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Winter 2009/2010

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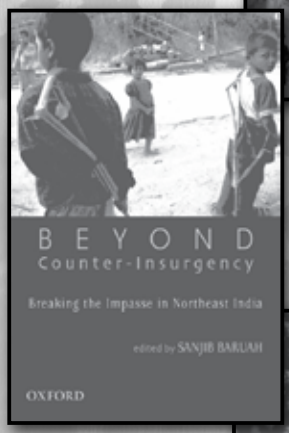

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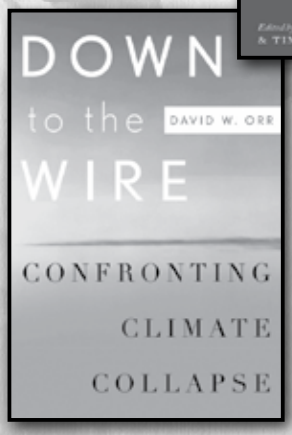

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Contributors

The Economics of Climate Change

Julian Morris is Executive Director of International Policy Network (www.policynetwork.net), a London-based think-tank, and a Visiting Professor at the University of Buckingham. *Pg. 14*

Dr. Kenneth Green is a Resident Scholar at the American Enterprise Institute. Dr. Green was also Executive Director of the Environmental Literacy Council, was Chief Scientist and Director of the Centre for Studies in Risk, Regulation, and Environment, Fraser Institute, and Chief Scientist and Director of Environmental Program at the Reason Foundation. In 2001, he served as an expert reviewer for the United Nation's Intergovernmental Panel on Climate Change.
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Kamal El Kheshen is Vice President, Sector Operations, at the African Development Bank.
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Contributors

Deepak Joglekar is an Assistant Professor in Residence at the Department of Agricultural and Resource Economics at the University of Connecticut, where he recently completed his doctoral dissertation.
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Kathleen Segerson is the Philip E. Austin Professor of Economics at the University of Connecticut. She also holds a joint appointment in the Department of Agricultural and Resource Economics.
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Climate change can be viewed at least in the near term as a force that increases total global agricultural productivity but exhibits regionally disparate results. Subtropical regions are at risk and this includes many of today's poorer regions of the globe.

From "Climate change, agriculture and economic growth,"
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Cleo Paskal is an Associate Fellow at Chatham House and a consultant for the U.S. Department of Energy's Global Energy and Environment Strategic Ecosystem. Her book *Global Warring: How Environmental, Economic and Political Crises Will Redraw The World Map* has just been released by Palgrave Macmillan.
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Contributors

Dr. Herman E. Daly is a Professor at the School of Public Policy of University of Maryland, College Park. Previously, he was Senior Economist in the Environment Department of the World Bank, Alumni Professor of Economics at Louisiana State University, and was a co-founder and associate editor of the journal *Ecological Economics*.

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Arvind Panagariya is a Professor of Economics & Jagdish Bhagwati Professor of Indian Political Economy at Columbia University and a Non-resident Senior Fellow at the Brookings Institution. Previously, he has been the Chief Economist of the Asian Development Bank and a Professor of Economics and Co-director, Center for International Economics, University of Maryland at College Park.

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Fitrian Ardiansyah is program director of climate & energy at WWF-Indonesia, and adjunct lecturer at Paramadina Graduate School of Diplomacy.

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Dr. Mohamed Waheed is the Vice President of Maldives. He has spent a number of decades serving Maldives as a policy-maker and legislator, and is one of the most influential thinkers of the island nation. Waheed has also held high level positions at the United Nations, with UNESCO, UNIDO and UNICEF—most recently in Afghanistan as the U.N. Special Representative for Education and as the head of the UNICEF there. He received his PhD from Stanford University.

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Contributors

Dr. Carla Freeman is Associate Director of the China Studies Program and Professorial Lecturer at the Johns Hopkins University School of Advanced International Studies. Dr. Freeman has held various academic positions, including director of the program in global studies and international affairs at Alverno College in Milwaukee and visiting scholar at the University of Wisconsin.
Pg. 53

Bruce A. McCarl is a Distinguished Professor in the Department of Agricultural Economics, Texas A&M University. **Siyi Feng** and **Wei Wei Wang** are research assistants in the same department.
Pg. 58

Stephen Morse is a professor in the Department of Geography at the University of Reading, England.
Pg. 62

Lars Otto Naess is a Research Fellow at the Climate Change and Development Centre, Institute of Development Studies at the University of Sussex in England.
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Contributors

Lessons from insurgencies

Michael P. Cohn is a researcher and analyst for Glevum Associates, deployed in Afghanistan.
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Dr. Carolyn Gallaher teaches at American University's School of International Service. Her work blends insights from political economy and cultural studies and is focused on two substantive areas of inquiry—the role of paramilitaries in irregular warfare and the influence of the religious right in U.S. foreign policy. Her most recent book *After the Peace: Loyalist Paramilitaries in Post-Accord Northern Ireland* (Cornell University Press 2007) tracks the dynamics of Loyalist paramilitary violence since the 1998 peace agreement.
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Dr. Christos Kyrou is an Assistant Professor at the School of International Service (SIS) at American University. He is a Project Manager and Practitioner at the International Institute for Sustained Dialogue, and also Member of the Resource Board for the Center for International Relations in Washington, DC.
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Contributors

Ivan Eland is Senior Fellow and Director of the Center on Peace & Liberty at The Independent Institute.
Pg. 90

Dr. David Malet is Assistant Professor of Political Science at Colorado State University, Pueblo. From 2000 to 2003 he served as a defense and foreign policy advisor to U.S. Senate Majority Leader Tom Daschle.
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Asoka Bandarage is a professor in the Public Policy Institute at Georgetown University. Her latest book is entitled *The Separatist Conflict in Sri Lanka: Terrorism, Ethnicity, Political Economy* (Routledge, 2009)
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Dr. Matthew Levitt is a senior fellow and director of the Stein Program on Counterterrorism and Intelligence at The Washington Institute for Near East Policy. An adjunct professor at Johns Hopkins University's School of Advanced International Studies, he is the author of several books and monographs, including *Hamas: Politics, Charity and Terrorism in the Service of Jihad* (Yale University Press, 2006).
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Contributors

Dr. J. P. Linstroth is a Senior Researcher of the Conflict Resolution and Peacebuilding Programme of The International Peace Research Institute Oslo (PRIO). Dr. Linstroth has two forthcoming books, titled respectively: *Marching Against Gender Practice: political imaginings in the Basqueland* and *Violence and Peace Re-Imagined: a new interdisciplinary theory for cognitive anthropology.*
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Dr. Jeff Goodwin is Professor of Sociology at New York University and author of *No Other Way Out: States and Revolutionary Movements, 1945-1991* (Cambridge University Press, 2001). He is also editor, with James M. Jasper and Francesca Polletta, of *Passionate Politics: Emotions and Social Movements* (University of Chicago Press, 2001).
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Dr Udo Helmbrecht is Executive Director of the European Network and Information Security Agency. Prior to this, he was President of the Federal Office for Information Security in Bonn, Germany.
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Contributors

Gail Harris' 28 year career in intelligence included hands-on leadership during every major conflict from the Cold War to El Salvador to Desert Storm to Kosovo and at the forefront of one of the Department of Defense's newest challenges, Cyber Warfare. Her book, *A Woman's War*, published by Scarecrow Press, is available on Amazon.com.
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Terry Roberts is the Executive Director of the Acquisition Support Program (ASP)/ Interagency and Cyber. Prior to this position, Roberts was the Deputy Director of Naval Intelligence (DDNI).
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Mohd Noor Amin is chairman of the International Multilateral Partnership Against Cyber Threats (IMPACT), headquartered in Malaysia.
Pg. 133

James A. Lewis is Director and Senior Fellow at the Technology and Public Policy Program, Center for Strategic and International Studies.
Pg. 137

Contributors

Pauline C. Reich is a Professor at Waseda University School of Law in Tokyo and Director of the Asia-Pacific Cyberlaw, Cybercrime and Internet Security Research Institute. She is currently completing a book entitled *Law, Policy and Technology: Information Warfare, Cyberterrorism and Network Immobilization*, co-authored/co-edited with Dr. Eduardo Gelbstein of Webster University in Geneva.
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In spite of the Herculean efforts by many, government officials continue to voice concerns that not enough is being done and efforts are fragmented.

From "We're in the midst of a cyber war, but we can win,"
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Dr. Lech Janczewski is an Associate Professor at the University of Auckland with over thirty years of experience in information technology. His area of research includes the management of information system resources with the special emphasis on data security and information systems investments.
Pg. 144

Allan Charles Watt is an independent computer forensic expert. Currently, he leads e.law's national e.forensics team and works as a guest lecturer for the University of Sydney. Watt has partnered with some of Australia's best-known corporate, government and legal organizations as well as forensic accountants and liquidators.
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The Economics of Climate Change

Which policy to address climate change?

By Julian Morris, Executive Director, International Policy Network

When considering the best policy to address climate change, it seems reasonable to begin by asking what impact climate change is likely to have. Southgate and Songhen (2007) looked at how food production and forestry have changed in the past hundred years and how they might change in the coming century in response to a one to four degree Celsius rise in global mean temperature. After showing that the past hundred years have seen a dramatic rise in productivity in both agriculture and forestry, they conclude that the impact of even a four degree Celsius rise in temperature is unlikely to reduce productivity considerably. The reason is simple: As long as individuals and companies continue to be able to make investments in the development of new technologies, agricultural and forestry productivity will continue to outpace population growth. There may be some changes in the value of land in different parts of the world, but the net effect of climate change is likely to be small compared to the net effect of technological change.

One caveat is worth making, however: there are barriers to adaptation, most of which come from government intervention of one kind or another. For example, government ownership of land and water lead to perverse, inefficient, and often environmentally less suitable uses. When land and water are owned privately, the owners have incentives to put those resources to their highest-valued use; that often means applying effective conservation measures, using water efficiently, creating fire breaks in forests, and so on. Government regulations on land uses often have a similarly detrimental impact, since they preclude many private sector innovations. Likewise, government subsidies often have perverse consequences, such as encouraging the production of crops unsuitable to the terrain and over-abstraction of water. Southgate and Songhen argue that adaptation will take place most rapidly and at least cost if government gets out of the way.

Reiter (2007) analysed the supposed impacts of climate change on health. He found that, contrary to claims made by others, rates of malaria have not risen as a result of climate change. Rather, in wealthy countries, malaria rates have declined dramatically as a result of a combination of, inter alia, changes in animal husbandry practices (people no longer live close to animals), drainage of swamps (where mosquitoes breed), the use of insecticides and larvicides, and the use of air conditioning. Meanwhile, in poorer countries, malaria rates declined after about 1960, in large part as a result of using DDT and other insecticides, but are now rising again, in large part because of reduced usage of DDT.

Other health impacts are also highly dependent on wealth, with people in richer countries generally being far less susceptible to death as a result of extreme temperatures than people in poor countries (Keatinge, 2004). Thus, an increase in wealth will by itself likely reduce the rate of mortality from extreme temperatures because people will be better able to afford clean and efficient heating and cooling systems, as well as having

greater access to medical facilities. But increased wealth also brings the capacity to invest in other strategic disease-reducing activities, such as more effective preventive measures for vector-borne diseases.

Notwithstanding the importance of enabling wealth generation, there are other measures which if taken now and over the course of the next few decades will dramatically reduce the likelihood that any AGW would cause an increase in mortality. Those measures include expanding programmes that have been demonstrated to reduce the incidence of diseases such as malaria. For example, spraying the inside walls of huts with small quantities of DDT has been shown to reduce malaria without adversely impacting human health or the environment (Attaran et al, 2000).

Goklany (2007) shows that mortality and mortality rates from weather-related natural disasters have declined dramatically over the past century. The reasons for this are many and varied but include increased wealth, better building materials, and more reliable warning systems. While the economic damage done by such events has risen, the main reason for this is that wealth has increased both in aggregate and on average. Goklany shows that as a proportion of total wealth in the United States, the impact of extreme weather events has remained largely constant over the past century.

In sum, if we are concerned about the impact of gradual climate change, then we should focus on policies that can reduce the harms people face today that might be made worse in the future. Creating an environment in which economic development can take place seems in general the best form of insurance, since it will enable people who are currently at the whim of the weather to diversify their economic activities and thereby become more robust in the face of all manner of future challenges.

As Southgate and Songhen point out, reducing government control over land and water resources would enable people better to identify ways of managing those resources in sustainable ways. Removing subsidies and other interventions that incentivise the use of flood plains and other land likely to be at greater risk as a result if climate changes adversely also seems sensible. Meanwhile, specific policies aimed at reducing exposure to various pathogens and other causes of ill-health may be desirable - but for the most part these would take the form of removing perverse interventions and providing an enabling environment for positive interventions to occur.

Adaptation may well be the most cost-effective option for addressing gradual, mostly benign AGW. But what happens if the warming is neither gradual nor benign? Various extreme scenarios have been envisaged, from a climate flip (a sudden switch into an ice age resulting from feedback effects following a substantial rise in temperature), to runaway warming (resulting from the release of methane stores be-

[I]f governments took more drastic action to hinder emissions—for example globally cutting emissions to 20 per cent below 1990 levels by 2020 and keeping them there—the probability of climate catastrophe might be reduced, but only by massively increasingly the likelihood of global economic catastrophe.

neath frozen peat bogs, the drying and consequent burning of subtropical rainforests, and other factors). How should humanity address such threats?

In the case of potentially catastrophic but highly uncertain climate change (no probability can be assigned because of the chaotic nature of the climate), it seems reasonable to divert a small proportion of investable resources into measures that could reduce the likelihood of such a catastrophe materialising. But how much and into what measures?

Most policy analysts focus primarily on one "solution": reducing greenhouse gas emissions. But it is not clear that this is the optimal solution. Let's think it through. If rich countries reduce emissions by, say, 5 percent below 1990 levels—i.e. the Kyoto Protocol commitment but continued indefinitely—this might cost us somewhere between $50 billion and $500 billion a year. Yet, the impact would be to delay warming by only a few years. Meanwhile, it seems plausible that at some point in the coming century, a dreaded 'tipping point' might still be passed beyond which catastrophe becomes inevitable; the investment in reducing emissions might delay the onset of the catastrophe by a few years but on its own that would seem to have little real merit. In other words, we might end up blowing a trillion dollars and still find ourselves without a planet.

Meanwhile, if governments took more drastic action to hinder emissions—for example globally cutting emissions to 20 percent below 1990 levels by 2020 and keeping them there—the probability of climate catastrophe might be reduced, but only by massively increasingly the likelihood of global economic catastrophe. Indeed, it seems plausible that beyond an economic catastrophe, a global war might result, with those countries seeking to impose carbon constraints fighting with other countries whose populaces refuse to accept such limitations being imposed upon them.

In that light, carbon control per se doesn't seem like a very smart solution. Which is why some analysts have been looking for more acceptable alternatives. Specifically, geoengineering is now being taken seriously as an alternative way to address climate catastrophe, should the threat become concrete (Cicerone, 2006; Crutzen, 2006; Barrett, 2008). For example, Nathan Myhrvold and colleagues at Intellectual Ventures calculate that the climate could be kept from warming dangerously for as little as $10 million a year by injecting sulphur dioxide into the upper atmosphere (Levitt and Dubner, 2009)—a drop in the stratosphere compared to the Kyoto Protocol and similar proposals to cut carbon emissions.

