Introduction

This is latest volume of **Papers on International Environmental Treaty-Making** presenting the best written work of MIT, Tufts and Harvard graduate students enrolled in our advanced graduate seminar. The range of papers in this volume suggests that there are a number of important resource management issues, such as space debris, renewable energy and hydrodiplomacy, that still need to be addressed through additional transboundary treaty-making efforts (regardless of how many treaties we already have). Other concerns like genetically modified organisms, climate change, the environmental impacts of international trade agreements, and fisheries management, already the subject of one or more treaties, require further attention. The first decade of papers in this series, summarized in our volume entitled **Transboundary Water Negotiation** (Jossey-Bass, San Francisco, 2001), highlighted (1) the need to involve civil society and not just formal national government representatives in treaty-making, (2) strategies for finding a better balance between science and politics in environmental treaty-making, and (3) new approaches to addressing the underlying "North – South" conflict inherent in almost all global treaty-making efforts. This most recent (2006-2007) volume emphasizes several new issues including the importance of mounting independent public education efforts to raise public awareness of global treaty-making efforts, the need to coordinate and integrate the mandates and implementation efforts of separate treaty regimes, the possibility of incorporating global insurance systems of various kinds into treaty implementation, and the possibility that the action-forcing benefits of timetables and targets are outweighed by the costs of having to redo treaties on a regular basis to update deadlines and requirements. We are constantly surprised by the insight and originality of our students. We hope this series continues to raise questions and suggest new ideas that help to improve the "environmental treaty-making system" that has become increasingly important to our long-term survival.

Professor Lawrence Susskind
Professor William Moomaw

GMO's, Space Debris, Trade and Public Education

The decade since genetically modified organisms (GMOs) were first marketed and traded internationally has seen contentious regulatory debates between developed nations, demonstrations of public opposition, scandals surrounding the accidental and unregulated release of untested crop varieties, and failed trade negotiations. This debate is being played out in the gray area between World Trade Organization (WTO) regulations and multilateral environmental agreement (MEA) regimes. Current international agreements, be they in the realm of trade or the environment, do not address GMOs adequately. Sarah Borron and Corey O'Hara, in their paper, "**Convention on Genetically Modified Organisms: Harmonizing Regulations and Dismantling Trade Barriers,**" propose a solution to offer countries a fresh start on a historically divisive issue. In order to address environmental risks unique to GMOs, the proposed treaty defines GMOs to be substantially different from their conventional counterparts. Under the treaty, GMOs that are deemed to have an acceptable degree of risk following an environmental impact assessment (EIA) would be traded without restrictions. Approved GMOs will be subject

to adaptive post-commercialization monitoring according to three levels of potential transboundary harm. Labeling will be required of any product, whether in shipment or destined for consumer end use, which contains more than 1% GMOs. The treaty will also address liability of farmers whose crops are affected by genetic cross-contamination while recognizing applicable intellectual property rights.

It is time to recognize that while space may be infinite, Earth orbital space is a finite natural resource that must be managed properly. The problem we face with space pollution is complex and serious. The space treaties and conventions are not sufficient. They were drafted at the time of space exploration in the 1960s and 1970s. Today, they fail to account for rapid changes in the field, especially the increasing commercial activity. Moreover, the existing mitigation guidelines remain voluntary and are not legally binding under international law. As a result, space debris tends to accumulate and remains in orbit for a long period of time. This is hindering space commerce, space tourism, the scientific exploration of space, the use of raw materials from space, and even distant plans for the future settlement of space. In "**Space Debris Pollution: A Convention Proposal,"** Theirry Senechal argues that it is time for an international space debris convention that would encompass the following objectives: 1) Implement an international and independent tracking and cataloguing system for space debris; 2) Adopt enforceable space debris mitigation and disposal guidelines; 3) Enforce a space preservation provision for protecting the most vulnerable outer space regions and; 4) Define a space debris compensation and dispute settlement mechanism. The space industry would be expected to participate in the drafting and implementation of the convention, which would bring together policy-makers and the civil society from all nations and stakeholders.

