in decline or fragile with regards to their role in preventing nuclear proliferation in the future. Ms. Bajema concluded that we have not yet reached a nuclear tipping point, but may be getting closer. Despite growing concerns about future nuclear proliferation, many states with past nuclear intentions have renounced nuclear weapons and formally rolled back their nuclear programs.

Dr. Chen Kane, Research Fellow at the Belfer Center for Science and International Affairs, Harvard University, discussed what policy lessons for today's nuclear proliferation challenges can be learned from past cases of nuclear rollback. According to Dr. Kane, there have been three waves of states rolling back nuclear programs in the past. The first wave took place in the 1960s

and involved mostly western allies, under political and economic pressure by the U.S., halting their nuclear programs, renouncing nuclear weapons and joining the Nuclear Nonproliferation Treaty (NPT). The second wave occurred in the early to mid-1990s when the former Soviet republics, Ukraine, Belarus, Kazakhstan, having inherited nuclear weapons from the Soviet Union, decided to give these up and join the NPT in exchange for economic incentives and security assurances from the U.S. and Russia. Finally, in a third wave, also in the 1990s, Brazil, Argentina and South Africa reversed their nuclear programs and joined the NPT. After nuclear programs were dismantled in Iraq following the Gulf War, nuclear proliferation was increasingly viewed as illegitimate behavior. These states wanted to be full members of the international community, and having an active nuclear program, now associated with pariah status, was not consistent with this goal. Dr. Kane suggested that we may be seeing a fourth wave of rollback with the decision in 2003 to dismantle WMD programs by Libya and North Korea's current willingness to dismantle its nuclear programs. According to Dr. Kane, rollback has happened in the past and can happen again in the future. When nuclear weapons become a liability rather than a security asset, states are likely to rollback their programs. All tools in the nonproliferation toolbox including treaties, security assurances, coercive measures, diplomacy and economic sanctions should be utilized to encourage rollback. Dr. Kane concluded that, as in the past, the U.S. needs to play a central, leadership role in driving nuclear rollback process in countries of concern. The threat of WMD proliferation in the post-Cold War era has assumed several new dimensions, in particular, the non-compliance of members of nonproliferation treaties and non-state actors.

Emma Belcher, PhD candidate at the Fletcher School and research fellow at the Belfer Center, argued that we need new and innovative solutions to stem WMD proliferation like the Proliferation Security Initiative (PSI). PSI represents a coordinated effort led by the United States to stem shipment of WMD, delivery systems and related materials flowing to rogue states and non-state actors. PSI consists of a series of pledges and non-binding agreements designed to intercept WMD-related shipments and develop domestic legislation to prosecute proliferators and build on existing treaties and regimes. Ms. Belcher contended that the activities under PSI are expanding customary international law by ensuring that WMD proliferation is a crime under suspicion of which government authorities could board a ship on the high sea. Despite the end of the Cold War, the U.S. stockpile of strategic nuclear weapons remains largely intact.

Dr. Elizabeth Turpen, Senior Associate at the Henry L. Stimson Center, characterized the factors influencing the future role of U.S. nuclear weapons as eight elements of surprise. According to Dr. Turpen, these elements of surprise range from complex events beyond our control such as the unexpected end of the Cold War to the role of key individuals to the emergence of new nuclear-weapon states (India and Pakistan) to the scuttling of critical treaties such as the Comprehensive Nuclear Test Ban Treaty. Given that there has been no comprehensive debate about the role of nuclear weapons in U.S. security, Dr. Turpen argued that the U.S. nuclear arsenal is likely to remain a downsized version of the Cold War inventory. In 2009, the new administration will be forced to handle mostly postponed decisions on the role of nuclear weapons. Without serious consideration by the new administration, the bureaucracy will likely continue to rubber stamp status quo.

Dr. Amy Sands, Provost and Academic Vice President at the Monterey Institute of International Studies, discussed common threads among the preceding presentations and suggested that the panelists covered a broad range of topics on both theory to praxis including models of proliferation, historical cases of rollback, innovative policy approaches to actual policy regarding nuclear weapons. Dr. Sands argued that caution should be used when utilizing certain terminology such as nuclear tipping points, cascades and chains to describe global proliferation trends and expressed a preference for examining individual countries. Dr. Sands asserted that there are two forces to

look at when considering rollback and the future of nuclear proliferation. First, the future of the nuclear energy industry and the nature of latent capabilities will be critical for addressing future proliferation concerns. Proliferation resistant technology, transparency and disclosure must be a part of any effort to curb proliferation. Second, nonproliferation will not work without disarmament. States are not likely to buy into the inequalities of the current system. Dr. Sands concluded her remarks by noting that U.S. leadership on nonproliferation is more important than ever.

#### Future Directions for Research:

The following questions were raised during the discussion and for future research:

- Is nuclear disarmament necessary for achieving nonproliferation in the 21st century?
- Has the era of multilateral treaties passed? Do multilateral treaties play a role today in addressing proliferation challenges?
- Is the NPT as an institution close to a complete collapse? Can we save it? What are the options?
- How will the U.S.-India deal affect the NPT?
- What happens in a post-disarmament world if/when a new country develops nuclear weapons?
- How will the modernization of existing nuclear forces affect the nonproliferation debate?