These proposals are still speculative but they give a sense of what might be possible. While much work needs to be done to understand better how they would work and what consequences (both beneficial and adverse) they might have, Wigley (2006, p. 452) points out that the natural experiment represented by the eruption of Mount Pinatubo, which reduced global mean temperatures by around 0.5C for over a year, did not "seriously disrupt the climate system," so emitting similar amounts of sulphur artificially should present "minimal climate risks." Certainly, geoengineering seems to offer a plausible solution to the possibility of climate catastrophe in a way that attempting to reduce carbon emissions simply doesn't.

Note, however, that it is not necessary to begin firing sulphur into the stratosphere just yet, since there is little reason to think that we are close to a tipping point. What does make sense today is to invest in improving our knowledge of the climate system and in developing potential geoengineering systems. And, of course, we should encourage politicians around the world to remove barriers to adaptation as soon as possible.

Climate change: The resilience option

By Kenneth P. Green, American Enterprise Institute

"The willow which bends to the tempest, often escapes better than the oak which resists it; and so in great calamities, it sometimes happens that light and frivolous spirits recover their elasticity and presence of mind sooner than those of a loftier character."

-Albert Schweitzer

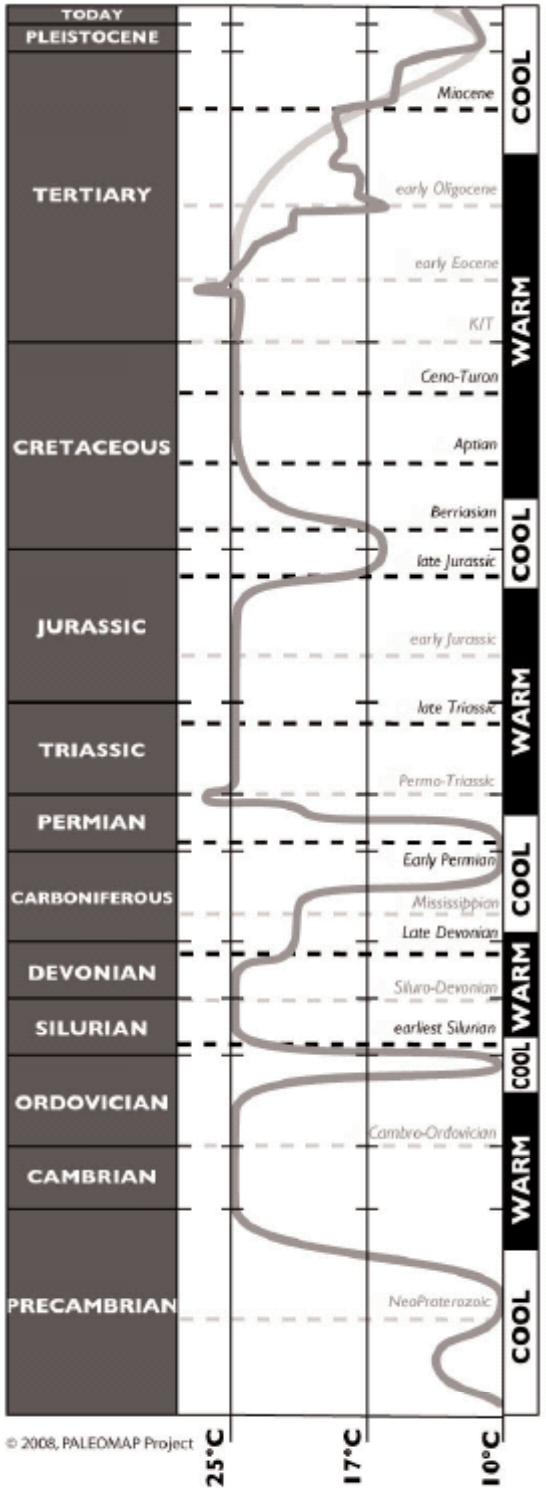
The Earth's climate is prone to sharp changes over fairly short periods of time. Plans that focus simply on stopping climate change are unlikely to succeed; fluctuations in the Earth's climate predate humanity. Rather than try to make the climate static, policymakers should focus on implementing resilience strategies to enable adaptation to a dynamic, changing climate. Resilience strategies can be successful if we eliminate current risk subsidies and privatize infrastructure.

Recent climate research tells us that our climate is not the placid, slow-changing system people assume it to be. Instead, it is prone to sharp changes over fairly short periods of time. Whether those changes are natural or caused by human actions, we now know that we live in a world of greater climatic risks. Previous generations did not think about, plan for, or factor in these risks when they sited their cities and decided how to build and manage them. While planning was done for weather in what was considered a largely predictable system, little thought was given to making cities resilient to climate variability. As efforts to reduce greenhouse gas (GHG) emissions fail, we need to consider alternative plans and actions to reduce the risks we face.

The United Nations Intergovernmental Panel on Climate Change (IPCC) has always discussed the idea of adaptation to climate change as a second- or third-best response-something to be done only after every possible effort has been made to reduce GHG emissions. Both governmental and environmental groups have generally been hostile to adaptation-based responses to climate change, as they view such approaches as surrender-an acceptance of the idea that GHG emissions will continue, that the climate will change, and that people will come to believe they can adapt. They fear that a focus on adapting to climate change would detract from a focus on mitigating emissions.

There will be arguments about mitigating GHG emissions for many years (and perhaps decades) to come, but our new understanding of how variable our climate can be suggests we should broaden our climate policy focus by strengthening our efforts to facilitate adaptation. We should focus on building resilience as an approach to protecting ourselves from the risks of climate change as superior to a static approach that singles out only one possible climate influencer (the GHGs) and largely ignores natural climate variability.

(Fig.1) EARTH'S LONG-TERM CLIMATE HISTORY



SOURCE: Christopher R. Scotese, *The Paleomap Project* (Paleomap website, 2002), available at www.scotese.com/climate.htm.

This essay discusses our variable climate and outlines an agenda for building climate resilience that can be implemented immediately and that could offer significant protection for future generations from climate variability.

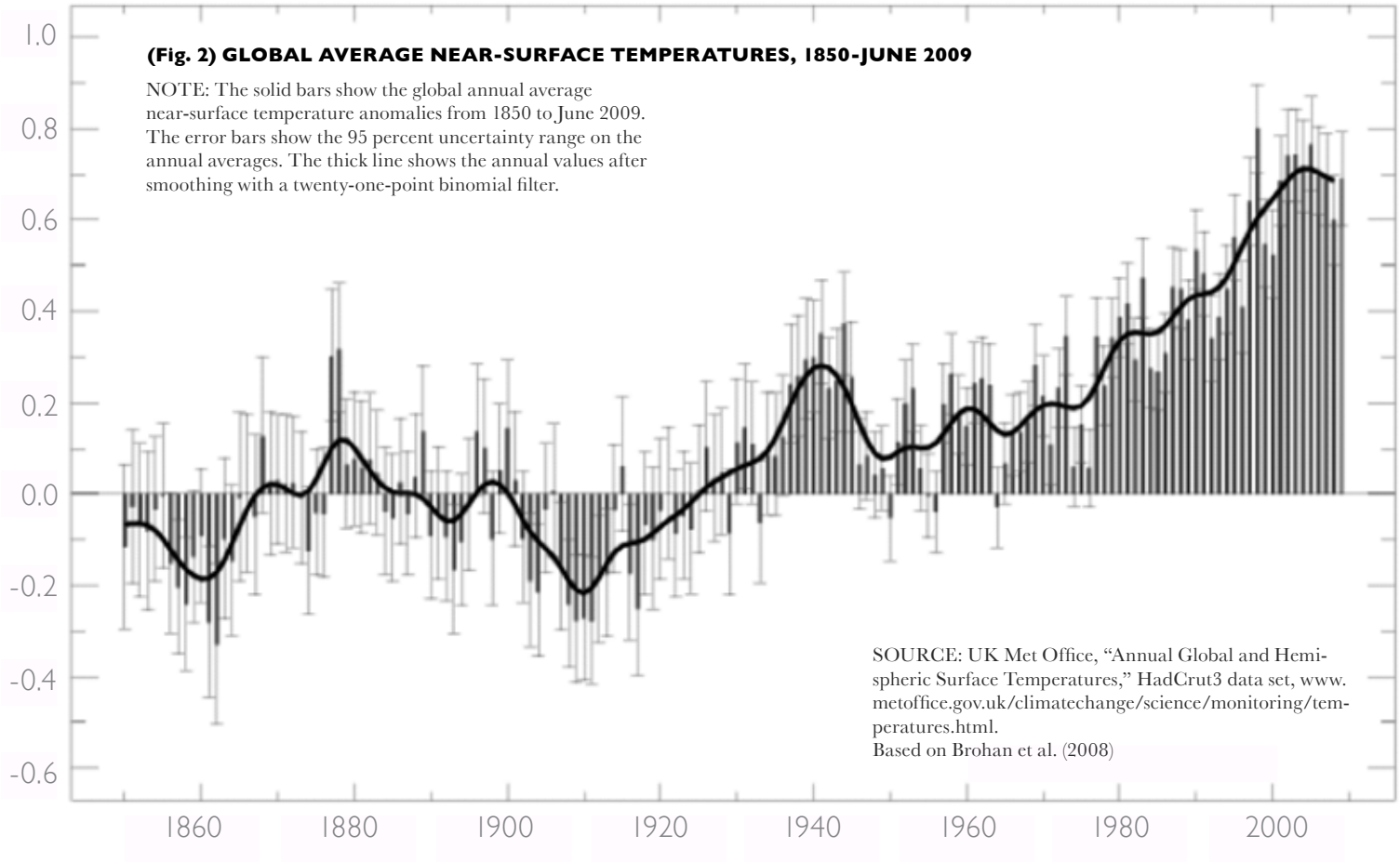
Our Variable Climate

Whether viewed in long- or short-term periods, the Earth's climate history is one of variability, not stasis. Our planet has moved into and out of ice ages and warm periods for as long as we have evidence of historic climate. **Figure 1** shows the longest-term picture of climate variability scientists have developed, which uses measured and proxy data.

Proxy data consist of estimated temperatures (or other climate variables such as atmospheric moisture) developed by studying what are, in essence, climate fossils: tree rings, ice cores, fossil diatoms, boreholes, fossilized plant leaves, and so on. While proxy data should be considered less reliable than empirical data (meaning that the farther back we look, the more hazy the picture becomes), the scientific paleotemperature reconstructions clearly show the huge variability of the Earth's climate.[1]

The causes of global climate change are a combination of astronomical, geological, oceanographic, geographical, and biological "forcings." Forcings are things that can change the Earth's balance of incoming and outgoing radiation, making the climate warmer or cooler. On the astronomic side of the equation are changes in solar output and cosmic wind, as well as the angle and inclination of the Earth with respect to the sun. On the geological side are variations in volcanic activity or oceanic GHG flux and the response of atmospheric water vapor to climate change. On the biological

[1]. Christopher R. Scotese, "The Paleomap Project" (Paleomap website, 2002), available at www.scotese.com/climate.htm (accessed September 23, 2009).



(Fig. 2) GLOBAL AVERAGE NEAR-SURFACE TEMPERATURES, 1850-JUNE 2009

NOTE: The solid bars show the global annual average near-surface temperature anomalies from 1850 to June 2009. The error bars show the 95 percent uncertainty range on the annual averages. The thick line shows the annual values after smoothing with a twenty-one-point binomial filter.

SOURCE: UK Met Office, "Annual Global and Hemispheric Surface Temperatures," HadCrut3 data set, www.metoffice.gov.uk/climatechange/science/monitoring/temperatures.html.
Based on Brohan et al. (2008)

side of the equation are changes in GHG emissions caused by animals (termites, ruminants, humans) and the production and sequestration of atmospheric carbon by plants and other photosynthetic organisms (such as phytoplankton). On the geographical side, changes in reflectivity of the land through changes in land use and the emission of different amounts of reflective and absorptive particulate pollution can also affect the local climate.

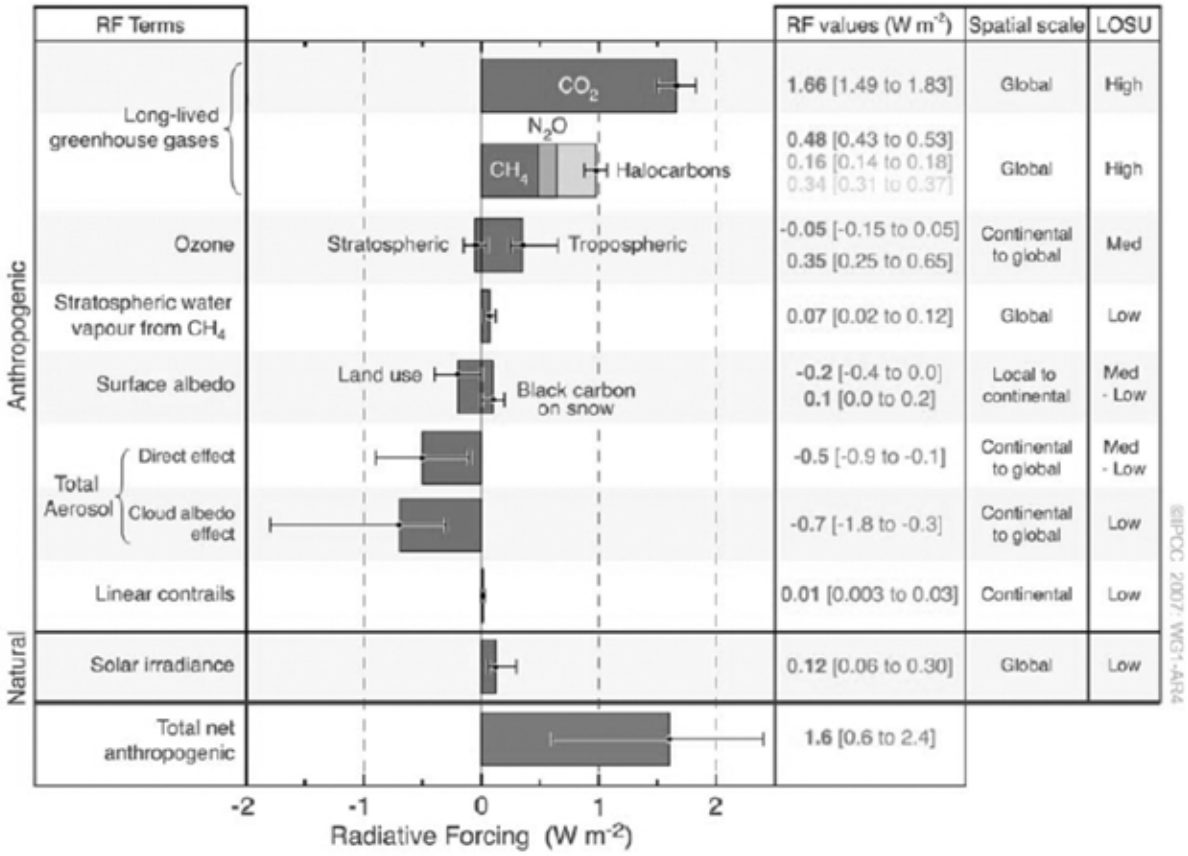
For more recent time periods, scientists have data of slightly better reliability (though there are still problems with data quality). The land temperature record shows that the climate has indeed been changing in the last century.