Multilateral environmental agreement trade measures indirectly affect the environment but directly affect international trade. They overlap with the rules of the World Trade Organization (WTO), which represents the world trading system and consists of three fourths of the world's nations. "**Moving the Negotiation on Trade Measures in Multilateral Environmental Agreements Forward,"** by Yen H. Trinh, deals with potential conflicts that could result from these regulatory overlaps. It, first, analyzes the functions of trade measures in the existing MEAs. If they are necessary for environmental purposes, what makes negotiators reluctant? The paper then examines their major concerns – the MEA-WTO conflict. With a view to moving forward the negotiations on trade measures in amendments for existing MEAs as well as new MEAs, the first recommendation focuses on solving the ambiguity in the MEA-WTO interrelationship and thus, setting a more certain and predictable negotiating context. After exploring solutions in both arenas, the WTO and the MEAs, the paper concludes that a supremacy clause could be feasibly introduced into the WTO law and proposes in detail how to do so. Secondly, in preparation for their negotiations on trade measures in MEAs, negotiators can use a checklist of criteria to test the potential compatibility of such measures with WTO rules. Finally, the paper explores some mechanisms for the two systems to collaborate in negotiation processes and implementation of MEAs, thus enhancing the mutual understanding between these continuously evolving systems.

Susan McDonald writes in "**Improving Public Education on Global Environmental Treaties Using the Basel Convention as an Example,"** that there is a lack of public information on global environmental treaties delivered in an effective form. This results in a lack of urgency and political will to ratify and implement treaties. This paper examines gaps in media coverage of the

Basel Convention, including two recent events (the Ivory Coast disposal scandal and COP8 in Nairobi) and proposes strategies to address these gaps through public education by UNEP and civil society. A review of major English-language daily newspapers revealed modest to no coverage of these two events, with little mention of UNEP, the Basel Secretariat, or the Convention. McDonald suggests that an improved public education strategy includes roles for UNEP, the Secretariat, its partner INECE, and civil society. A social marketing campaign by a coalition of these forces would define an objective (e.g., increase public concern and political will in industrialized nations), select target audiences, address barriers to change, and tailor key messages delivered by role models. The campaign would include such elements as a celebrity spokesperson, a Hollywood movie proposal, TV coverage in "soft news" formats, a computer game, and "Science Café" presentations to increase awareness and concern among elite and mass audiences.

Climate Change

If the international community is to find a way to bring the developing world into an international agreement on climate change, it must address the main concern of developing countries – that limiting greenhouse gas emissions will dramatically limit their ability to reduce poverty and provide solid economic development in their countries. Because energy is at the foundation of efforts to reduce poverty and provide sanitary living conditions, the time is ripe to create a new program providing resources and support for renewable energy projects in the developing world. Myrna Johnson, in her paper, "**Capacity Building and Renewable Energy Protocol to Climate Change Convention,"** proposes to target $10 billion per year for the next 10 years on renewable energy projects in the developing world. This money would be used for technology investment; education for technicians, engineers, and policymakers; and technical, management and organizational development training. If successful, the Capacity Building and Renewable Energy Protocol will help developing countries "leap frog" the fossil fuel phase, preventing significant and climate-changing CO2 emissions.

In "**A Process and Implementation Protocol for the UNFCC (Climate Change)**," Jonathan Phillips proposes a new protocol under the UN Framework Convention on Climate Change by which participation in greenhouse gas mitigation by signatory nations would expand by removing timetables and targets from the prevue of the treaty. While optimally existing in parallel with a Kyoto-style targets and timetable treaty, this none-expiring agreement would give developing countries and those opposed to mandatory targets an option for participating in climate change mitigation in a meaningful and internationally credible way.

Fisheries and Transboundary Water Regimes

"Strengthening International Fisheries Regimes: Regulating Flags of Non-compliance" by Brendan Leucke, makes the argument that Flags of convenience (FOC) have hamstrung numerous international efforts to manage fisheries through their use as a legal haven for illegal, unregulated, and unreported (IUU) fishing activities. Leucke proposes the creation of a Flag of Convenience Capacity Building and Regulation Protocol to the UN Law of the Sea in order to reduce abuses of FOC states that are undermining efforts to manage fisheries globally. The protocol uses punitive sanctions against signatories and non-signatories to enforce compliance

with goals outlined in the FAO Compliance Agreement. The author also proposes creating a positive network externality associated with accession and compliance – as more states sign the treaty, non-compliant states will face steadily rising costs due to limited resource, market, and port access, creating an increased incentive to comply.