# Panelists' Bios

**Hassan Abbas**, PhD Candidate, The Fletcher School, Tufts University

Hassan Abbas is a Research Fellow at the Belfer Center's Project on Managing the Atom and International Security Program. He is also a doctoral candidate at the Fletcher School of Law and Diplomacy, Tufts University. His research interests are Pakistan's nuclear program and the Dr. Abdul Qadeer Khan controversy, religious extremism in South and Central Asia, and "Islam and the West."

He has an LL.M. in International Law from Nottingham University, UK, where he was a Britannia Chevening Scholar (1999). He also remained a visiting fellow at the Islamic Legal Studies Program at Harvard Law School (2002–2003) and later continued at the Negotiation program at HLS as a visiting scholar (2003–2004).

He is a former Pakistani government official who served in the administrations of Prime Minister Benazir Bhutto (1995–1996) and President Pervez Musharraf (1999–2000). His latest book, *Pakistan's Drift into Extremism: Allah, the Army and America's War on Terror* (M.E. Sharpe) has been on bestseller lists in India and Pakistan and widely reviewed internationally including the New York Times, Boston Globe, Far Eastern Economic Review, The Hindu, Dawn, etc. He regularly appears as an analyst on CNN, MSNBC, and PBS, and is a frequent commentator on VOA and BBC. He runs Watandost, which is a blog on Pakistan-related affairs.

**Natasha Bajema**, PhD Candidate, The Fletcher School, Tufts University

Natasha E. Bajema is a PhD Candidate at the Fletcher School at Tufts University. Before coming to Fletcher, she was a Research Associate at the Center on International Cooperation / NYU, where she conducted research on evolving WMD threats and policy responses. She has also served as a Junior Political Officer in the Weapons of Mass Destruction Branch of the Department for Disarmament Affairs at the United Nations. She holds an MA in international policy and a Certificate in Nonproliferation Studies from the Monterey Institute of International Studies.

**Emma Belcher**, PhD Candidate, The Fletcher School, Tufts University

Emma Belcher is a PhD Candidate at the Fletcher School of Law and Diplomacy and a research fellow at the Belfer Center for Science and International Affairs at Harvard University. In 2005 and 2006, Ms Belcher served as a policy advisor on national security and international affairs in Australia's Department of the Prime Minister and Cabinet.



**Alejandra Bolanos**, PhD Candidate, The Fletcher School, Tufts University

Alejandra Bolanos is a PhD candidate at the Fletcher School of Law and Diplomacy. Her doctoral research focuses on evaluating the impact of Salafi Jihadi organizations on the overall transformation of warfare. While focusing on the fields of protracted conflict Alejandra has worked for a number of institutions like the Center for Strategic and International Studies in Washington DC. She was as a research fellow at the Center for Political Violence and Terrorism Research in Singapore. Her most recent work has been with the SITE Institute, a Washington based organization that monitors terrorist Internet activity. At SITE, Alejandra was head of government sponsored research projects addressing questions related to unconventional weapons systems as well as terrorism use of new technologies. Finally, Alejandra has participated as lecturer with specialized institutions like The Center for the Study of Bioterrorism and Emerging Infections and consultant for government and media in the US, Mexico, UK, Germany etc.

**Scott Borg**, Director and Chief Economist United States Cyber Consequences Unit

Scott Borg is the Director and Chief Economist of the U.S. Cyber Consequences Unit (US-CCU), an independent, non-profit research institute that investigates the strategic and economic consequences of possible cyber-attacks. He is responsible for many of the central concepts that are currently being used to understand cyber security and the convergence of physical and cyber security. He served as the chief economist and as one of the central scenario planners for both of the congressionally mandated national cyber-security exercises, Livewire and Cyber Storm. He is a regular contributor to the National Infrastructure Advisory Council study groups and the NTIA Economic Security Working Group. In collaboration with John Bumgarner, he is author of the US-CCU Cyber-Security Check List, the most comprehensive survey to date of cyber-vulnerabilities. Before being asked by the U.S. government to tackle cyber-security issues, Scott Borg was one of the principal developers of Value Creation Analysis, a set of business strategy models for understanding how much value can be created by various types and components of value chains. He has been a guest lecturer at Harvard, Yale, Massachusetts, Columbia, and other leading universities, and is a Senior Research Fellow at the Fletcher School.

**Deborah Brautigam**, Associate Professor, International Development Program, School of International Service, American University

Professor Brautigam teaches in the International Development Program at American University's School of International Service. She has also held faculty appointments at Columbia University in New York (1987-94) and has been a visiting fellow at the University of Liberia in Monrovia, the University of Mauritius, Fourah Bay College in Sierra Leone, and the Chr. Michelsen Institute in Norway. She has served as a consultant for the United Nations, the World Bank, and USAID in Cambodia, Sri Lanka, Egypt and various Sub-Saharan African countries.

Professor Brautigam has been a recipient of a Fulbright Senior Regional Research Award for Africa, and a Fulbright-Hays Faculty Research Grant, and has also been awarded fellowships from the Council on Foreign Relations, the Woodrow Wilson International Center for Scholars, and the German Marshall Fund. She is the author of *Chinese Aid and African Development: Exporting Green Revolution* (St. Martin's Press, 1998) and *Aid Dependence and Governance*

(Almquist & Wiksell, 2000), the co-editor of *Taxation and State-building in Developing countries: Capacity and Consent* (Cambridge, 2008) and several dozen academic working papers, journal articles and book chapters on foreign aid and the political economy of development. She is currently working on a book about small states and globalization, with Mauritius as the central case, an edited volume on China and Africa, and a book on understanding China's 'new' aid in Africa. She received a B.A. from Ohio Wesleyan University and an MALD and PhD from the Fletcher School of Law and Diplomacy.