As **Figure 2** shows, according to the surface temperature record, there have been five stages of change since 1850, when measurements began. From 1910 to 1940, the Earth experienced a period of warming; from 1940 through 1970, a pronounced cooling; from 1970 to 2000 a pronounced warming; from 2000 to the present, the rate of warming has flattened out and begun to decline.

The last published report of the United Nations IPCC says that "[m]ost of the observed increase in global average temperatures since the mid-twentieth century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."[2] Others dispute this assertion, arguing that climate models are attributing too much influence to GHGs in the atmosphere.[3]

This essay does not focus on the question of climate change causality (there are plenty of studies that do), but it is fair to say that scientific understanding of which factors contribute to changes in the Earth's climate is still in a very early stage. Even the experts at the IPCC acknowledge this to be the case. **Figure 3**, from the Fourth Assessment Report of the IPCC, shows how limited scientific understanding of climate forcing really is. Scientific understanding of potential anthropogenic forcings is often medium-low to low. The same applies to scientific understanding of the nonbiological factors in

(Fig. 3) GLOBAL MEAN RADIATIVE FORCINGS, WITH LEVELS OF SCIENTIFIC UNDERSTANDING



NOTE: Global average radiative forcing estimates and ranges in 2005 for anthropogenic carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and other important agents and mechanisms, together with the typical geographical extent (spatial scale) of the forcing and the assessed level of scientific understanding (LOSU). The net anthropogenic radiative forcing and its range are also shown. These require summing asymmetric uncertainty estimates from the component terms and cannot be obtained by simple addition. Additional forcing factors not included here are considered to have a very low LOSU. Volcanic aerosols contribute an additional natural forcing but are not included in this figure due to their episodic nature. The range for linear contrails does not include other possible effects of aviation on cloudiness.

SOURCE: IPCC, "2007: Summary for Policymakers," Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (New York and Cambridge: Cambridge University Press, 2007), 4, available at www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf (accessed September 28, 2009).

climate change: articles disputing the role of solar output, cosmic ray flux, ecological GHG contributions, and responses are published on an ongoing basis.[4] From a policy perspective, the important policy question is less about the cause of climate variability than about the best response to climate variability, whether manmade or natural.

What Is Better, Climate Resilience or Climate Stasis?

In general, the mainstream response to the issue of climate change has been reactive, pessimistic, authoritarian, and resistant to change. Those alarmed about a changing climate would stand athwart the stream of climate history and cry "stop, enough!" Rather than working to cease human influence on climate, they want to find a way to make the climate stand still. This focus on creating climate stasis has led to policy proposals that would have been laughed at or dismissed as wacky conspiracy theories in the 1980s. But mainstream anti-climate change activists are proposing nothing less than the establishment of global weather control through energy rationing, regula-

[2]International Panel on Climate Change, "2007: Summaryfor Policymakers," Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (New York and Cambridge: Cambridge University Press, 2007), 10, available at www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf (accessed September 23, 2009).

[3]Richard S. Lindzen and Yong-Sang Choi, "On the

tions, and taxes, all managed by a global bureaucracy with a goal of leading humanity into a future that will become smaller, more costly, and less dynamic over time. Environmental groups, along with organizations like the United Nations IPCC, are calling for nothing less than imposing climate stasis on a chaotic system.

Consider the climate bill now before Congress: the Waxman-Markey American Climate and Energy Security Act. Waxman-Markey sets the ambitious target of reducing total U.S. GHG emissions by 83 percent below 2005 levels by the year 2050 (with intermediate benchmarks at 2020 and 2030). Thus, the cap and the allowances sold pursuant to it will be lowered from a peak of 5.4 billion tons in 2016 to just a little over 1 billion tons in 2050. As my colleague Steven F. Hayward and I have pointed out elsewhere, these targets are absurd.[5]

From Department of Energy historical statistics on energy consumption, it is possible to estimate that the United States last emitted 1 billion tons in the year 1910, when the nation's population was only 92 million people, per-capita income (in 2008 dollars) was only $6,196, and total GDP (also in 2008 dollars) was about $572 billion-about one-twenty-fifth the size of the U.S. economy today. By the year 2050, however, the United States is expected to have a population of 420 million, according to Census Bureau projections-more than four times the population of 1910. In order to reach the 83 percent reduction target, per-capita carbon dioxide (CO_2) emissions will have to be no more than 2.4 tons per person-only one-quarter the level of per-capita emissions in 1910.

When did the United States last experience per-capita CO_2 emissions of only 2.4 tons? From the limited historical data available, it appears that this was about 1875. In 1875, the nation's GDP (in 2008 dollars) was $147 billion, per-capita income (in 2008 dollars) was $3,300, and the population was only 45 million.[6]

My colleague Kevin A. Hassett, Hayward, and I have also written elsewhere about the problems with cap-and-trade and suggested that a revenue-neutral carbon tax would be preferable,[7] but that, too, represents an effort to impose stasis on a dynamic system simply using more efficient means. A carbon tax is, to be sure, vastly superior to a cap-and-trade system, but there are doubts that it is politically possible to enact one in a way that is actually revenue-neutral and is not abused by politicians who will look to tax those they dislike and rebate the taxes to groups they favor, namely, those that are most inclined to vote for their party.

A more forward-looking, optimistic, and free-market approach to the risks of climate variability accepts that the climate has been, is, and will be variable; focuses on the risks of variability; and looks for ways to build resilience in the face of that change, regardless of cause.

Aaron Wildavsky's Resilience Paradigm

Aaron Wildavsky, one of the great policy analysts of the late twentieth century, wrote

Determination of Climate Feedbacks from ERBE Data," Geophysical Research Letters 36, no. 16 (August 2009); and Roy W. Spencer and William D. Braswell, "Potential Biases in Feedback Diagnosis from Observations Data: A Simple Model Demonstration," Journal of Climate 21 (November 2008): 5624-28.

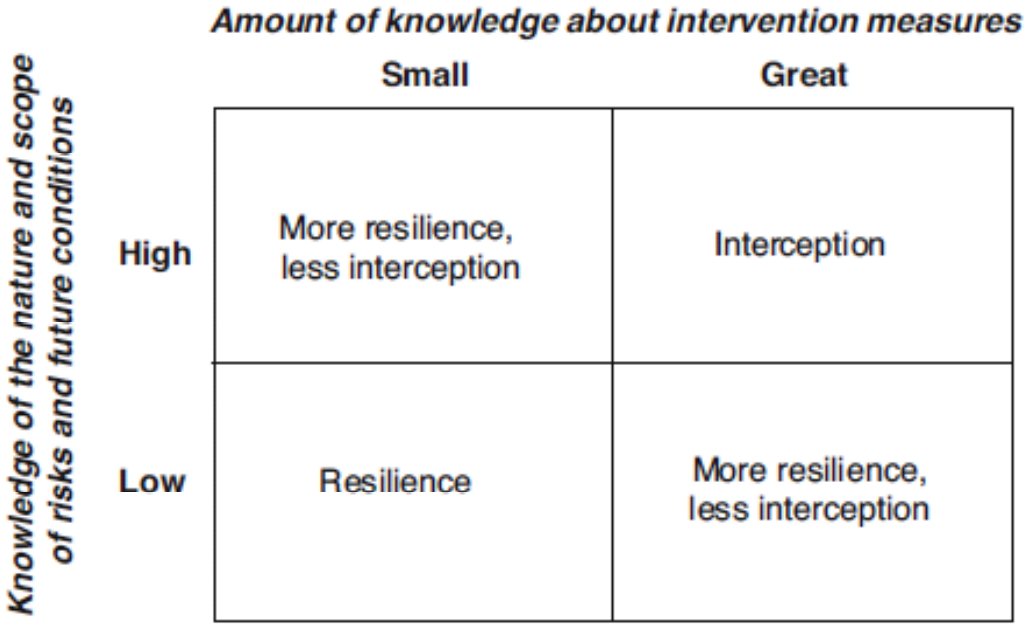
[4] Nir J. Shaviv and J_n Veizer, "Celestial Driver of Phanerozoic Climate?" GSA Today (July 2003), available at www.gsajournals.org/archive/1052-5173/13/7/pdf/i1052-5173-13-7-4.pdf (accessed September 24, 2009). See also Judith L. Lean and David H. Rind, "How Will Earth's Temperature Change in Future Decades?" Geophysical Research Letters 36 (August 2009), available at http://pubs.giss.nasa.gov/docs/2009/2009_Lean_Rind.pdf (accessed September 24, 2009).

[5] Steven F. Hayward and Kenneth P. Green, "Waxman- Markey: An Exercise in Unreality," AEI Energy and Environment Outlook, no. 3 (July 2009), available at www.aei.org/outlook/100057.

[6] It is possible that per-capita CO2 emissions were never this low even before the advent of widespread use of fossil fuels: wood burning by Americans in the nineteenth century may have produced more than 2.4 tons of CO2 per capita. Much depends on the emissions coefficient for wood burning and how, since wood is biomass rather than a fossil fuel, reforestation is credited in carbon accounting. In 1875, burning wood generated twice as much energy as fossil fuels.

extensively about the benefits of resilient social institutions. Wildavsky observed that possible risk-reduction interventions lie along a spectrum from resilient to interceptive. Resilient approaches maximize our ability to cope with risk by maintaining a dynamic, market-based, knowledge-building strategy. Interceptive interventions emphasize specific risk reduction efforts that require certain specific actions and prohibit or restrict others.[8] But how do we decide, for a given risk such as climate change, whether an interceptive approach is more likely to provide greater safety than a resilient approach?

Wildavsky demonstrated that uncertainties about the likelihood or extent of any given risk and about the effectiveness of any intervention constrain risk-reduction decisions.[9] **Figure 4** shows how uncertainties about the nature and scope of a risk and uncertainties about intervention measures and their effects constrain strategy selection, favoring certain approaches over others.



(Fig. 4) APPROPRIATE STRATEGIES FOR DIFFERENT STATES OF KNOWLEDGE
SOURCE: Adapted from Aaron Wildavsky, Searching for Safety (New Brunswick, NJ: Transaction Publishers, 1988), 122.

Employing both theory and empirical observation, Wildavsky observed that a strategy of interception is likely to be successful only in situations of truly excellent information. So, for example, for a power plant owner who knows that a particular part is going to burn out every 150 days, an interception strategy of replacing the part every 149 days to prevent the risk is likely cost-effective. But where less information exists, more resilient strategies are likely to succeed because interception will be either infeasible or expensive in such situations. If a power plant had eight thousand critical pieces of equipment that would create a fire upon failure, but the plant owner did not know the failure rates of each piece, trying to intercept the risk by replacing pieces before they

[7] Kenneth P. Green, Steven F. Hayward, and Kevin A. Hassett, "Climate Change: Caps vs. Taxes," AEI Environment and Energy Outlook, no. 2 (June 2007), available at www.aei.org/outlook/26286.

[8] Aaron Wildavsky, Searching for Safety (New Brunswick, NJ: Transaction Publishers, 1988). Wildavsky used the terms "resilience" and "anticipation" rather than "resilience" and "interception." In adapting Wildavsky's framework to more recent risk-related issues, I have chosen to use "interception" because it corresponds better to common perceptions of how risk regulations work.

[9] Ibid., 122.

failed would be enormously costly. Further, trying to have backup systems on all eight thousand pieces would be technologically difficult and probably not financially feasible. Instead, a strategy of resilience, such as implementing a sophisticated fire-response system, is more likely to be a feasible and efficient way of dealing with this risk.

In the case of climate change, our knowledge of the nature and scope of risks and future conditions is low, and our knowledge about how to intervene to head off specific risks is small. This suggests that contrary to current policy approaches that focus on mitigating GHG emissions largely to the exclusion of everything else, resilience should be considered the default climate strategy.

As Wildavsky observed:

• Resilient systems build knowledge through research and build safety through efficient use of resources, enhancing the ability to respond to and reduce risks over time.
• Resilient approaches optimize use of local knowledge of specific and particular circumstances. Since resources are retained by individuals and firms in the social and economic system, people will instinctively reduce risks as they perceive them.
• Resilient approaches create spillover knowledge by building knowledge at local levels that can then be brought into play in other areas. Research is a natural part of resilient systems.[10]

[10] Ibid.

Wildavsky illustrates these characteristics, drawing from the work of systems ecologists Kenneth E. F. Watt and Paul Craig. In one example, Wildavsky explains why a market-based system is more stable and, therefore, safer: the complexity and intricate nature of negative and positive feedback as conveyed through a market is a powerful stabilizing force whether that market is financial or involves the way energy is distributed through an ecosystem. Natural systems exhibit this complexity and rich feedback milieu, but so do economic systems:

Systems of great complexity, with stability maintained by a lot of fast acting negative feedback loops are complex economies, with prices responding freely to trends in supply and demand. In such circumstances, we see very rapid introduction of new products, or replacement of old by new products.[11]

[11] Ibid., 114.

In yet another example, Wildavsky points out that ecological studies present cautionary findings with regard to poor specific risk-reduction investments:

We are specifically concerned with stability of the entire system in contradistinction to stability of each component of the system. That is, we understand that in biological, economic, or any other kind of systems, the former can be maintained at the expense of the latter. Putting this differently, if the goal adopted is to preserve stability of particular system components, the ultimate consequence can be decreased stability in the entire system.[12]

[12] Ibid., 112.

To a large extent, the resilience option is the complete opposite of the climate-stasis

approach; it focuses on decentralization, deregulation, and freeing markets to maximize resilience.

Managing Risks with Resilience-Building Policies

A vast range of risks has been discussed in the context of climate change, from flood to drought, threatened food supplies, more deadly insect-borne diseases, higher heat-related deaths, rising sea levels, and so forth. The risks discussed here are not future probabilities based on empirical evidence and extrapolation. Rather, they derive from computer models of potential future change and are, therefore, not to be taken as known threats but rather as hypothesized threats made using relatively primitive modeling technology subject to the garbage-in, garbage-out problem typical of the breed. The risks are discussed here with that limitation in mind, as potential risks, without any measure of probability attached. Several approaches economists and policy analysts have identified could help increase social resilience to such risks.