"Building Adaptive Capacity into Transboundary Water Regimes" by Anna Schulz envisions a system of transboundary risk management that reduces the impact of hydrological vulnerability in international river basins. Using the concept of adaptive capacity as a foundation, the author examines what an adaptive management system might look like as it is used to address transboundary water related risk. The system encompasses a tiered management system at the local, national, basin, and international levels that emphasizes the coordination of grass-roots risk management strategies undertaken at the sub-catchment level. Insurance is introduced as a means of aggregating risk across basins at the international level. Technical support, capacity building, and information networks as well as the economic benefits of the reduction of water vulnerability are emphasized as benefits for basin states undertaking the cooperative management of water related risk. The author also recommends an adaptive process to be undertaken in river basins with high levels of vulnerability, such as the Ganges-Brahmaputra Basin shared by Bangladesh, India and Nepal.

In "**Hydrodiplomacy: Negotiating a Regional Ridge to Reef Approach to the World's Water Crisis,"** Georgia Kayser reminds us of the scarcity of fresh water resources and the need to protect them through coordinated efforts among organizations all along the river basins, their seas, and among the plethora of international organizations that work on the many facets of the problem. Currently, forty percent of the world's people live in river basins that suffer from water stress. (Mathews et al., 2004) By 2050, UNEP projects that one in every three people will live in water-scarce countries. In addition, one-fifth of the world's people currently lack clean drinking water and almost half lack sanitary services. Kayser outlines recommendations for water resources management based upon a framework that already exists—the Regional Seas and River Basin Organizations. The author uses the Wider Caribbean and the East Asia Sea Region as examples of how countries and organizations would work through an International Waters Convention to coordinate water quality monitoring and watershed assessments, assist in the identification of comparative advantages, and facilitate negotiation and cooperative efforts among nations that share water resources.

The Contributors

The Editors

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William R. Moomaw is Professor of international Environmental Policy at the Fletcher School of Law and Diplomacy at Tufts University where he directs the International Environmental and Resource Policy Program. He is also Director of the Tufts Global Development and Environment Institute. His research interests include: climate change; stratospheric ozone depletion; air pollution; the role of science and technology in national and international environmental and energy policy.

The Authors

Sarah Borron, co-author of "Convention on Genetically Modified Organisms: Harmonizing Regulations and Dismantling Trade Barriers," recently earned her MS in Agriculture, Food, and the Environment from the Tufts University Friedman School of Nutrition Science and Policy. Prior to her time at Tufts, she worked for the Community Food Security Coalition, successfully advocating for legislation to increase the use of locally-grown food in school meals. She also served as a Congressional Hunger Fellow, setting the groundwork for developing a food policy council in Lane County, Oregon. She holds a BA in Environmental Studies from Denison University. Her other writings include "Building Resilience for an Unpredictable Future: How Organic Agriculture Can Help Farmers Adapt to Climate Change," prepared for the Organic Agriculture Program at the United Nations Food and Agriculture Organization, and "Making Healthy Food More Accessible for Low-Income Americans," prepared with colleagues at the Farm and Food Policy Project.

Myrna Johnson, author of "Capacity Building and Renewable Energy Protocol," is a government relations professional and non-profit executive with significant experience working on conservation issues in the American West. As Vice President for Government Affairs at the Outdoor Industry Association, she represented the outdoor industry in a negotiated rulemaking on the use of fixed climbing anchors in Wilderness and gained a reputation as a bridge builder between the conservation, recreation, and outdoor business communities. Together these groups worked to significantly increase funding for conservation and recreation and sought common ground on tough public land use issues. From 1987 to 1995, Johnson worked in the national affairs office of National Public Radio (NPR), and was public radio's lobbyist for public broadcasting funding. In that role, she was on the front lines successfully opposing a congressional effort in 1994-95 to eliminate the Corporation for Public Broadcasting. Johnson is currently a candidate for Master of Public Administration at Harvard's Kennedy School of Government.

Georgia Kayser, author of "HydroDiplomacy: Negotiating a Regional Ridge to Reef Approach to the World's Water Crisis," is a PhD student at the Fletcher School of Law and Diplomacy where she concentrates on the fields of international environmental policy, development economics, and integrated water resources management. She received her MALD from the Fletcher School in 2006 and her current dissertation research is supported by a grant from the National Institute of Health. Prior to Fletcher, Georgia served as a Peace Corps volunteer in Ecuador and has since worked and traveled extensively in Central and South America. Georgia earned her undergraduate degree from Cornell University in Political Science with a concentration in International Relations. Previous work led her to the House of Commons in the UK, the Center for Strategic and International Studies, in Washington DC, Mesoamerica on a transboundary watershed assessment with the World Bank, and the Wind River Mountains of Wyoming as a horseback riding guide for at-risk youth.