**Susanna P. Campbell**, PhD Candidate, The Fletcher School, Tufts University

Susanna P. Campbell has eleven years of experience with conflict prevention and peacebuilding, including with: the Center for Preventive Action of the Council on Foreign Relations (1996-1999); the Forum on Early Warning and Early Response's (FEWER's) Great Lakes Early Warning Network (1999-2000); UNICEF Burundi (2000-2002). Since 2003, as an independent consultant, she has authored numerous studies on conflict prevention and peacebuilding including: *A Framework for Responsible Aid to Burundi* (International Crisis Group Report, No. 57, 2003); "Institutional Capacity Building for Conflict Sensitivity," in *Conflict Sensitive Approaches to Development, Humanitarian Assistance and Peacebuilding: A Resource Pack* (International Alert, 2004); and *The Burundi Leadership Training Program: A Prospective Assessment* (co-author, The World Bank, 2004); and *A Framework for Improved Coordination* (co-author, National Defense University, 2005). In addition, Ms. Campbell has served as an external reviewer for the LICUS Implementation Trust Fund (World Bank, 2006), a Peacebuilding Consultant for Catholic Relief Services (2006), and a Consultant for the Integrated Missions Project of the Norwegian Ministry of Foreign Affairs (2007). Ms. Campbell is currently a Ph.D. Candidate at the Fletcher School of Law and Diplomacy, Tufts University. Her dissertation is entitled *Organizational Barriers to Peace*. She also received her BA in International Relations from Tufts University in 1996.

**Elizabeth L. Chalecki**, Adjunct Lecturer, Department of International Relations, Boston University & PhD Candidate, The Fletcher School

Elizabeth L. Chalecki is an Adjunct Lecturer in the Department of International Relations at Boston University. Her expertise lies in the areas of climate change and security, environmental terrorism, and non-traditional security threat analysis. Before teaching at BU, she was the Environment & Security Analyst at the Pacific Institute for Studies in Development, Environment, and Security. Ms. Chalecki has published over 20 articles on diverse topics such as environmental and eco-terrorism, bulk water exports and free trade, climate change, public perceptions of environmental issues, and water in outer space. She has taught at California State University – Hayward and the Monterey Institute of International Studies, and worked for Environment Canada, the U.S. Department of Commerce, and the Brookings Institution. She holds an M.Sc. in Environmental Geography from the University of Toronto, an M.A. in International Relations from Boston University, and is currently ABD in the Fletcher School of Law & Diplomacy at Tufts University.

**Andrea J. Dew**, Assistant Professor for Strategy and Policy, Naval War College

Dr Dew earned her MALD and Ph.D. from The Fletcher School. From 2003–2006, she was the Research Associate for the International Security Studies Program at Fletcher and co-authored a book on armed groups with Dr. Richard H. Shultz, Jr. entitled: *Insurgents, Terrorists, and Militias: The Warriors of Contemporary Combat* (Columbia University Press, 2006). As a Research Fellow in the International Security Studies Program at the Belfer Center for Science and International Affairs, Harvard University, she completed her dissertation work focusing on the security risks of commercializing remote sensing technology. Dr Dew is also a Jebson Center Senior Fellow for Counter-Terrorism Studies at the Fletcher School.

**Kelly Sims Gallagher**, Director, Energy Technology Innovation Policy, Belfer Center for Science & International Affairs, Kennedy School of Government, Harvard University

Kelly Sims Gallagher is Director of the Energy Technology Innovation Policy research group (ETIP) of the Belfer Center for Science and International Affairs and Adjunct Lecturer of Public Policy at Harvard University's Kennedy School of Government. She has a M.A.L.D. and Ph.D. in International Affairs from the Fletcher School of Law and Diplomacy at Tufts University. Her research interests include energy technology innovation, international energy cooperation, energy policy, climate change policy, international environmental policy, and technology transfer/economic development questions. She has an A.B. in international affairs and environmental studies from Occidental College. She speaks Spanish and basic Mandarin Chinese. Her book, *China Shifts Gears: Automakers, Oil, Pollution, and Development*, was published by MIT Press in 2006.

**Joshua L. Gleis**, International Security Program Research Fellow, Belfer Center for Science and International Affairs, Harvard University

Joshua L. Gleis is an International Security Program Research Fellow at the Belfer Center for Sciences and International Affairs at Harvard University and a Visiting Scholar at Columbia University for the Saltzman Institute of War and Peace Studies. As a Ph.D. Candidate at the Fletcher School of Law and Diplomacy at Tufts University, Josh is in the final stages of completing his doctoral dissertation. He received a Master of Arts in Law and Diplomacy from the Fletcher School as well as a Bachelor of Arts in Near Eastern Studies from Cornell University. Josh serves as an analyst at the Jebson Center for Counter Terrorism Studies and has consulted for a number of government agencies. He has studied at both Tel Aviv University in Israel and the University of New South Wales in Australia. He has served as the Ph.D. representative for the Fletcher Student Council, Editor-in-Chief of the Fletcher Ledger, and as a fellow at the Tufts Hillel Center, responsible for educating undergraduates about the history and politics of the Middle East as well as implementing Muslim-Christian-Jewish dialogue. His doctoral dissertation, entitled, "Withdrawing Under Fire: A Comparative Case Study of the Israeli Withdrawals from Lebanon in 2000 and the Gaza Strip in 2005," explores how to more effectively withdraw from insurgencies. Josh has appeared in numerous television, radio, and newspaper interviews and is the author of several published articles and op-eds on topics related to counterterrorism, counterinsurgencies, and the Middle East.