Eliminate Risk Subsidies. Predicted damages associated with sea levels and storms are high because of the popularity of such locales for high-density business and upscale residential development. As a result, damages from extreme coastal weather events have been hugely expensive. The damages from Hurricane Katrina, for example, reached over $150 billion.[13] The question, however, is why was there so much value that was so badly protected against completely predictable events? Levees and sea walls were underdesigned. Many houses and businesses were not insured against flood damage. As Charles Perrow observes in *Our Next Catastrophe*, "Even in areas known to be hazardous, only about 20 percent of homeowners purchase flood insurance, and less than 50 percent of businesses purchase flood and earthquake insurance in risky areas."[14]

The answer to that question lies, at least in part, in the presumed role of state and federal governments as the insurer of last resort. People know that in the event of a disaster, even if uninsured, the Federal Emergency Management Agency will give grants to let people recover from natural disasters such as hurricanes, floods, and storm surges. Without such assurances, we can assume that many people would be unwilling to face the risk of living in coastal areas that could be flooded by rising sea levels and would relocate to higher ground. Capital needed for businesses would also avoid areas of high risk due to sea-level rise, preventing further siting of high-value structures in vulnerable areas.

As researchers at the Wharton Risk Center observe:

Highly subsidized premiums or premiums artificially compressed by regulations, without clear communication on the actual risk facing individuals and businesses, encourage development of hazard-prone areas in ways that are costly to both the individuals who locate there (when the disaster strikes) as well as others who are likely to incur some of the costs of bailing out victims following the next disaster (either at a state level through ex post [facto] residual market assessments or through federal taxes in the case of federal relief or tax breaks).[15]

[13] Mark L. Burton and Michael J. Hicks, Hurricane Katrina, Preliminary Estimates of Commercial and Public Sector Damages (Huntington, WV: Marshall University Center for Business and Economic Research, September 2005), available at www.marshall.edu/cber/research/katrina/Katrina-Estimates.pdf (accessed September 24, 2009).

[14] Charles Perrow, The Next Catastrophe: Reducing Our Vulnerabilities to Natural, Industrial, and Terrorist Disasters (Princeton, NJ: Princeton University Press, 2007), 37-38.

[15] Erwann O. Michel-Kerjan, "Disasters and Public Policy: Can Market Lessons Help Address Government Failures?" The National Tax Journal (January 2007), available at http://opim. wharton.upenn.edu/risk/library/07-04.pdf (accessed September 24, 2009).

Similarly, the CATO Institute points out:
Government-provided programs for crop insurance and flood insurance, as well as other interventions in private disaster insurance markets, often are justified as necessary to overcome the failure of private markets to offer adequate and affordable disaster insurance. Defenders of government insurance programs claim that they reduce dependence on "free" disaster assistance and promote efficient risk management by property owners and farmers.

But government policies are the cause of, not the cure for, the limited supply and narrow scope of private-sector disaster insurance. Demand for private coverage is low in part because of the availability of disaster assistance, which substitutes for both public and private insurance. Moreover, a government that cannot say no to generous disaster assistance is unlikely to implement an insurance program with strong incentives for risk management.

The subsidized rates and limited underwriting and risk classification of federal government insurance programs aggravate adverse selection, discourage efficient risk management, and crowd out market-based alternatives.

Federal tax policy reduces supply by substantially increasing insurers' costs of holding capital to cover very large but infrequent losses. State governments also intrude on insurance markets by capping rates, mandating supply of particular types of insurance, and creating state pools to provide catastrophe insurance or reinsurance coverage at subsidized rates. By reducing both the supply and demand sides of private insurance protection, government intervention leads to greater reliance on politically controlled disaster assistance and higher costs for taxpayers.[16]

[16] Cato Institute, "Disaster Assistance and Government Insurance," Cato Handbook for Congress: Policy Recommendations for the 107th Congress (Washington, DC: Cato Institute, 2003): 431-39, available at www.cato.org/pubs/handbook/hb107/hb107-40.pdf (accessed September 24, 2009).

Perrow makes the case that this is no better at the state level:
State-mandated pools have been established to serve as a market of last resort for those unable to get insurance, but the premiums are low and thus these have the perverse effect of subsidizing those who choose to live in risky areas and imposing excess costs on people living elsewhere. In addition, the private insurers are liable for the net losses of these pools, on a market-share basis. The more insurance they sell, the larger their liability for the uninsured. Naturally, they are inclined to stop writing policies where there may be catastrophic losses (hurricanes in Florida and earthquakes in California). The Florida and California coastlines are very desirable places to live and their populations have grown rapidly, but these handsome lifestyles are subsidized by residents living in the less desirable inland areas in the state, and, to some limited extent, by everyone in the nation.[17]

[17] Charles Perrow, The Next Catastrophe: Reducing Our Vulnerabilities to Natural, Industrial, and Terrorist Disasters, 38-39.

If risk subsidies cannot be abolished entirely, at the very least, insurance companies should charge risk-based premiums. As Wharton researchers explain:

Insurance premiums (whether public or private coverage) should, to the extent possible, reflect the underlying risk associated with the events against which coverage is bought in order to provide a clear signal to individuals and businesses of the dangers they face when locating in hazard-prone areas and [to] encour-

age them to engage in cost-effective mitigation measures to reduce their vulnerability to disasters.[18]

[18]Erwann O. Michel-Kerjan, "Disasters and Public Policy: Can Market Lessons Help Address Government Failures?"

Privatize Infrastructure. Climate change could also pose a challenge for coastal or low-lying roadways, water-treatment facilities facing increased rainfall intensity, energy utilities facing increased summertime electricity demand, and so on. Governments are quite good at building infrastructure. After all, what politician does not enjoy a ribbon cutting ceremony for some new element of name-bearing infrastructure? But governments are dismal at maintaining infrastructure, as they generally fail to establish a revenue stream to maintain a system that provides feedback about whether a particular road should be raised or a water-treatment facility expanded or a power capability increased. A solution to these problems, as well as a potential source of revenue for cash-strapped state and municipal governments, is the privatization of infrastructure. While a few poorly executed privatization efforts have tarnished the name, the baby should not be thrown out with the bath water; privatization offers a host of benefits. A great deal of research on privatization in developing and developed countries demonstrates that, on the whole, privatization shows considerably more benefit than risk.

In "An Assessment of Privatization," Sunita Kikeri and John Nellis conclude that "[i]n infrastructure sectors, privatization improves welfare, a broader and crucial objective when it is accompanied by proper policy and regulatory frameworks." Further, they observe that "ownership change in productive firms, as well as private investment in less than full ownership capacity, usually improves the financial situation of the firm and the fiscal position of selling government, increases returns to shareholders, and in the right policy circumstances, generates significant welfare benefits as well."[19] Private owners of infrastructure have a lot of investment tied up in getting a long-run stream of revenue from the infrastructure. Ensuring that future changes in climate do not disrupt that long-run cash flow is critical to their current financial performance.

[19]Sunita Kikeri and John Nellis, "An Assessment of Privatization," The World Bank Research Observer 19, no. 1 (Spring 2004).

Roadways If roads are privately owned and tolled, road operators have a revenue stream to tap in order to raise, resurface, or recontour roadways to adapt to climate changes. If costs of such adaptation are high, tolls will rise, and at some point, an economic decision will occur about whether a road should be maintained or whether some alternate route should be developed. In some cases, people may indeed find their transportation options so limited that they must move away to a place with a less fragile climate. One can imagine something like this for some coastal roadways where there are no easy alternate routes, but it would probably be a fairly rare outcome. Still, if such situations did develop, this is a desirable outcome, as it is both economically efficient and reduces the likely cost of climate-related damages to structures.

Electricity Supply As long as governments distort the prices consumers pay for energy with subsidies, fuel mandates, renewable power mandates, and the like, electricity markets cannot effectively adapt to changing climatic conditions. If electricity markets were fully deregulated, and if full costs were passed onto consumers, price signals would be created for the electricity provider in terms of expanding or decreasing capacity and for

the consumer in terms of the real cost of living in an environment subject to energy-consuming heat waves (or cold snaps). Privatization would create incentives for electricity conservation and for the acquisition of energy-efficient appliances and devices without any need for specific governmental efficiency standards. Further, electric companies would be driven to connect with one another to ensure reliability to their customers rather than doing the minimum possible to satisfy regulators.

Water Supply Full pricing of water and full privatization of the water supply, drinking water plants, and wastewater treatment plants would ameliorate many climatic risks incrementally over time, including flooding, seawater intrusion, and coastal and river pollution from storm runoff. Charging the full price for water, from supply to disposal, would create a price signal for consumers regarding the real risks they face living in hydrologically sensitive areas and create incentives for conservation while producing a revenue stream to allow for expanded capability or the securing of alternative supplies. At some point, again, high prices could simply lead people to move away from areas that are hydrologically costly, such as cities dependent on a single winter snow pack that shrinks or a single major river that suffers reduced flow.

Flooding. What is not achieved by removing insurance subsidies in flood-prone areas can be managed through the creation of privately administered hydrologic utilities, which would be financed by flood-protection fees charged to residents of flood-prone areas. Again, such a system creates a price signal that can show when it is and when it is not efficient to raise the height of a levee, for example, or to expand permeable surfacing requirements in development. The cost of paying for such activities would send the consumer a signal about the true cost of living in flood-prone areas and would ultimately lead those who could not afford to fully finance their level of risk to relocate to safer areas.

Trust in Resilience, but Tie Up Your Camel

In the event that climate change does tend toward higher estimates put forward by the United Nations and other groups, it is reasonable to consider insurance options that might help deal with such climate changes. Such options might include government investment in geoengineering research, investment in research and development to advance technologies allowing the removal of GHGs from the atmosphere, and possibly the creation of a climate adaptation fund to be used when state and local governments find themselves unable to cope with a given climate change, or even to compensate others should it ultimately be shown that U.S. emissions of GHGs have caused harm to other countries or the property of other individuals. It has long been known that certain types of risk are not suited to attempted prevention but instead must be met with the resilience needed to live with the risk. Climate change is one such risk that is, as the world is increasingly observing, virtually impossible to prevent, whether it is manmade or natural.

As efforts to mitigate GHGs fail around the world, it is long past time to broaden the tools available to us in order to make our society resilient to climate risk. Rather than remain largely focused on the quixotic effort to reduce GHG emissions or to stand athwart the stream of climate and shout "stop, enough!" we should shift the majority of our policymaking attention to an agenda of resilience building and adaptation, two areas with which governments particularly struggle. Plan B for climate resilience should consist of an aggressive program of resilience building through the elimination of risk subsidies and the privatization of infrastructure. Other subsidies and regulations that make the overall economy more brittle in the face of climate change would also be ripe targets for removal, such as those which permeate energy and water markets.

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Financing key to tackling climate change

Interview with Dr. Kamal El Kheshen, Vice President, African Development Bank

Q: **IA-Forum: The continent of Africa, especially sub-Saharan Africa, is said to experience the worst consequences of climate change despite contributing negligibly to the current global carbon stock. How do you view climate change in the context of overall development efforts? Is there an intractable trade-off between growth and development on the one hand, and greenhouse gas (GHG) emissions reduction on the other?**

A: **Dr. Kamal El Kheshen**: There is a strong relationship between the level of economic development and vulnerability to climate change. The factors of adaptive capacity—wealth, technology, knowledge—are all tied to development. Africa's vulnerability to climate change is exacerbated by its low level of development. Climate change poses a formidable constraint to achieving economic development and poverty reduction in the continent, considering that major economic sectors in the continent are very sensitive to climate. Climate change may also have a negative impact through reversing modest gains which Africa has achieved thus far towards meeting the Millennium Development Goals (MDGs).

There is obviously a trade-off between economic growth and greenhouse gas emissions. This trade-off is apparent through the economic development model based on the carbon-intensive energy supply of the industrialized countries. Recent studies have shown that it is possible to achieve rapid economic growth through a low-carbon intensive development pathway, however at an initial high investment cost. Africa is currently at a low level of economic development and has an opportunity to grow into a green economy. This requires initial financial outlays that are beyond the capability of the continent, but whose benefits will be of global significance.

What sort of financing is necessary—from the external and domestic sides—to help implement an ambitious GHG emissions reduction agenda? Maldives has an aggressive agenda to curb climate change, would you like to comment on its efforts?

While I will not specifically speak of the Maldives, I will use the country's efforts as representative of any developing country with the desire and ambition to embark on a green development pathway, with the intention of substantially cutting greenhouse gas emissions in the near and medium terms. It is obvious that none of the developing countries can do this on their own without global support. That is the basis for the on-going United Nations Framework Convention on Climate Change (UNFCCC) negotiations that [were] expected to be concluded in Copenhagen.

While several issues have been under negotiation, financing is seen as the glue that binds together all the other issues. Two issues are particularly important regarding financing climate change efforts—the size of the money required and the mechanism for channeling these resources. For the developed countries, finances to be agreed upon at Conference of Parties (COP) 15 should [have been] new, additional to Official Development Assistance (ODA), predictable and sustainable. Several proposals are on the table in this regard. These range from national budgetary allocations, through levies and taxes, the carbon markets, and private sector financing. Regarding the mechanism for channeling these financial resources, the developing countries would want to see more transparent institutions that would also allow them easier access to the resources.

How do African nations fit in to the debate on climate change? What role do regional institutions like the African Union (AU), African Development Bank (AfDB), and New Economic Partnership for Africa's Development (nepad) play (or can play)?

Africa and especially, African policy-makers are paying important attention to climate issues. At the political level, decisions have been taken by the AU heads of States, Ministers of Finance, and the Ministers of Environment to ensure that Africa develops a coherent position and speaks with one voice at Copenhagen. The African Union has set up the Conference of the Heads of State on Climate Change to coordinate Africa's participation in the on-going negotiations. The various Regional Economic Communities (RECS) have also organized high level meetings within their regions to lend their support to African negotiators. The African Development Bank and the Economic Commission for Africa (ECA) have provided technical assistance to enhance the capacities of African negotiators in identified areas of weaknesses.

The African Development Bank is also looking beyond the climate negotiations by putting in place enduring programs that will enable the continent to adapt to climate change, while transitioning to a low carbon intensive economy. Such programs include the establishment of the Special Climate for Development in Africa Fund, a joint initiative between the African Development Bank, the Commission of the African Union and the Economic Commission for Africa; the establishment and hosting of the Congo Basin Forests Fund that seeks to slow down and reverse the rate of deforestation in the Congo forests as well as reduce greenhouse gas emissions; a $30 million program to strengthen the capacities of African regional climate centers; a Lake Chad project to reverse the dying trend of the Lake and several clean energy projects such as the Turkana Wind Farm in Kenya and the Morocco Solar Thermal Power Station project.

If you were advising developed country leaders—say, President Obama asked you what U.S. policy should be—with regards to African concerns on climate change, what would be your advice?

Climate change does not know frontiers or recognize political boundaries. Greenhouse gas emissions anywhere in the world have devastating impacts everywhere in the world. Every leader in the world should be concerned about this major global phenomenon. I wish to commend President Obama for his commitment to addressing the climate change issue, which is a major departure from the previous position of the USA. He has already announced the U.S. commitment to reduce greenhouse gas emissions by 17% from the 2005 levels. However, while several similar promises have been made by other leaders in the past, they have not been enforced.

Do you know of a particular developed country/countries that has a climate change policy agenda which takes the concerns of African countries seriously and has effective ways to incorporate these concerns?

Several developed countries have shown very sincere commitments to reducing the adverse impacts of climate change in Africa. Several of these countries have established bilateral funds which were hosted by the Bank and provided technical assistance to enable the Bank to address the risks of climate change in its regional member countries. Africa is highly vulnerable to climate change because of the emissions from developed and newly emerging economies. The best form of global adaption is coordinated global mitigation and I would urge all countries that are responsible for global warming that is causing climate change and its deleterious effects to agree to a scientifically agreed emissions reduction target.