Brendan Luecke, author of "Strengthening International Fisheries Regimes: Regulating Flags of Non-Compliance," is a 2008 Masters in Public Policy Candidate at the Kennedy School of Government, Harvard University. At the Kennedy School he is focusing his studies on energy and environmental policy, and after graduation, Luecke plans to work in international environmental policy. Previous to graduate studies, Brendan worked as a telecommunications analyst, a research assistant with Harvard's Energy Technology and Innovation Program, and spent a year in Russia studying environmental policy, civil society, and the oil and gas industry.

Susan McDonald, author of "Improving Public Education on Global Environmental Treaties: Using the Basel Convention as an Example," has managed environmental social marketing campaigns for more than 10 years, as a senior communications planner with King County Department of Natural Resources in Seattle, where she also focuses on publication development, strategic planning, and contract management. Previously, she was communications officer for the International Institute for Energy Conservation in Washington, D.C., working with energy experts in Thailand, Chile, and other countries to inform policymakers about efficiency and renewable options. She has a Master of Communications degree with a focus on environmental policy from the University of Washington, completing a thesis on "Greening" Homeowners in the Puget Sound Region, and a Master in Public Administration from Harvard's Kennedy School of Government. Her work has earned awards from the Society for Technical Communication, the National Association of Government Communicators, and the Public Relations Society of America.

Corey O'Hara, co-author of "Convention on Genetically Modified Organisms (GMOs)," is currently studying the impacts of agriculture policy and science on the environment and human development at the Fletcher School of Law and Diplomacy and in the Agriculture, Food, and Environment program at the Friedman School of Nutrition—both at Tufts University. For the past two years he has served as consultant to Winrock International on sustainable agriculture development projects in Nepal. Previously he worked as Foreign Language Officer for the U.S. State Department, Italian interpreter, tour guide, and freelance travel and food writer.

Jonathan Phillips, author of "A Process and Implementation Protocol for the UNFCC (Climate Change)," graduated in 2007 with a Master of Public Policy degree from the John F. Kennedy

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Anna Schulz, author of "Building Adaptive Capacity into Transboundary Water Regimes," graduated from Wheaton College, MA with a double major in International Relations and Political Science with Department Honors for thesis research into Cooperation in the Nile River Basin. Following graduation, she studied integrated water management practices as well as international management of the Zambezi River Basin while on a Fulbright in Zambia. In Scotland, she received an LL.M in International and Comparative Water Law and Policy from the University of Dundee, Scotland. Variously she worked with the Louisiana Fire Marshall coordinating the fire emergency function in Louisiana following Hurricane Katrina and taught college environmental ethics in Northern California. Currently she is studying for a Masters of Law and Diplomacy at the Fletcher School, Tufts University.

Thierry Sénéchal, author of "Protocol for a Space Debris Risk and Liability Convention," is presently Policy Manager with the International Chamber of Commerce. Over the years, he has served as an expert advisor in a broad range of international litigation and arbitration cases around the world, in particular in arbitration involving States and international organizations both at private and governmental levels. His fields of expertise are: trade and finance, environmental risks and assessment, transfer of technology. Between 1997 and 2001, he served as senior evaluator/First Officer with the United Nations Security Council (UNCC) with a mandate to review environmental Gulf War restitution claims brought against Iraq. For UNCC, he helped several panels of Commissioners in drafting valuation methodologies and guidelines. More recently, he has provided expert advice for preparing one of the files at the Permanent Status Negotiation (Palestinian refugee's property losses as a result of their displacement in 1948). Formerly, he was Director of Financial Audit with the Mazars Group and has provided expert advice for a host of internationally recognizable corporate clients and international organizations and regulatory bodies (United Nations, World Bank, Adam Smith Institute, European Commission, French Prime Minister's Office, etc.) as well as international tribunals (LCIA, ICC, ICSID, UNCC). Thierry holds degrees from MIT, Harvard University, London Business School, and Columbia University (Phi Beta Kappa).

Yen Trinh is author of "Moving the Negotiation on Trade Measures in Multilateral Environmental Agreements Forward." Since 2001, she has been a lecturer of the International Law Department, Institute for International Relations, Ministry of Foreign Affairs, Vietnam. She received a Master of International Law and Diplomacy from the Fletcher School at Tufts University in 2007, and holds a BA in international relations from the Institute for International Relations in Hanoi, Vietnam. Her research interests include: the World Trade Organization, International Environmental Law and International Investment Law.