**Chen Kane**

Chen Kane is a joint International Security Program/Project on Managing the Atom postdoctoral Fellow at the Belfer Center for Science and International Affairs concentrating on international law, nuclear nonproliferation, and weapons of mass destruction and terrorism.

Dr. Kane worked for six years at the Israeli Atomic Energy Commission in the External Relations Division, eventually becoming its Director.

Dr. Kane has held research posts at the Washington Institute for Near East Policy and at the Center for Strategic and International Security in Washington, D.C.

Prior to joining the Atomic Energy Commission, Dr. Kane served as an officer in the Israel Defense Forces. She holds a Bachelor's degree in Sociology, Anthropology, and Political Science from Tel Aviv University, where she also completed an M.A. Degree in Security Studies. Ms. Kane also holds an M.A.L.D. and a Ph.D. in Law and Diplomacy from Tufts University's Fletcher School of Law and Diplomacy.

**Darren Kew**, Assistant Professor, Dispute Resolution Program, UMASS Boston

Darren Kew studies the relationship between democratic institution building in Africa and the development of political cultures that support democracy, particularly in terms of the role of civil society groups in this development. Professor Kew has worked with the Council on Foreign Relations' Center for Preventative Action to provide analysis and blueprints for preventing conflicts in numerous areas around the world, including Nigeria, Central Africa, and Kosovo. He has also been a consultant to the US State Department and to a number of NGOs, including the Carter Center in a 1999 effort by former President Carter to mediate the Niger Delta conflicts. Professor Kew's work on how conflict resolution methods promote democratization of national political cultures is one of the first of its kind linking these important fields. Professor Kew's recent publications include "Nigeria: Completing Obasanjo's Legacy" in the Journal of Democracy (July 2006) (together with Ebere Onwudiwe and Richard Sklar), and "Building Democracy in 21st Century Africa: Two Africas, One Solution" in the Seton Hall Journal of Diplomacy and International Relations (Winter/Spring 2005). His book on Civil Society, Conflict Resolution, and Building Democracy in Nigeria is under contract with Syracuse University Press. He holds an MALD and PhD from the Fletcher School of Law and Diplomacy.

**Marcus DuBois King**, Globalization Planning Fellow, Office of the President, Georgetown University

Marcus DuBois King is Globalization Planning Fellow in the Office of the President at Georgetown University where he works with senior university leaders to create interdisciplinary alignment behind international initiatives. Since 2002 he has served as Research Director of the Sustainable Energy Institute (SEI), a non-profit organization working with government, energy producers and consumers to promote cleaner energy policies and technologies. Prior to SEI, King was Senior Manager of Numark Associates, a DC-based energy and environmental consulting firm representing clients engaged in power generation, climate change and defense related activities.

King received a B.S. in Foreign Service from Georgetown in 1993 and an MALD from Fletcher in 2000. He is currently writing his Fletcher Ph.D. dissertation on the national security implications of global warming. King had held several adjunct faculty positions at Georgetown and The George Washington University and has published numerous trade press articles about energy politics and nuclear waste issues.

**Paul Kirshen**, Research Professor & Co-Chair of Water: Systems, Science, and Society (WSSS), Tufts University

Dr. Kirshen is Director and co-chair of the new Tufts interdisciplinary graduate program in Water: Systems, Science, and Society (WSSS) and co-founder and Director of the Tufts Water, Sustainability, Health, and Ecological Diversity (WaterSHED) Center. These are the focal points at Tufts for the interdisciplinary aspects of water resources research, education, and outreach. Dr. Kirshen is Project Manager and Principal or co-Principal Investigator of all his current grants; each is transdisciplinary. He teaches a graduate level course cross-listed in several schools on integrated water resources planning. He is a steering committee member of the Mystic Watershed Collaborative, the partnership he co-founded of Tufts and the local community to restore the nearby Mystic River. He is also a member of a team from the American Society of Civil Engineers, writing a document for the profession on integrated water resources management. For more information on experience and publications, see [ase.tufts.edu/cee/faculty/kirshen/bio.asp](http://ase.tufts.edu/cee/faculty/kirshen/bio.asp).

**Col. Jeffrey Kubiak**, PhD Candidate, The Fletcher School, Tufts University

Colonel Kubiak is a PhD Candidate currently drafting a dissertation proposal that will have him researching the American national will in war. Before coming to Fletcher, Col Kubiak spent a year as a National Defense Fellow at Boston University. He holds an undergraduate degree in American politics from the U.S. Air Force Academy; and graduate degrees in political science (Univ of Wisconsin) and military operational arts and science (Air Command and Staff College) and is a graduate of Squadron Officers School and distinguished graduate of Air Command and Staff College. Col Kubiak holds a Command Pilot aeronautical rating with more than 3,600 flying hours. He has commanded a flying training squadron and has a broad background of experience in bomber operations and flying training.