India's double dividend

By Deepak Joglekar, University of Connecticut
and Kathleen Segerson, University of Connecticut

The Kyoto Protocol, concluded in 1997, envisioned binding targets for the industrialized nations to reduce their greenhouse gas (GHG) emissions by the year 2012. As the end of that first 'commitment period' under the Protocol approaches, policymakers and policy analysts around the world have started to think about the future of the international climate change negotiations (e.g., Hohne, 2006; Nordhaus, 2007; and Stavins, 2009). The fifteenth Conference of Parties (COP 15) to the United Nations Framework Convention on Climate Change (UNFCC) is scheduled in Copenhagen in December 2009 to discuss further international action on climate change. The Executive Secretary of the UNFCC recently outlined his expectations about the outcome of COP 15 (Trauzzi and de Boer, 2009). He hopes that the conference will result in an agreement on four "political essentials." One of those important issues is "clarity on how much major developing countries like China and India are willing to do to limit the growth of their emissions."

A View from the Developing World

Policy makers in developing countries are concerned that efforts to reduce GHG emissions might constrain their national economic growth. They fear that GHG mitigation policies such as a cap-and-trade system or carbon tax will affect the development performance of their countries adversely and that, in turn, their people will miss the opportunity to improve their standard of living. The poorer nations of the world are afraid that their citizens are particularly vulnerable to the economic burden that measures such as a carbon tax are likely to impose. Some political leaders argue that it is unfair to expect the developing world to take any measures for climate change mitigation. They assert that industrialized countries have achieved their current economic status by using large amounts of CO_2-intensive fuels in the past and that, on a per capita emissions basis, it is the industrialized countries that need to do much more. India's Prime Minister subtly endorsed this viewpoint when he noted that "India's GHG emissions are among the lowest in per-capita terms" and said that his government is "determined that India's per-capita GHG emissions are not going to exceed those of developed countries even while pursuing policies of development . . ." (Government of India [GoI], 2007a].

A recent report by the International Panel on Climate Change (IPCC) predicts that most developing countries are likely to be among the worst sufferers of global climate change (Intergovernmental Panel on Climate Change [IPCC], 2007a). It also asserts that adaptation is not sufficient and that it will be particularly difficult for the developing countries, especially after more severe impacts expected over the long-term have occurred. Thus, it is in the long-term interest of developing countries to slow the

process of climate change. However, the immediate concern for policymakers in developing countries is economic growth. In his opening remarks at the first meeting of India's Council for Climate Change, the Prime Minister of India recognized that "global warming is a validated fact" and that the Council was created "given our dependence and vulnerability vis-a-vis monsoons, dependence on the Himalayan snow-fed rivers, our large coastline and the growing needs of the economy that puts pressure on natural resources." Yet he made it clear that India's "challenge is both to build on our past track record and to address the global issue of climate change without compromising on the imperatives of poverty alleviation" (emphasis added) (GoI, 2007b). These views are echoed in a document published by the Government of India ahead of the conference in Copenhagen (GoI, 2009) and are representative of the concerns of policymakers in most developing countries.

Co-benefits of Climate Change Mitigation Policies

Despite such apprehensions of policymakers in developing countries, it may be possible to find ways to enlist their support for international policies designed to manage climate change. One way to do that is to demonstrate the "co-benefits" or secondary (ancillary) benefits of policies aimed at GHG mitigation. Countries could implement a wide range of policies to reduce their GHG emissions. Governments could prescribe performance standards for industry or use economic instruments such as carbon taxes and marketable permits. In the net analysis, some of the secondary benefits of such GHG mitigation policies might make the mitigation effort beneficial even from the standpoint of economic growth. A comprehensive survey of the literature on the various co-benefits of GHG mitigation strategies can be found in IPCC (2007b).

Previous research points to at least two possible co-benefits of a carbon tax policy in the case of developed and developing countries. One of those co-benefits is the so called 'double dividend'—the idea that if carbon tax revenue is used for scaling back existing distortionary taxes in the economy, a simultaneous decrease in emissions and an increase in output would be expected (e.g., Shah and Larsen, 1992 and Bosquet, 2000). Secondly, carbon taxes reduce the consumption of CO_2-emitting substances and hence the emission of CO_2 and associated local pollutants such as particulate matter. This improves human health and labor productivity and ultimately the economic well-being of the people (e.g., O'Connor, 2001 and Li, 2006).

Improving Education using the Carbon Tax Revenue

Developing countries face considerable resource constraints to meet social and economic development goals. In such a context, carbon tax revenue could be invested in improving public services such as health and education or in infrastructure (particularly renewable energy technologies), leading to productivity gains that could translate into higher economic output. That, in turn, could compensate for the possible economic losses due to the imposition of a carbon tax. In a recent study, we explored this proposition formally. We analyzed the implications of imposing a carbon tax in India's economy and using the carbon tax revenue

for meeting an important development target - an increase in the levels of literacy and education. We employed a Computable General Equilibrium (CGE) model of India's economy to estimate the changes in some economic indicators induced by the carbon tax when the revenue from the tax is used for improving educational outcomes. The recursive dynamic CGE model used in our work builds on the "standard" CGE model constructed by the International Food Policy Research Institute (IFPRI) (Lofgren et al., 2002). As in Park (1995), productivity of labor is driven by public expenditure on education, which is funded by the carbon tax revenue. A complete description of the CGE model is available in Joglekar (2009).

Results

When the carbon tax revenue is simply returned to households, real Gross Domestic Product (GDP) and household income decline (relative to the baseline) along with CO_2 emissions. However, when carbon tax revenue is allocated to public expenditure on education, real GDP and household income improve (relative to the baseline) while stabilizing carbon emissions. This result points to a "win-win" solution because environmental and development goals are achieved simultaneously. Developing countries are concerned about the impact that their environmental policies have on their export competitiveness. We find that the policy of using carbon tax revenue for improving education helps to offset the negative impact of carbon taxes on the export of commodities whose production is not energy-intensive. We obtain a similar result for the effect of this environmental policy on real domestic output. Although overall the impact on aggregate output is positive, the impact of the carbon tax policy is negative and quite severe for some energy commodities (e.g. coal) and moderately severe for commodities with energy-intensive manufacturing processes (e.g. electricity). For such commodities, the domestic output does not improve much even with additional public expenditure on education. However, these effects are offset by the positive impacts in other sectors (e.g. textiles and food processing), where domestic output is predicted to increase.

Although our analysis suggests the possibility of simultaneously meeting environmental and development goals by appropriately reinvesting tax revenues, it is subject to a number of caveats. On the one hand, our CGE model underestimates the benefits of the proposed policy because: **1** we do not account for the health and productivity benefits of concurrent reduction in local pollutants (such as particulate matter); **2** we study a unilateral imposition of carbon taxes by India, which is likely to impair that country's trade competitiveness; **3** we do not take into account the significant positive externalities of education; and **4** we do not allow for the possible growth of the renewable energy sector in response to a substantial increase in the prices of fossil fuels.

The existing CGE model could be extended to: **1** accommodate the fact that the economic impact of public expenditure on education is contingent upon the type of education (e.g. primary education, secondary education, or technical education) promoted with the use of the carbon tax revenue; and **2** allow different sectors of the economy to experience different productivity gains as a result of the proposed policy.
On the other hand, our existing model might overestimate the benefits of reinvestment of carbon tax revenue in education, because it assumes that higher public expenditure on education leads to an increase in labor productivity in the following year. This may not be true for certain types of education. A longer lag between expenditure on education and the resultant productivity gain would mean that in the initial years of the proposed policy economic indicators such as real GDP may perform worse than in the case in which no carbon taxes are imposed, although emissions will start to decline immediately.

Despite these caveats, our work indicates the possibility of concurrently meeting development and environmental goals by investing the revenues from a carbon tax in public education, which in turn boosts productivity. We hope it will encourage debate within and among the developing countries - particularly the more populous emerging economies such as China and India - about efforts to mitigate climate change. The outcome of our analysis may make carbon taxes more acceptable to policymakers in the developing countries. Such a targeted use of the proceeds of carbon tax, as well as its likely benefits for economic growth, has the potential to address some of the concerns of citizens in developing countries about policies designed to slow climate change.

The fallacy of growth: Climate change policy trade-offs

By Cleo Paskal, Chatham House

In many areas, the debate around climate change has formed well-trodden pathways, making it increasingly difficult to broaden the discussion. As a result, analysis is sometimes flawed and some viable solutions are being overlooked. A case in point is the dominant assumption that there is a trade-off between economic growth and climate change policies, especially for developing countries.

Part of the problem is the narrow definitions of climate change policies themselves. Almost invariably, the term connotes a reduction in carbon emission, usually through a reduction in the use of fossil fuels. While there are a range of other areas that produce substantial greenhouse gas emissions, including, for example, the livestock industry, they are rarely included in the discussion. Similarly, there are a range of existing, low-cost ways of absorbing emission, including urban reforestation. While that topic tends to get more attention, it is still underrepresented in the debate.

Though there are sound reasons to look at energy use, at least part of the reason for the concerted focus is that, to a large degree, much of the discussion around the politics of climate change took shape in the economies where there are existing energy security concerns. Shifts to lower imported energy use dovetails well with established strategic goals. Meanwhile, for example in a U.S. context, lowering the amount of beef consumed (which would also reduce emissions) does little for strategic goals and would carry costs with the agricultural lobby. And planting trees/green roofs might provide some local jobs, but is not perceived as a—pardon the pun—growth industry, especially in comparison with potential carbon capture and storage megaprojects. Even though much of the developing world has differently structured economies and needs, it has been pulled into the dominant paradigm through the negotiations process, and now the vast majority of global discussions revolve around carbon emissions, and in particular those related to energy use.

As a result, many in the developing world (and beyond) equate countering climate change with lowering fossil fuel use, something that is perceived to negatively affect economic development.

This doesn't take into account two factors. The first is that fossil fuel prices are likely to increase in variability, and possibly rise substantially due to other factors such as the specter of peak oil. That, in itself, can undermine economic development.

A case in point is the Kingdom of Tonga in the South Pacific. Given the nature of its economy, emissions aren't really an issue. Per capita emissions are minimal and likely to remain so. This nation of just over 100,000 citizens imports almost 100% of its energy in the form of fossil fuels. It was very badly hit during the recent oil price spike. The innovative and forward thinking government of the country immediately decided to convert its energy use to 50% renewables within approximately two years. Once accomplished, its economic development will be substantially buffered from variations in global energy markets, giving it a substantial advantage. This clearly shows that mitigation, even if largely as a by-product of energy security, can be an economic benefit, not cost.

> Though there are sound reasons to look at energy use, at least part of the reason for the concerted focus is that, to a large degree, much of the discussion around the politics of climate change took shape in the economies where there are existing energy security concerns.

The second factor involves assessing the cost not only of our impact on the environment, but of a changing environment's impact on us. While the focus is normally on promoting growth, given the disruptive impacts of environmental change, we should also be concerned about limiting loss.

Much of the world's critical infrastructure, including the oil and gas installations in the U.S. Gulf Coast, the hydro dams powering large sections of Asia, and industrial powerhouses such as Shanghai, are in regions that are already being affected by a changing climate. Hurricane Katrina (2005) cost the Gulf Coast an estimated $100 billion and triggered spikes in global oil and gas prices. There were similar problems in the Gulf energy sector in 2008 when Ike and Gustav passed though. The increasingly unpredictable river levels in the Himalayas are causing problems with site stability and the ability to generate power. In coastal China, as a result of building in vulnerable areas and increasing climate extremes, during typhoon season there have been evacuations of hundreds of thousands of people almost every year for the past few years.

The developing world understands how destructive a changing environment can be. And, when doing their assessments, they tend to quite rightly look beyond simple climate change when trying to understand their risks. Again, Tonga is a good example of this. In recent countrywide consultation sessions, local populations were asked about how their physical environment was changing, what it meant to them, and what their concerns for the future were. This was combined with scientific assessments on vulnerabilities. What emerged was a complex picture of a changing environment that included not only climate change but a range of interrelated factors such as subduction, volcanic activity, changing currents, El Nino, and others. Only when all these factors are combined can an effective defensive strategy be put in place.

And such a strategy is desperately needed. In both the developed and developing world, if the 'environmental change proofing' of infrastructure, industry, urban areas, etc., is not addressed, loss may soon overwhelm growth.

Increasing energy security and reducing vulnerability to extreme events are both necessary for economic growth. Bluntly put, there is no point putting up a solar power plant in what is now, or may soon become, a flood zone.

It is not that there is a trade-off between economic growth and climate change policies; it is that without more rounded and sound environmental change policies, there may not be any growth at all.

Eco policy: From 'know-how' to 'do now'

Abridged version of Herman E. Daly's speech to the American Meteorological Society

> It's useful to remember an observation by physicist John Wheeler, "We make the world by the questions we ask". What are the questions asked by the climate models, and what kind of world are they making, and what other questions might we ask that would make other worlds? Could we ask other questions that would make a more tractable world for policy?

The climate models ask whether CO_2 emissions will lead to atmospheric concentrations of 450-500 parts per million, and will that raise temperatures by 2 or 3 degrees Celsius, by a certain date, and what will be the likely physical consequences in climate and geography, and in what sequence, and according to what probability distributions. And what will be the damages inflicted by such changes, as well as the costs of abating them? And what are the ratios of the present values of the damage costs compared to abatement expenditures at various discount rates? And which discount rate should we use? And how likely is it that new information learned while we are constructing the model, will invalidate the results?

What kind of world is created by such questions? Perhaps a world of such enormous uncertainty and complexity as to paralyze policy...Scientists will disagree on the answers to every one of these empirical questions. Could we ask a different question that creates a different world? Why not ask, "Can we systematically continue to emit increasing amounts of CO_2 and other greenhouse gasses into the atmosphere without eventually provoking unacceptable climate changes?"

Scientists will overwhelmingly agree that the answer is no. The basic science, first principles, and directions of causality are very clear. Arrhenius discovered the basics a century ago. Focusing on them creates a world of relative certainty, at least as to the thrust and direction of policy. True, the rates, sequences, and valuations are uncertain and subject to debate. But as long as we focus on measuring these inherently uncertain empirical consequences, rather than on the certain first principles that cause them, we will overwhelm the consensus to "do something now" with ditherings about what we might someday consider doing if ever the evidence is sufficiently compelling. I am afraid that once the evidence is really compelling then our response will also be compelled, and policy choice will be irrelevant. To make the point more simply, if you jump out of an airplane you need a crude parachute more than an accurate altimeter. And if you also take an altimeter with you, at least don't become so bemused in tracking your descent that you forget to pull the ripcord on your parachute. We should be thinking in terms of a parachute, however crude.

The next question we should ask is, What is it that is causing us to systematically emit ever more CO_2 into the atmosphere? It is the same thing that causes us to emit more and more of all kind of wastes into the biosphere, namely our irrational commitment to exponential growth forever on a finite planet subject to the laws of thermodynamics. If we overcome the growth idolatry we could then go on to ask an intelligent question like, How can we design and manage a steady-state economy, one that respects the limits of the biosphere? Instead we ask a wrong-headed, growth-bound question, specifically: By how much will we have to increase energy efficiency, or carbon efficiency, in order to maintain customary growth rates in GDP?

Suppose we get an answer—say we need to double efficiency in ten years and we actually do it. So what? We will then just do more of all the things that have become more efficient and therefore cheaper, and will then emit more wastes, including greenhouse gasses—the famous rebound or Jevons effect. A policy of "efficiency first" does not give us "frugality second"—it makes frugality less necessary. In the nineteenth century words of William Stanley Jevons,

"It is wholly a confusion of ideas to suppose that the economical use of fuel is equivalent to a diminished consumption. The very contrary is the truth." (Jevons, 1866, p123)

In modern words, if we increase miles per gallon we are likely to travel more miles because it is cheaper. Or suppose instead of driving more we save the money. What then do we do with it? Travel by airplane? Buy a second house? Invest in nuclear power or ethanol production? Better to pay it to our psychiatrist for the low-energy service of listening while we confess our sins. Yes, but doesn't that help him pay for his airplane trip or second house? Jevons has us by the tail—It is wholly a confusion of ideas to suppose that the economical use of fuel is equivalent to a diminished consumption. The very contrary is the truth. Our energy policy is all about "efficient patterns of consumption" and not at all about "sustainable aggregate levels of consumption". It is wholly a confusion of ideas to suppose that an efficient pattern of energy consumption is equivalent to, or even leads to, a sustainable aggregate level of energy consumption.

But if we go for "frugality first" (i.e. sustainable level first) as our direct policy variable (for example, a carbon tax, or a cap-auction-trade system) then we will get "efficiency second" as an adaptation to more expensive carbon fuels. "Frugality first gives efficiency second, not vice versa" should be the first design principle for energy and climate policy. Efficiency is an adaptation to scarcity that makes it less painful; it is not the abolition of scarcity, the so-called "win-win" solution beloved by politicians.

The second thing wrong with our misleading question is its assumption that we need to maintain current growth rates in GDP. There is a lot of evidence that GDP growth at the current margin in the U.S. is in fact uneconomic growth—that is, growth that increases social and environmental costs faster than it increases production benefits, growth that accumulates "illth" faster than it accumulates wealth. I know that there

is still poverty in the world and that GDP growth in some countries is still economic—all the more reason to stop uneconomic growth and free up resources and ecological space for truly economic growth by the poor! That should be the second design principle.

You will not find the term "uneconomic growth" in the index of any economics textbook. But it is not hard to see how the reality of uneconomic growth sneaks up on us. We have moved from a world relatively empty of us and our stuff, to a world relatively full of us, in just one lifetime. The world population has tripled in my lifetime and the populations of cars, houses, livestock, refrigerators, TVs, etc. have increased by much more. As we transform natural capital into manmade capital the former becomes more scarce and the latter more abundant—an inversion of the traditional pattern of scarcity. This inversion is furthered by the fact that manmade capital is often private property while natural capital frequently is an open-access commons.

In the empty world economy the limiting factor was manmade capital; in the full world it is remaining natural capital. For example, the annual fish catch used to be limited by the number of fishing boats; now it is limited by the remaining stocks of fish in the ocean and their capacity to reproduce. Barrels of petroleum extracted used to be limited by drilling rigs and pumps; now it is limited by remaining deposits in the ground, or alternatively by capacity of the atmosphere to absorb the products of its combustion. There seems to be a race between peak oil and global warming, between source and sink limits—but both are natural capital so for my point it does not matter which proves more limiting. Economic logic stays the same—it says invest in and economize on the limiting factor. But the identity of the limiting factor has changed, and we have not adapted. We continue to invest in manmade capital rather than in restoration of natural capital.

The reason that mainstream economists don't see this is that they think manmade capital and natural capital are substitutes rather than complements. With substitutes you don't have a limiting factor, so they overlook the scarcity-augmenting fact of limitationality. I am not sure why they do this, but suspect that they prize substitution's mathematical tractability more than complementarity's conformity to the first law of thermodynamics.

Enough of what is wrong. Can one offer a reasonable policy based only on first principles? Yes—one such policy is called ecological tax reform, a stiff severance tax on carbon, levied at the well head and mine mouth, accompanied by equalizing tariffs on carbon-intensive imports, and by rebating the revenues by abolishing regressive taxes on low incomes. Such a policy would reduce total carbon use, give an incentive for developing less carbon-intensive technologies, and redistribute income progressively. The same could be accomplished by a cap-auction-trade policy.

People don't like to see the value added by their own efforts taxed away, even though we accept it as necessary up to a point. But most people don't mind seeing resource

scarcity rents, value that no one added, taxed away. And the most important public good served by the carbon tax would be climate stability, a benefit in which everyone shares, but whose loss would be regressively distributed. The revenue from the carbon severance tax could be rebated to the public by abolishing other taxes, especially regressive ones. And even though the incidence of the tax by itself is regressive with respect to income, it has the advantage that it is paid by all consumers, including the income tax evaders and avoiders.

Setting policy in accord with first principles allows us to act now without getting mired in endless delays caused by the uncertainties of complex empirical measurements and predictions. Of course the uncertainties do not disappear. We will experience them as surprising consequences, both agreeable and disagreeable, necessitating mid-course correction to the policies enacted on the basis of first principles. Recognizing the need for mid-course corrections should be a third policy design principle. But at least we would have begun a process of moving in the right direction. To continue business as usual while debating the predictions of complex models in a world made even more uncertain by the questions we ask is to fail to pull the ripcord. The empirical consequences of this last failure, unfortunately, are all too certain.

Why India should be saying no

Interview with Dr. Arvind Panagariya, Columbia University

Q: IA-Forum: You argued that India should say no at Copenhagen (referring to the United Nations Framework Convention on Climate Change in Copenhagen). Why?

A: Arvind Panagariya: In that op-ed article,[1] I had stated that India should say no to internationally mandated carbon reduction commitments, because such reductions by a poor country such as India would be inequitable.

Given its low per capita income of approximately $1000[2] and widespread poverty, India needs to maintain its current high growth. Its CO_2 emissions at 1.2 tons per capita are one-fourth those of China and less than one-fifteenth those of the United States. Even capping, let alone mitigating, emissions from this low level would bring down India's growth rate adversely, impacting its battle against poverty.

For example, four in 10 homes in India today still do not have electricity. How can India bring electricity to these homes under existing technological conditions if it accepts obligations to reduce its carbon emissions?

This does not mean that India should take no action to voluntarily reduce its carbon emissions. For a while, however, given India's current development situation, and the fact that India's contribution to the current carbon stock is relatively low, it should not be subject to mitigation commitments at least until 2030 or maybe as late as 2040.

Any agreement, [requiring] India to actually cut CO_2 emissions, whether one takes the 1990 levels or 2005 levels, would be anti-development.

What should India's position be regarding climate change? What voluntary actions can it take to reduce greenhouse gas emissions?

India already has a national plan to combat climate change.[3] The plan has many components including, for example, increased investment in green technologies and putting in place more environment-friendly building codes and automobile fuel efficiency standards. India is also undertaking large-scale reforestation (similar to China). All these efforts are geared toward making India's development and growth less intensive in terms of its overall carbon footprint.

Politically, it is possible for the government to go farther if commitments are voluntary and under national laws than if they are seen as imposed from outside through an international treaty.

[1] Arvind Panagariya, "Say 'No' at Copenhagen" in The Economic Times, (23 July 2009). Available at: http://economictimes.indiatimes.com/Opinion/Comments-Analysis/Say-No-at-Copenhagen/articleshow/4809521.cms

[2] IMF World Economic Outlook (October 2009) lists India's per capita income at $1032.711.

[3] Prime Minister's Office, India. National Action Plan on Climate Change. Available at: http://pmindia.nic.in/climate_change.htm

Developed nations have argued that 2005 should be the base year for greenhouse gas (GHG) emissions in Copenhagen as opposed to the 1990 base year for Kyoto. What do you think of this change?

Evidently, the shift in base year is being sought to create the illusion of larger mitigation effort than actually undertaken. But most observers are not going to be fooled by such creative arithmetic. They know that a reduction of 17 percent relative to 2005 emission levels by 2020 by the United States would amount to at most a tiny reduction relative to the 1990 emissions.

Is there an intractable trade-off between reducing GHG emissions (or just CO_2 emissions) and securing greater economic growth, for developing countries?

There's no doubt that mitigation will adversely impact growth. If that were not the case, developing countries would not resist accepting mitigation obligations. Indeed, the key reason why developed countries themselves have done so little by way of mitigation is because it's a very costly activity.

Developing countries realize as much as developed ones that global warming will hurt everyone; in fact, it may hurt developing countries more given their limited resources and geography. Therefore, they are keen to do their bit but they face a serious phasing out issue. For two or three decades to come, they need to be able to grow rapidly and eliminate poverty and then join the mitigation effort in earnest. But even in the meantime, they are keen to make a contribution to fighting global warming through more rapid adoption of green technologies and reforestation. The emphasis on green technology sharing in the Memoranda of Understanding (MoU) Prime Minister Singh signed during his recent visit to the U.S. testifies to India's keenness for opting for less energy-intensive growth than would have been the case absent the global warming problem. India wants to avoid the mistakes China made by adopting a highly energy-intensive path to growth.

Right now, inexpensive mitigation technologies and green sources of energy are unavailable. What we need is massive investments in the discovery of low-cost mitigation technologies and green energy sources. That will make the trade-off between growth and mitigation more favorable and the poor countries more willing to undertake aggressive action against global warming.

One way to accelerate the pace of mitigation is to create a large fund through contributions by developed countries from which R&D can be financed. Columbia University economist Jagdish Bhagwati argues that the creation of such a fund through contributions by developed countries, which are largely responsible for the past emissions, can be justified along the lines of the U.S. Superfund Law. The latter was created to clean up toxic-waste sites created by the dumping of toxic waste by large corpora-

tions over several decades in the United States. The Superfund Law, which came into existence in 1980, provided for retroactive enforcement and the companies that had contributed toxic wastes on these sites were subjected to fines that were then used to clean up the sites.

There's a parallel here that developed industrial countries, with their carbon intensive growth models, have done substantial damage and contributed to climate change. In this case, effective cleanup is not possible, as carbon in the atmosphere cannot be made to go away. The alternative is to create a substantial fund, say $100 billion a year, and use it to undertake research on green technologies. The discoveries/inventions made as a result of such research could then be made available free of charge to all countries to achieve maximum mitigation.

If you were advising developed country leaders—say, President Obama asked you what U.S. policy should be—with regards to developing countries' concerns on climate change, what would be your advice?

I would advise President Obama—or any other developed country leader—to make a distinction between China and other developing countries. China is the largest CO_2 emitter now and no other developing country emits anywhere close to it.

This would be in accordance with the common but differentiated responsibility within the U.N. Framework Convention on Climate Change. By providing a reprieve for developing countries, other than China, you would give them some rope to reach income levels of about $3000 to $5000 per capita. This would better prepare developing country citizens to handle extreme events such as floods and droughts (which seem to be increasing in frequency because of climate change) and also help them secure better education, health, and nutrition. Within two to three decades, these countries can be required to joint the mitigation effort.

In the case of India, I have argued that it be required to accept mitigation obligations on a date such as 2030 or 2040. For some African countries, the year for mitigation commitments may well be as late as 2050. In the meantime, we can still exert moral pressures on these countries to minimize emissions under their national laws.

I'd also caution President Obama in particular that I would keep trade sanction issues separate from the climate change issue. In the Waxman-Markey bill there are sanctions triggers to punish countries that don't adopt cap and trade system similar to the one proposed in the bill. Such linkages do not create an atmosphere conducive to productive dialogue.

What should the stance toward China be then?

It has to be political negotiation. China could start mitigating sooner, say around 2015

or 2020, given its large carbon footprint and its development stage. It's important to make the distinction between China and other developing countries, especially India. The U.S Congress' refusal to distinguish between India and China, despite differences in per capita CO_2 emissions as well as their incomes, just doesn't make sense.

Do you know of a particular developed country or countries that have a climate change policy agenda which takes the concerns of developing countries seriously and has effective ways to incorporate these concerns?

Broadly speaking, I would say that the European approach is much more sensitive to developing country concerns than the American approach.

Europeans committed to the Kyoto Protocol, and at least some countries—examples that come to mind are Norway, the U.K. and Germany—have achieved substantial mitigation. We, on the American side, are signatories to the Protocol, but our Senate never ratified it (if I remember correctly the vote in the Senate was 95-0 defeating ratification).

Now, from the American side, we demand quite intensely that developing countries, such as China and India achieve CO_2 emissions cuts (when one must remember that under Kyoto they were not required to undertake any cuts). Otherwise, the threat is that America will not commit to any meaningful emissions cuts either.

The roller-coaster of Indonesia's leadership in climate negotiations

By Fitrian Ardinasyah, Program Director, WWF

Bali in Indonesia has historically marked the beginning of two years formal negotiation to reach a global climate agreement. The UNFCCC (U.N. Framework Convention on Climate Change) COP-13 in Bali Action Plan (BAP) mandated parties to negotiate and reach a substantial agreement on a shared vision to achieve a long-term global goal for emission reductions, actions on mitigation and adaption of climate change, technology development and transfer, and the provision of financial resources and investment.

The negotiation on shared vision and mitigation commitments, especially by industrialized countries, was to be a crucial part of the negotiation, which it was hoped could results in a vision with the right level of ambitionto bring about emissions reductions that are high enough to ensure the survival of the most vulnerable nations, communities and ecosystems.

A credible scientific body, the Intergovernmental Panel on Climate Change, provides the lowest mitigation scenario category, which stabilizes greenhouse gas concentrations in the range 445-490 ppm CO_2 equivalent, leading to 2 to 2.4°C warming above pre-industrial levels in the long-term. To achieve this, emission reductions for industrialized countries have to be at the high end of the IPCC—25% to 40% reduction.

For about two years, Indonesia has played a crucial role in guarding the process of negotiation to stick to BAP and its goals.

As an archipelagic country which will experience multi-adverse effects from climate change, Indonesia also sees the importance for all countries to push a stronger global climate agreement, which in particular, regulate industrialized countries to deeply cut their emission to maintain global temperature increases under 2°C, which will result in an impact level which can still be dealt with.

At negotiation level, Indonesia has used its unique position as part of the G77 Plus China and G20 to push for a global agreement that has a framework that offers incentives and drives innovation, global technology diffusion and cooperation, and low carbon development, through mitigation mechanisms, technology action programs as well as capacity and institution building.

Indonesia believes that developing country efforts will require adequate financing and technology and capacity support. In addition, the outcome of climate negotiations has to urgently address adaptation to current and future impacts for the most vulnerable countries, communities and ecosystems.

It is of the utmost importance to have coordinated national and sub-national development strategies with a climate change perspective, something which will require coordination between the financial, trade, forestry, agriculture, fisheries and public works sectors, as well as the development of adaptation efforts to reduce the impact of climate change in Indonesia.