**Christof Kurz**, PhD Candidate, The Fletcher School, Tufts University

Christof P. Kurz is a Ph.D. Candidate at the Fletcher School, Tufts University. His doctoral dissertation focuses on the how processes of state formation in West Africa may or may not have contributed to violent conflict in Guinea, Côte d'Ivoire, Liberia, and Sierra Leone in the 1990s and early 2000s. He holds a Masters Degree in Political Science and French Literature from the University of Bonn, Germany, and a Master of Arts in Law and Diplomacy (MALD) from the Fletcher School. Prior to joining the Fletcher PhD program, Christof was Deputy Country Director for the International Rescue Committee (IRC) in Sierra Leone and a Field Advisor to the IRC in Southern Sudan. He frequently consults for development agencies and recently participated in an evaluation of the UN's peacebuilding in Liberia for the CDA-Collaborative Learning Projects. His most recent publication is "Greed, Grievance and Atrocities: Recent

Literature on the Causes and Dynamics of the War in Sierra Leone 1991–2002” in the *Journal of Intervention and Statebuilding* (March 2007).

**William C. Martel**, Associate Professor of International Security Studies, The Fletcher School

Principal investigator on space policy study with support from MIT Lincoln Laboratory (2007-2009); research support from Defense Advanced Research Projects Agency, Office of Secretary of Defense; Member, Editorial Board of the Naval War College Review; Academic Director, Fletcher Summer Institute for the Advanced Study of Nonviolent Conflict (2006, 2007); Professor of National Security Affairs, Chair of Space Technology and Policy Studies, Naval War College (1999-2005); Research support from Defense Advanced Research Projects Agency, Office of Secretary of Defense, MIT Lincoln Laboratory (current); U.S. Air Force Scientific Advisory Board (2001-2002); Associate Professor of International Relations, Air War College (1993-1999); Former Director and Founder, Center for Strategy and Technology (CSAT) (1993-1999); Post-Doctoral Fellow, Harvard University (1991-1993). BA, St. Anselm College; PhD in Political Science, University of Massachusetts, Amherst.

**Ben Mazzotta**, PhD Candidate, Fletcher School.

The working title of his dissertation is Risk Management and the Multilaterals: Weather Derivatives and the World Food Program. Research interests include political economy of development assistance, graph economics, and cluster analysis of international trade flows. He has worked since 2004 as Research Director for Health Care at the United States Cyber Consequences Unit, and since 2007 as a team leader at the Fletcher Maritime Studies Program.

**Susan Murcott**, Senior Lecturer, Massachusetts Institute of Technology

Susan Murcott’s work addresses innovative, low-cost water and wastewater treatment technologies for developing countries. For a decade, she focused on wastewater for megacities and, since 1997, she is a leader in the emerging field of household drinking water treatment and safe storage (HWTS), with projects in Ghana, Mexico, Brazil, China, Haiti, Nicaragua, Peru, Kenya, India, Eastern Europe and elsewhere. In 1999 Murcott founded the initiative: “Clean Water for 1 Billion People” (H2O-1B) which is an on-going series of projects focused on global water and sanitation within the Civil and Environmental Engineering (CEE) Department. The immediate goal of this initiative is to train engineers to work in multi-disciplinary teams integrating engineering sub-disciplines with a range of other research, monitoring and evaluation methodologies and tools, such as community engagement, user perception studies, environmental and social impact assessment, cost-benefit analysis, willingness-to-pay, environmental health and epidemiological research and social marketing. At MIT, Murcott teaches “Water and Sanitation in Developing Countries” and “D-Lab III: Disseminating Innovations for the Common Good.” At Cambridge University, she has co-taught “Sustainable Development for Large Infrastructure Projects” and “Design for Developing Countries.” She is the author of over 50 professional papers. See: <http://cee.mit.edu/index.pl?id=2700> and <http://web.mit.edu/watsan>

**Ronnie Olesker**, Lecturer in Political Science, Tufts University

Dr. Olesker has received her PhD from Fletcher in May 2007. She is currently teaching international relations and comparative politics at the political Science department at Tufts University. Dr. Olesker's dissertation titled: "The Value of Security VS. The Security of Values: The Relationship Between the Rights of the Minority and the Security of the Majority in Israel," examines the relationship between Israel's legal policy vis-a-vis its Palestinian citizens and its counter-terrorism strategy. She employs prospect theory to examine the consequences of the rise in the legal discrimination of the Palestinian minority since the eruption of al-Aqsa intifada (2000) on their support for political violence against the state. Dr. Olesker has a law degree from Israel and has worked for the criminal division of the Central District Attorney's office in Tel Aviv. She has also been a human rights activist since 1999 working for various organizations in Israel and the Palestinian territories. At Fletcher she was a research Fellow at the Jebson Center and the International Security Studies Program. She has been teaching at the Tufts Political Science department for 3 years.

**Robert Pfaltzgraff, Jr.**, Shelby Cullom Davis Professor of International Security Studies, The Fletcher School, Tufts University

Dr. Pfaltzgraff is Shelby Cullom Davis Professor of International Security Studies at the Fletcher School. He has also held a visiting appointment as George C. Marshall Professor at the College of Europe, Bruges, Belgium, and as Professor at the National Defense College, Tokyo, Japan. He has also served as Honorary Professor, University of St. Andrews (Scotland). He has advised key U.S. government officials on military strategy, defense modernization, the future of the Atlantic Alliance, proliferation and counterproliferation issues, and arms control policy. He has lectured widely at government, industry, and academic forums in the United States and overseas. These include the NATO Defense College, National Defense University, the Marine Corps University, the Army War College, the Air University, the Naval War College, and the Armed Forces Staff College. He currently serves on the International Security Advisory Board (ISAB), U.S. Department of State. He is a member of ISAB's Nuclear Proliferation Cascade Task Force. Dr. Pfaltzgraff is also founder and President of the Institute for Foreign Policy Analysis: <http://www.ifpa.org/>.

**Col. Greg Rattray, USAF (Ret)**, Partner, Delta Risk, LLC

Greg Rattray is a retired U.S. Air Force colonel, having served until his recent retirement as the commander, 318th Information Operations Group in San Antonio. While on active duty, Colonel Rattray also served on the National Security Council Staff as a cyber-security specialist. Currently Dr Rattray does consulting for various government and non-governmental agencies including the Department of Homeland Security and The Internet Corporation for Assigned Names and Numbers (ICANN) on cyber-security. Colonel Rattray received his bachelors in international relations at the Air Force Academy; has an MPP from the JFK School of Government at Harvard University; and completed his PhD at Fletcher in 1998.

**Peter P. Rogers**, Gordon McKay Professor of Environmental Engineering and Professor of City and Regional Planning at Harvard University

Prof. Rogers is Gordon McKay Professor of Environmental Engineering and Professor of City Planning in the School of Engineering and Applied Sciences at Harvard University. He is a member of the American Academy of Environmental Engineering and the Third World Academy of Science, and recipient of Maass-White Visiting Scholar, Guggenheim and Twentieth Century Fellowships. His research interests include: conflict resolution in international river basins; improved methods for managing natural resources and the environment, with emphasis on the use of analytic optimizing methods to incorporate both the natural phenomena and the engineering controls; the impacts of global change on water resources, and the development of indices of environmental quality and sustainable development; and the interaction of land use planning and central management.

Prof. Rogers has carried out extensive field and model studies on population, water and energy resources, and environmental problems in Costa Rica, Pakistan, India, China, the Philippines, Bangladesh and, to a lesser extent, in 25 other countries. His most recent work has focused on sustainable development with an emphasis on large cities in Asia. He received his B. Engineering (1958) from the University of Liverpool, his M.S. Engineering (1961) from Northwestern University and his Ph.D. Engineering (1966) from Harvard University.

**Amy Sands**, Provost and Academic Vice President, Monterey Institute of International Studies

Dr. Amy Sands is the Provost and Academic Vice President of the Monterey Institute of International Studies. Prior to becoming Provost, Dr. Sands held two other positions at the Monterey Institute. Most recently she served for two and one-half years as the Dean of the Graduate School of International Policy Studies, a school dedicated to providing professional graduate international education to prepare students for careers in a global workplace. Previous to this appointment, she was the Deputy Director of the Center for Nonproliferation Studies for seven years. Her responsibilities involved strategic oversight and daily management of the Center's projects and activities. From August 1994 to June 1996, she was Assistant Director of the Intelligence, Verification, and Information Management Bureau at the U.S. Arms Control and Disarmament Agency (ACDA). Before joining ACDA, she led the Proliferation Assessments Section of Z Division (Intelligence) at the Lawrence Livermore National Laboratory and was Country Risk Manager of New England Merchants Bank.

Upon leaving the government, Dr. Sands received ACDA's Distinguished Honor Award and the On-Site Inspection Agency's Exceptional Civilian Service Medal. She is a member of the Council on Foreign Relations and the International Institute of Strategic Studies.

**Richard Shultz**, Professor of International Politics and Director of the International Security Studies Program, The Fletcher School, Tufts University

Since 1983 instructs at the graduate level. Courses taught include: The Role of Force in International Relations; The Evolution of Military Doctrine; The Origins, Conduct and Termination of War; Seminar on Intelligence, International Terrorism and National Security; Seminar on Internal Conflicts; Seminar on Ethnic and Religious Conflict and Its Impact on Regional Security; and Seminar on Crisis Management. Research Interests include: U.S.



international security policy; internal conflict and state disintegration; ethnic and religious violence; irregular warfare; contemporary military strategy; intelligence policy and international terrorism; special operations forces and paramilitary operations; media-military relations; changing roles and the changing missions of the U.S. armed forces.  
<http://fletcher.tufts.edu/faculty/shultz/profile.asp>.