Having one of the largest tropical forest areas in the world, Indonesia has been encouraging other parties to come up with a stronger position, especially calling for the creation of concrete policies, positive incentives and measures to reduce emission from deforestation and forest degradation. Without a clear policy framework and stages of financing support for REDD (reducing emission from deforestation and forest degradation), it is going to be difficult for Indonesia to readily cope with deforestation and its consequences.

These objectives cannot be achieved without the highest level of leadership and involvement from within the country. President Susilo Bambang Yudhoyono, in his second-term as President and as leader of the largest country in Southeast Asia, has shown leadership by encouraging other heads of states to come up with stronger pledges for climate change.

The creation of the National Council on Climate Change (DNPI) in 2008 by President Yudhoyono is an initial step toward concrete efforts to address climate change internationally and domestically as well as achieve a low carbon economy. DNPI has been expected to provide Indonesia with guidance for actions to mainstream climate change into its development agenda.

Clear road maps, plans, policies and targets of domestic emissions reduction are planned and will be used as the basis for climate change negotiations and long-term sustainable development.

To strengthen his commitment, on Sept.25, in a speech to G20 leaders, Yudhoyono stated that his government was devising a policy that would cut GHG emissions by 26 percent by 2020 from "business as usual" levels.

The President expressed confidence that, with international support, Indonesia could cut emissions by as much as 41 percent.

The policy would be a mix of stepping up investment in the energy sector, especially to boost energy efficiency and renewable energy, and addressing emissions from deforestation and changes in land use, including from forest and land fires. Concluding his pledge, the President was convinced that this target is entirely achievable.

Since then, there have been some attempts to assess the feasibility of this aspiration and to look at providing some important steps for Indonesia to reach this goal. A very recent attempt to translate and find a formula for achieving the country's aspiration to reduce GHG emissions was the launch of the Second National Communication (SNC) to the UNFCCC. This is an official report presenting Indonesia's progress in addressing climate change mitigation and adaptation, together with detailed information on Indonesia's emissions.

The SNC recorded that Indonesia's GHG emissions were around 594,738 gigagrams (Gg) CO_2e in 2000 without land use, land use change, forestry and peat fires and increased significantly to about 1,415,988 Gg CO_2e with their inclusion.

According to the Ministry of the Environment, SNC would be used as a reference and basis for the formulation of policies and programs to achieve further reduction targets of GHG emissions by 26 percent as has been declared by the President.

The SNC listed several possible ways that Indonesia could reduce its emissions. Among the strategies were proposals to develop more geothermal and waste energy sources, increase power plant efficiency, reduce illegal logging and restore production forests.

Looking at these strategies, it appears that the SNC has yet to secure the substantial steps toward necessary for emissions reduction in this country. There is therefore a need to focus more on actions to reduce emissions from deforestation, peat degradation and forest and land fires as these are currently the biggest source of emissions in Indonesia.

Most emissions in this sector usually come from forest conversion to develop crops estates and other agriculture commodities, infrastructure, settlements and mining operations; illegal and destructive logging outside and inside legal forest concessions; and forest and land fires for clearing up the lands to establish crops estates and other agriculture lands.

This can only be achieved if the government clearly lays out sustainable and responsible land use development, which will take the pressure off forests and peatlands, among others, by increasing productivity of existing crops estates and optimizing the use of abandoned lands.

To contribute to this, stronger policies and actions from different sectors and actors at different levels are required. It is of the utmost importance to have coordinated national and sub-national development strategies with a climate change perspective, something which will require coordination between the financial, trade, forestry, agriculture, fisheries and public works sectors, as well as the development of adaptation efforts to reduce the impact of climate change in Indonesia.

A good story came up in 2008. A commitment was reached by all the Governors of Sumatra's ten provinces, along with the Indonesian Ministries of Forestry, Environment, Interior and Public Works, to

restore critical ecosystems in Sumatra and protect areas with high conservation values. These Governors would also work together to develop ecosystem-based spatial plans that will serve as the basis for future development on the island.

In a similar tone, the Governor of Papua province recently pledged to halt 50 percent of allocated conversion forests and preserve these under sustainable forest management; to not allow the use of primary forests with high conservation values (HCVs) for oil palm and other land uses; and increase the efficiency and productivity of current land use, including existing oil palm.

Hence, a close collaboration between central and local governments is needed to ensure the success of the development of reducing emissions from deforestation and forest degradation.

Besides the forestry sector, managing fossil fuel combustions is an integral part of achieving the 26 percent emissions reduction goal. Although currently the emissions from this sector are less than land use, land use change and forestry, Indonesia's fossil fuel emissions are growing relatively fast. This is the result of energy consumption that has been growing almost as fast as GDP, while at the same time its emissions are growing faster than GDP.

Various policy options can be explored. These include adjusting pricing policy and undertaking electricity reform. Current energy pricing has led to irresponsible use of energy sources, and to some extent, rendered some energy sources scarce. It has become difficult to use renewable energy or promote energy efficiency because of the competition with some highly subsidized energy sources, noticeably fossil fuels.

With correct pricing policy and appropriate electricity reform, incentives can be provided for actions and investments which can promote the use of clean (i.e. gas) and renewable resources as well as improve efficiency in power generation, transmission, distribution and consumption.

Fundamentally, Indonesia still has a long way to go towards sustainable development and transforming the current economic pattern which now results in large scale deforestation and based on high fossil fuel content into a low-carbon one.

Indonesia can be a pathfinder in this transformation, which will make the country more competitive economically and also better placed to provide its people with a cleaner, healthier, and more secure environment.

Beside state actors' involvement, it is important to involve other non-state actors such as the business sector and civil societies. Their contributions to solutions are crucial since climate change poses a grave threat to the economies, societies and the natural environment.

Achieving development and climate goals depends on support from every component and actor of Indonesia's development since these actors are all in the same boat in accelerating or maintaining robust economic development while increasing our capacity to face the growing impact of climate change.

Indonesia has shown strong leadership at a global level, however, action on the ground domestically will be the key to achieving successful goals in adapting to and mitigating climate change.

Maldives at forefront of climate fight

Interview with Vice President Mohamed Waheed

Q: **IA-Forum: As an island nation the consequences of climate change, with respect to rising water levels will be particularly direct for Maldives. The cabinet met underwater sometime ago to publicize this grim reality to the world, and Maldives has set an ambitious agenda to drastically reduce its own greenhouse gas (GHG) emissions. But without a global deal on climate change, there is little Maldives can do to avert what seems like a disaster. What are your expectations from Copenhagen?**

A: **Dr. Mohammed Waheed**: We expect all nations to exercise their global obligations and agree on a deal that is ambitious enough to save the planet, especially low lying islands and other most vulnerable countries. We expect the deal to be a binding treaty, but that looks too optimistic. There are still disagreements regarding the GHG emission cuts.

Small Island Developing countries are demanding a reduction of peak emission levels to 350 ppm (parts per million) and global climate warming of not more than 1.5 degrees. We must find language that will urge developed countries and the BRICS to aim at 1.5 not 2 degrees. We expect developed countries to make firm financial commitments especially for adaptation and to earmark funds for the most vulnerable countries.

It would be a great shame if we are not able to reach any agreement in Copenhagen. It would be such a huge waste of human energy and financial resources. Future generations will not forgive us.

Maldives, as mentioned earlier, has an ambitious agenda to reduce GHG emissions, by initiating zero use of fossil fuels by 2020 among other policies. How are you going to accomplish this task? What are some other key features of your agenda to combat GHG emissions? Can other developed and developing countries learn from your policies?

Here in Maldives we have made a political commitment to follow a low carbon development path leading to carbon neutrality within 10 years. This is quite possible through a coordinated national plan of action involving public-private partnerships.

We will provide special incentives to the largest economic sector, which is tourism, to adopt clean technologies and renewable energy sources. All government supported projects will have a clean tech component. We will progressively reduce our reliance on fossil fuels and introduce wind and solar energy. We will promote carbon capture and storage and introduce offsetting mechanisms to compensate for emissions in the transport sector. We have floated the idea of low carbon growth to other like minded countries among the

"frontline states" on global warming. The idea is catching on and we hope that many more countries will adopt a low carbon development model.

What sort of financing is necessary—from the external and domestic side—to help implement Maldives' ambitious GHG emissions reduction agenda?

Maldives needs to invest about 100 million dollars in renewable energy every year for about 10 years. But the savings from fossil fuel will be enough to recover this investment in not more than 20 years. We are exploring PPP arrangements, including joint venture partnerships for electricity generation, waste management and production of water. We are also arranging credit facilities to the tourism sector to make greater investments in clean tech.

You say that the G8 commitment to not let global temperatures rise above 2 degrees celsius is woefully inadequate and want a 1.5 degree Celsius goal. What sort of commitment from developed countries would this entail, and how much finance/technology transfer would be needed for developing countries, to attain such a target?

Already there is a proposal from the British Prime Minister, Gordon Brown, to create a $10 billion fund per annum fund to help developing countries achieve carbon mitigation and adaptation. We understand that a significant amount of this would be available to the most vulnerable countries.

The amount of funds that will be required for adaptation is directly linked to GHG emission levels. If the agreement reaches a 2 degree level, then the amount of money needed for adaptation and disaster prevention and management would be much higher than the 1.5 degrees that we are advocating for.

How would you try to bridge seemingly irreconcilable differences between large emerging economies, like China and India, and the developed economies of Europe and America, when it comes to climate change?

Both China and India have been forthcoming with proposals that indicate their desire to achieve agreement with developed countries. Some of the developed countries themselves have shown great willingness. A lot depends on the language, but all of this is still falling short of what we need for countries like Maldives.

If you were advising developed country leaders—say, President Obama asked you what U.S. policy should be—with regards to island nations' concerns on climate change, what would be your advice?

First of all, we need to appreciate the initiative of the U.S. President to aim at higher GHG emission cuts than the previous administration. We were also pleasantly surprised

European Consortium for Political Research
ECPR Central Services
University of Essex Wivenhoe Park
Colchester
Essex CO4 3SQ

Tel: +44 (0) 1206 872501
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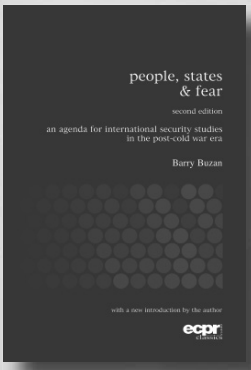

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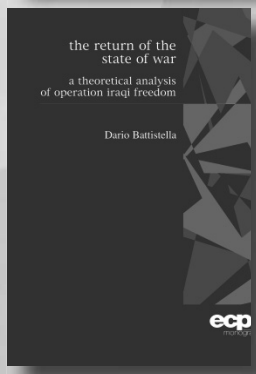

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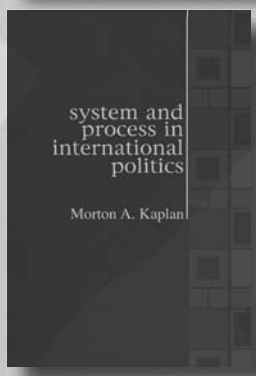

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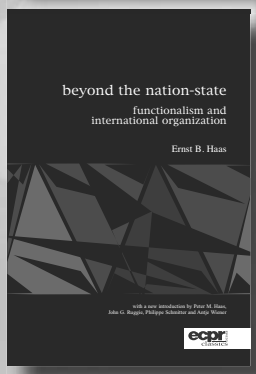

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by the new Prime Minister of Japan who has announced very ambitious goals. We would request leaders of developed nations to insist on the value of small islands and the importance of preserving archipelagos as part of the global heritage. We also want them to value the survival of the people of small island nations as a symbol of their respect for human rights everywhere.

Do you know of a particular developed country/countries that has a climate change policy agenda which takes the concerns of developing countries seriously and has effective ways to incorporate these concerns?

I believe that there are good intentions. I am happy that many countries such as Japan, China and the EU are taking our concerns very seriously.

Finally, what do you think is the most likely outcome at Copenhagen?

I think Copenhagen will achieve a political agreement reflecting a compromise solution. We may not be able to achieve what we want now but I expect that the 15th Conference of Parties will give a mandate for an early adoption of a legally binding document during 2010.

Can China grow green in a tough climate?

By Dr. Carla Freeman, JHU School of Advanced International Studies

Having emerged as the world's largest emitter of greenhouse gases, China faces high international expectations for its role in any solution to address climate change. China also recognizes that it will be hard hit by the impact of climate change and is thus also an important stakeholder in international efforts to mitigate the effects of human activity on the planet's climate patterns. At the same time, despite China's rising economic power and global influence, it remains a developing country, with hundreds of millions of its citizens still living in abject poverty. The global economic crisis has tested the capacity of China's leaders to sustain the high-speed industrial growth that has brought rising prosperity to increasing numbers of its citizens, raising the specter of rising unemployment and with it social and political instability for the one-party state. Yet, particularly in the last decade, this growth has been driven by highly energy intensive industries, powered overwhelmingly by China's relatively bountiful domestic supply of coal. As a result, Chinese production is highly carbon-intensive. It's clear that to be part of the climate change solution that international consensus urges immediate implementation, China is going to have to change this pattern. How will China contend with this convergence of pressures to sustain national economic growth amid the still anemic international economy, on the one hand, and, on the other, take meaningful action on climate change?

Historically, China has been unwilling to sacrifice economic growth for environmental protection. Mao Zedong made the total mastery of China's natural environment a dimension of his revolutionary vision for China—one of his slogans declared that "man must conquer nature." Although the post-Mao era has been characterized by commitments to environmental protection in principle, however, the policies that have followed have been weakly implemented in practice. China was the first country to publish an Agenda 21 White Paper on sustainable development following the Rio Summit, for example, and the importance of developing sustainably was acknowledged at China's Fifteenth Party Congress of 1997. In response to the Asian financial crisis that began that year, however, the government implemented a fiscal stimulus that channeled investment into capital-intensive infrastructure and heavy industry. This helped reverse a previous trend of declining energy intensity and accelerated China's contribution to global greenhouse emissions, among other deleterious consequences for China's natural environment.

China's 11th Five Year Program (2006-2010) for economic development appeared to mark a new chapter in China's approach to growth, however, making sustainable growth or "scientific development" an important emphasis and, with this, including aggressive targets for resource conservation and the reduction of pollution. Since the

11th FYP was launched, China's government has introduced many new policies to better balance economic growth and environmental management. In 2007, for example, it issued the National Climate Change plan, describing national policies and specific objectives associated with national efforts to combat climate change while committing to integrating climate change into other related policies. It has also pursued an ambitious target to reduce energy intensity, revising its Energy Efficiency Law, and along with this has invested significantly in "clean energy," including hydropower, wind, and solar energy, as well as remarkable levels of investment in new nuclear power, with estimates that between 60 and 75 new nuclear plants could be constructed by 2020. It has also poured considerable investment into R&D for electric vehicles, set energy efficiency targets for buildings, pushed for the installation and operation of desulfurization units in coal-fired power plants, and established energy efficiency targets for the country's "Top 1000 Energy-Consuming Enterprises," which collectively account for about one-third of China's total energy consumption.