Director of the International Security Studies Program (ISSP) since 1988. The ISSP prepares U.S. and international graduate students for public and private sector careers in national and international security policy. The program is dedicated to graduate level teaching and research on a broad range of conflict, defense, and strategic issues. The Director has responsibility for the following programmatic activities: course curriculum; annual conference co-sponsored with one of the U.S. military services; publication series; senior-level speaker series; military fellows program; crisis simulation exercises and fundraising. The program consists of four faculty, the ISSP Administrator, the Program and Research Coordinator, a Staff Secretary, and several Research Associates. <http://fletcher.tufts.edu/faculty/programsandcenters.shtml#a13>. In 2005 the ISSP established The Jan Henrik Jebsen Center for Counter-Terrorism Studies to increase competency of counterterrorism professionals. To accomplish this mission the center funds a research and analysis program, hosts conferences and visiting fellows, and conducts outreach activities. The center is directed by Brigadier General (Ret.) Russell Howard.  
<http://fletcher.tufts.edu/faculty/programsandcenters.shtml#jebsen>

**Edward Spang**, PhD Candidate, The Fletcher School, Tufts University

Edward earned his MALD from the Fletcher School in 2006, specializing in Development Economics and International Environment and Resource Policy, and earning certificates in International Sustainable Development and Water: Systems, Science and Society. His Master's thesis focused on the potential for wind-powered desalination in water-scarce countries, and he was invited to present his research findings at international conferences in Spain and Switzerland. He is currently pursuing a PhD at Fletcher relating to water resources and sustainable development with financial support from the National Institute of Health. With funding from the Tufts Institute of the Environment, Edward traveled to Peru in 2005 to study the effects of melting glaciers on the future water supply of local Andean communities. In addition, he spent two months performing field research on local watersheds in Mexico, Belize, Guatemala and Honduras for the GEF-funded Mesoamerican Barrier Reef System Project. Most recently, Edward spent three months in Vienna as a summer researcher at the International Institute of Applied Systems Analysis (IIASA), studying the water management challenges of Small Island States. Prior to graduate school, he spent two years working for an international public health NGO, Management Sciences for Health.

**G. Richard Thoman, F'67, '69, '71** , Managing Director, Corporate Perspectives, New York

G. Richard Thoman has over thirty-five years of senior executive business experience. Positions include: Corporate Perspectives, Managing Partner (2002-present); Evercore Partners, Senior Advisor (2001-2002); Xerox Corporation, President and Chief Executive Officer (1999-2000) and President and Chief Operating Officer (1997-1999); IBM Corporation, Senior Vice-President, CFO (1995-1997), Senior Vice President (1994-1995); Nabisco International,

President and CEO (1992-1994); American Express, Chairman and co-CEO, Travel Related Services ((1989-1992), President, Travel Related Services International (1985-1989), Executive Vice President and CFO, Travel Related Services (1979-1985), McKinsey and Company, Senior Associate (1972-1979). Member of the Board of Directors for DaimlerChrysler AG, Union Bancaire Privee, the Americas Society; Member of the Board of Advisors for Deutsche Bank Capital Partners, The Fletcher School, Yale School of Management; INSEAD, and the French American Foundation.

**Elizabeth Turpen**, Senior Associate, The Henry L. Stimson Center

Dr. Elizabeth Turpen joined the Henry L. Stimson Center in 2001 to establish the Senate component of the Security for a New Century congressional study group. Prior to joining the Center, she served as Legislative Assistant for Senator Pete Domenici, responsible for defense, nonproliferation, and foreign affairs. Previously, she was a consultant on nonproliferation policy, US-Russian programs, and the national security implications of technology advances for Aquila Technologies Group. Dr. Turpen also has extensive teaching and lecturing experience. She holds a PhD from the Fletcher School of Law and Diplomacy at Tufts University and a BA from the University of New Mexico.

**Gregory Unruh**, Director, Lincoln Center for Ethics in Global Management Thunderbird, School of Global Management

Gregory C. Unruh is the Director of the Lincoln Center at Thunderbird, the leading business school for international management. Before coming to Thunderbird he served as the Alumni Professor of Corporate Sustainability at the Instituto de Empresa Business School in Madrid, Spain and the Academic Director of the Center for Eco-Intelligent Innovation which he co-founded with the world renowned architect William McDonough. He has held positions at both Columbia University in New York City and The Fletcher School in Boston. Trained as an undergraduate in the Earth and Environmental Engineering at the University of California and as a graduate in International Environmental and Technology Management at Tufts University, his research focuses on the challenges of altering established industries and technologies systems to make them more environmentally sustainable. Publications include his three paper series on “Carbon Lock-in” in the international journal Energy Policy. He has also been an editorial-opinion contributor to the Boston Globe, Business Week and the Spanish daily Expansion on important environmental and energy issues.

**Peter Uvin**, Academic Dean and Henry J. Leir Professor of International Humanitarian Studies, The Fletcher School

Peter Uvin teaches courses on the intersection between conflict resolution, development, and human rights. His research interests include the political and social dynamics of Burundi and Rwanda, innovations in development aid, post-conflict assistance, and peacebuilding, development and human rights. He was a winner of a 2006 Guggenheim Fellowship and the 1999 African Studies Association Herskovits Award for the most outstanding book on Africa for “Aiding Violence. The Development Enterprise in Rwanda” (Kumarian Press: 1998). His other publications include “Human Rights and Development” (2004) and numerous articles in

academic journals and reports for international aid agencies and non-governmental organizations. He is currently working on a book manuscript on the conflict and post-conflict peacebuilding in Burundi. Prof. Uvin also regularly consults for multilateral and bilateral aid agencies and ministries of foreign affairs, as well as international NGOs. He previously taught at Brown University, New Hampshire College and the Graduate School of Development Studies, Geneva. He holds a PhD in Political Science from the Institut Universitaire de Hautes Etudes Internationales, University of Geneva, and a License in Diplomatic Science and Political Science from the University of Ghent.

**Andrew Wilder**, Research Director for Politics and Policy, The Feinstein International Center, Tufts University <http://fic.tufts.edu/?pid=38>

Andrew Wilder joined the Feinstein Center in January 2007 to lead the Center's research on Politics and Policy in countries affected by conflict. His areas of interest include state-building, governance, and aid-effectiveness, with a specialization on Afghanistan and Pakistan. Prior to joining the Center he worked in Afghanistan where he established and was the Director of Afghanistan's first independent policy research institution, the Afghanistan Research and Evaluation Unit (AREU). Between 1986 and 2001, Andrew worked for several different international NGOs managing humanitarian and development programs in Pakistan and Afghanistan, including for six years as the Director of the Pakistan/Afghanistan program of Save the Children (US). He is the author of *The Pakistani Voter* (Oxford University Press, 1999), a co-author of *A Guide to Government in Afghanistan* (AREU, 2004), and the author of several book chapters, journal articles and briefing papers. His recent research and publications have looked at police reform policies in Afghanistan, perceptions of the earthquake response in Pakistan, Afghan refugee education policy in Pakistan, the politics of civil service reform in Pakistan, electoral politics and policies in Pakistan and Afghanistan, and the politics of sub-national administration in Afghanistan. His current research interest is to critically examine the assumed relationship between development assistance, "winning hearts and minds," and perceived security benefits. Andrew has a BSFS degree from Georgetown University, and a MALD and PhD from the Fletcher School of Law and Diplomacy at Tufts University.

**Col. Stephen E. "Wilbur" Wright**, Dean of Academic Affairs, Air War College

Colonel Stephen E. "Wilbur" Wright is the Dean of Academic Affairs at the Air War College overseeing the faculty and curricula providing senior development Professional Military Education to 265 senior officers and civilian equivalents from the US and officers from 45 foreign countries. He previously served as the Chairman of the International Security Studies Department, and prior to that as a Professor of Warfighting. His operational expertise includes assignments flying the B-52D/G/H and B-1B aircraft, air operations center experience as the chief air strategist for 8th Air Force, and as a crisis action director for Air Combat Command (ACC) and division chief for ACC Director of Operations' Information Operations Division.

His command tours include the 9th and 28th Bomb Squadrons at Dyess AFB TX. He earned his BS at Texas A&M University and was a distinguished graduate of the Reserve Officer Training Corps. He holds master's degrees in Industry and Technology (East Texas State University), National Security and Strategic Studies (Naval Command and Staff College), and Aerospace

Studies (School of Advanced Airspace Studies). Col Wright earned his PhD in International Relations from The Fletcher School of Law and Diplomacy, Tufts University. He is a distinguished graduate of Squadron Officer School and a graduate of the Naval Command and Staff College. In 1997-98, he served as a National Defense Fellow in the International Security Studies Program, The Fletcher School of Law and Diplomacy, Tufts University. He is a command pilot with over 3,900 flying hours in the T-37, T-38, B-52, and B-1 aircraft

Tufts Doctoral Conference  
October 11<sup>th</sup> and 12<sup>th</sup>, 2007  
**Cabot Center**  
**7<sup>th</sup> Floor**

\*One Breakfast in Mugar 231

**9:00am**

**Mugar 231\***

Petite Continental for 40  
With an additional pump pot of  
Tea and Decaf  
One Tablecloth

**(One 8 foot table needed for food)**

Delivery set and Clear  
\$260.00

**1:00PM**

Lunch in the Faculty Dining Room

**2:00PM**

Coffee Break for 40  
2 Pump pots of Regular Coffee  
One Decaf  
One Tablecloth

**(Use Existing Table in Lounge)**

Delivery Set and Clear  
\$110.50

**7:00PM**

Reception  
Hosted Wine and Beer  
Glassware for Bar Only  
\$128.00  
(Alcohol per consumption)  
2 Large European Cheeseboards  
\$300.00  
1 Large Crudite Platter  
\$115.00  
2 Large Sliced Fruit Platters  
\$190.00  
Stationary Hors d'ourves  
Tandoori Chicken Satay  
Spanokopita  
Crab Rangoons  
(300 pieces in total)

\$300.00

Bar Set up and Bartender Fee

\$87.50

Total before Alcohol Consumption

\$1,138.00

**(For Reception use existing tables in Lounge, One for the Bar and One for a Cheese and  
Crudite Platter**

**The Stationary Hors d'ourves and remaining platters to be put in Cabot 703  
(will need 2 – 8 tables in that room)**

**October 12<sup>th</sup>**

**8:00AM**

Petite Continental for 80

Additional pump pot of Tea and Decaf

Tablecloth

**(Use existing Tables in Lounge)**

Delivery Set and Clear

\$408.00

**10:30AM**

Coffee break

5 Pump pots of Regular Coffee

1 Pump pot of Decaf

Delivery Set and Clear

\$156.00

**1:00PM**

Cabot 7<sup>th</sup> Floor

702 & 703

Menu to be determined

**(table needs to be determined**

**Depending on menu**