These policies and projects appear to have yielded impressive results. According to some estimates, it now spends about $9 billion each month on renewable energy development, doubling its wind power capacity each year since the 11th Five Year program was initiated.[1] By closing numerous inefficient coal-powered plants, it boosted average efficiencies of its coal power plants, while also emerging as the world leader in the construction of hot-steam and other cleaner coal-fired power plants.[2] Its national fuel economy standards for vehicles now exceed those of the United States. It has also pursued its goal of developing low-carbon manufacturing by establishing special low-carbon manufacturing zones in several provinces. These are just some of the outcomes of its push for greener, more climate-friendly growth of the past several years.

Since the current global financial crisis began, China's leadership has repeatedly restated its commitment to continuing its efforts to develop more sustainably, even in the face of the threat the crisis has posed to China's economic growth. For example, China's government has highlighted its target of reducing the energy intensity of its GDP growth by 20 percent from 2006 to 2010 and has promised that it will remain vigilant about emissions reductions and other aspects of environmental protection. While Beijing's commitment to greener growth may not have changed in principle, however, some observers have raised concerns that environmental goals are being pushed aside in the interest of achieving the country's minimum 8 percent target for economic expansion—the level that its policymakers believe is necessary to provide jobs for the tens of millions of new laborers entering the job market each year.[3] China's RMB4 trillion stimulus package initially included RMB350 billion dedicated to "sustainable development;" this was later reduced to RMB210 billion, with funds shifted into allocations for "social welfare" and "technology advances." After the government launched its stimulus plan, moreover, the Ministry of Environmental Protection (MEP) accelerated the environmental impact assessment (EIA) process, as the MEP's official spokesperson put it, in order to "open a 'green passage' to projects that are deemed to have the effect of boosting domestic demand..."[4] Others have reported that local officials are relaxing environmental standards, and even waiving EIAs, to speed implementation of

[1] Julie Schmit, "China Pushes Solar, Wind Power Development," USA Today, November 18, 2009: http://www.usatoday.com/money/industries/energy/environment/2009-11-17-chinasolar17_CV_N.htm; The World Connector Market for Renewable Energy - Wind and Solar (November 2009): http://www.electronics.ca/publications/products/The-World-Connector-Market-for-Renewable-Energy-%252d-Wind-and-Solar.html.

[2] Keith Bradsher, "China Outpaces U.S. in Cleaner Coal-Fired Plants," The New York Times, May 10, 2009: http://www.nytimes.com/2009/05/11/world/asia/11coal.html.

[3] "Eight Percent Protection," The China Daily, March 11, 2009: http://www.chinadaily.com.cn/language_tips/2009npc/2009-03/11/content_7566944.htm.

[4] "Green Light Given to 153 Projects," Jiayu Wang: http://e.3edu.net/

local projects that will boost local growth and create jobs.[5]

In addition, while Beijing's fiscal stimulus includes a substantial allocation for what might be called "green investment," in general it bears a close family resemblance to the stimulus associated with the Asian Financial crisis with its heavy emphasis on fixed investment, with infrastructure spending and related heavy industries still reaping the lion's share, raising concern by some experts that China's progress toward reducing its energy intensity of production could be derailed. The positive effect of China's stimulus spending on Chinese economic production is in fact associated with the sustained rise in global emissions in 2008, despite the drop in emissions from the United States and other large developed economies that went along with the sharp downturn in economic activity last year.

The announcement by China in late November of its first greenhouse gas target aimed at reducing carbon dioxide emissions per unit of GDP by 40 to 45 percent by 2020 from 2005 levels says much about how China is prepared to contribute to tackling climate change while pursuing its economic growth objectives. The announcement of targets signals that China is serious about contributing international efforts to mitigate climate change, setting the stage for a constructive role by China in substantive negotiations on at least an interim climate change agreement in Copenhagen. It also implies, however, that the scope of China's international commitments will be limited. China's State Council accompanied its pledge with the caveat that this was "a voluntary action taken by the Chinese government based on its own national conditions..."[6] The emphasis on "national conditions" recalls China's insistence in the discussions leading up to Copenhagen that any agreement must continue to reflect the principle that distinguished the action expected of developed from developing countries in the Kyoto Treaty of "common but differentiated responsibilities." At the same time, more positively for Copenhagen, the reference to "national conditions" also opens the door to a discussion of how its exceptional national capabilities relative to other developing states might factor into a climate change agreement. The conceptualization in the Kyoto agreement of different commitments for different levels of national development was, in fact, the principle of "common but differentiated responsibilities and respective capabilities [emphasis added]" for participating countries.

China in fact faces many structural hurdles that constrain its capacity to contain its emissions, both in the short run and in the longer term. Its energy mix is the greatest of these. China aspires to produce 20% of its energy from renewable sources by 2020 and certainly seems on track to exceed its original target of 15% by that period. New transnational energy pipelines constructed as part of China's efforts to improve its energy security will also increase the currently very small share of cleaner, natural gas in its energy mix.

Most analysts, however, expect the relative abundance and low cost of coal in China to continue to make it the preferred source for China's energy production, supplying at least half of China's energy for the next several decades.[7] Even if China builds on recent

jr/E_77016.html

[5] Fu Jing, "Local Govts May Ignore Standards," China Daily, April 27, 2009: http://www.chinadaily.com.cn/bizchina/2009-04/27/content_7718226.htm; Jonathan Ansfield, "Slump Tilts Priorities of Industry in China, " The New York Times, April 18, 2009: http://www.nytimes.com/2009/04/19/world/asia/19china.html.

[6] Fu Jing, Li Jing and Sun Xiaohua, "China Targets Massive 40-45% Carbon Cut," The China Daily, November 27, 2009: http://www.chinadaily.com.cn/china/2009-11/27/content_9060284.htm.

[7] Rowan Callick, "All the Coal in China," The American, May-June 2007: http://www.american.com/archive/2007/may-june-magazine-contents/all-the-coal-in-china/

enterprise bankruptcies and the leverage represented by the investment associated with its economic stimulus funding to begin to restructure its economy away from energy intensive production toward cleaner, more high-tech industries, a "low carbon growth" path for China will be heavily dependent on the utilization of technologies to mitigate carbon emissions from coal. Ensuring that such technologies are more widely available and that they are installed and utilized will also be vital to lowering China's emissions. In addition, while China has refused to accept fixed caps on greenhouse gas emissions, its willingness to reduce the intensity of its carbon emissions as part of an international agreement requires that it have the capacity to measure and enforce, and that it has a verification process for its reductions in which the international community can have confidence. Currently, China's statistical system contains many weaknesses, and its data collection on energy use is no exception. China's localities are notorious for fabricating data to meet national targets or paying lip service to central government directives.[8] China needs to develop both its statistical and governance capacity to actually achieve its carbon reduction goals.

These are among the areas where international financing, technology transfer, and technical support for emissions reductions, along with deeper United States-China cooperation on climate change, can play a vital role in enhancing China's potential success in reducing its carbon emissions. Although China's remarkable financial resources suggest that it will have a very limited need for direct international financing for climate change mitigation and adaptation than most developing countries, internationally-financed programs can provide it with access to the best international practices while even limited international financing to China's less developed regions in particular can help incentivize participation and compliance by Chinese localities. In addition, international financing for and cooperation on carbon-reducing technologies could seed greater Chinese investment in them, speeding the deployment of such technology as carbon capture and storage and, given the likely large scale of this deployment in China, potentially help lower their cost and facilitate their global distribution.

The plan for cooperation between the United States and China on clean energy and climate change announced in Beijing in November 2009 by President Hu Jintao and President Barack Obama offers a menu of areas for bilateral cooperation between the two countries on global climate change mitigation. This includes cooperating on a greenhouse gas inventory, jointly financing research on clean energy, and technical cooperation in the areas of electric vehicles, energy efficiency, and renewable energy. Skeptics worry that such cooperation will merely put the United States in the position of subsidizing China's ability to leapfrog technologically, eroding the United States' competitive advantage in many of these advanced technologies and unduly boosting China's relative global economic might. If such bilateral cooperation is undergirded by multilateral efforts to boost the measurability and verifiability of China's emissions reductions efforts, however, this cooperation can contribute to generating new low-carbon commercial activity in both countries. Interest in the commercial potential of lower carbon production, along with concern about the potential for carbon tariffs

[8] For example, a recent national audit revealed that eleven of the 13 provinces in a river clean-up program in China either misused or faked spending totaling 515 million yuan (HK$584 million) over seven years. See Al Guo, "515m Yuan Fraud in River Clean-up Campaign," South China Morning Post, November 10, 2009.

by the United States (and others), have already led China to step up planning for an eventual domestic carbon tax to help it reduce its carbon intensity.[9]

The current economic crisis is certainly testing China's stated commitments to a greener, more sustainable and climate-friendly development path. Spurred by its recognition that it will be a beneficiary of international efforts to mitigate climate change—to which it must contribute if they are to have a chance of success, however, China seems intent on pursuing policies to reduce its greenhouse emissions if not absolutely in the coming decades, at least relative to economic output. These policies in combination with stimulus spending and the prospect for both public and private international cooperation are playing an important role in increasing the potential that China's efforts to curb emissions will grow even amid today's challenging global economy.

[9] David Stanway, "RPT-ANALYSIS-Carbon Tax Could Help China head off Tariff," Reuters, November 16, 2009: http://www.reuters.com/article/latestCrisis/idUSPEK83604.

Climate change, agriculture and economic growth

By Prof. Bruce A. McCarl, Siyi Feng and Wei Wei Wang, Texas A&M University

Agriculture (broadly defined to include forestry) is a key element in the economic growth of a country. Agriculture providing a nutritious food supply for the labor force and an important supply of labor when it releases labor and allows rural urban migration to occur. On the other hand, agriculture is highly vulnerable to climate change due to its key dependence upon temperature, precipitation, and other climatic attributes. Agriculture is also often a principal user of water and thus is vulnerable to fluctuations in water supply induced by climate change. This document discusses the ways that the climate change, agriculture, and economic growth issues are intertwined and may interact to reduce economic growth.

When considering the issues raised by climate change in terms of effects on agriculture and economic growth, one needs to look not just at the effects of climate change. Also of importance are the possible adaptation responses and the potential harnessing of agriculture in an effort to mitigate the degree of climate change by reducing greenhouse gas emissions. Thus, the paper will consider all three of these aspects—effects, adaptation, and mitigation.

Climate change effects and economic growth

Agriculture is profoundly dependent upon climate and highly vulnerable to climate change. Plant growth and livestock performance are dependent on temperature, precipitation, and extreme events, all of which are likely to be directly affected by climate change. Furthermore, plant growth through photosynthesis is stimulated by atmospheric carbon dioxide content with the growth of C3 plants being greatly stimulated and other C4 plants receiving some growth stimulus. Additionally, there are a number of indirect agents, such as pests, fire, and disease, which affect productivity.

Crops, trees and forages

Climate change has substantial implications for the productivity of crops, trees, and forages. Considering the broad set of findings on climate change related effects (involving effects of forces such as temperature, precipitation, extreme events, pests and carbon dioxide) leads one to conclude the effect of climate change on plant yields is mixed. Many areas of the world have production systems that are limited by cold, a limitation that climate change partially alleviates. However, in areas limited by heat, climate change generally diminishes productivity.

On the other hand, carbon dioxide effects tend to overcome most of the climate

altered yield dampening effects with many assessments showing increases in overall crop productivity continuing throughout the 21st century. But, the nature of the yield change varies substantially by region, where the preponderance of climate change projections indicate that areas in the subtropics will have substantially lower amounts of rainfall leading to reduced crop production.

With alterations in plant growth altering forage supply and thus grazing animal stocking rates, livestock production is also sensitive to climate change. Temperature increases in already hot areas have also been found to suppress animal appetite and potentially reduce reproduction rates. Collectively, climate change can be viewed at least in the near term as a force that increases total global agricultural productivity but exhibits regionally disparate results. Subtropical regions are at risk and this includes many of today's poorer regions of the globe. Furthermore, in such regions, projections indicate worsening of agricultural productivity providing a threat to the traditional agricultural food and fiber supply roles. In some cases this can lead to expansions in poverty and malnutrition rates.

Collectively, climate change can be viewed at least in the near term as a force that increases total global agricultural productivity but exhibits regionally disparate results. Subtropical regions are at risk and this includes many of today's poorer regions of the globe.

Additionally, climate change forces such as increased temperatures expand the demand for water while forces like precipitation decreases lead to diminished water supplies. This enhances intersectoral competition for water and rates of exploitation of exhaustible groundwater supplies. Largely on a regional basis, such developments clearly threaten urban, industrial and agricultural components of economic growth.

Finally, climate change associated with sea level rise can inundate substantial lands in low-lying areas where much of the world's rice production occurs and can threaten existing port facilities. Similarly, sea level rise and diminished river basin water flows can threaten our capabilities to employ current facilities and the capability for waterborne transportation which moves much of the world's food supply.

Climate Change Adaptation

Agriculture has a long tradition of climate adaptation. Cotton and sorghum are grown largely in lower latitudes; corn and wheat tend to predominate in higher latitudes. Short season varieties, earlier planting dates, and alterations in crop culture can provide substantial yield increase adaptations to warmer and possibly drier conditions. Livestock are the dominant production system in dry, hot places without irrigation water, while crops generally appear in wetter areas. As such, climate change effects will stimulate a substantial amount of adaptation activity with poleward shifts in cropping patterns. This may include regional expansions of heat tolerant and drought tolerant cropping patterns plus substitutions of livestock for crops in other places.

Adaptations will require an increase in the use of scarce investment capital. For example, new investment will be needed to increase the inventory of facilities that support processing, handling and transport of crops and livestock types previously not grown in a region. Also increased research investments are required to adapt existing crops altered conditions and to adapt migrated crops to their new environments. On a regional basis, pressures to increase irrigation may occur and increased investment in pest management research may be required. Extension investments will be needed to disseminate technology and facilitate adoption.

Climate change has the potential to alter a fundamental fact characterizing much of agriculture: Most practices adapted for a region are usable for a long time. However, a changing climate may increase the rate of obsolescence for many long-standing practices and increase the need for adaptation research and extension.

Collectively, adaptation poses a threat to economic growth by diverting resources that could be used in other ways. This is particularly the case for investment in new facilities and research developments.

Limiting climate change or mitigation

Efforts to limit the magnitude of climate change by limiting greenhouse gas emissions can also have economic growth implications.

Today many argue that agriculture and forests can play a role in limiting greenhouse emissions. Notable examples include limiting rates of tropical deforestation, increasing rates of afforestation, reducing livestock related emissions, altering rice related emissions, increasing bioenergy feedstock production thereby offsetting fossil fuel use, and increasing sequestration in agricultural soils along with pursuing a number of other strategies. The preceding strategies increase competition for agricultural land and provide new markets for existing commodities. They also tend to increase agricultural prices.

As such, there are disparate sets of implications. First, economic growth may be stimulated by increased commodity prices which lead to higher incomes, higher

standards of living and consumption levels, possible increases in mechanization releasing labor to the nonfarm labor force, and reductions in rural poverty. Second, diversion of resources towards efforts reducing greenhouse gases may reduce conventional crop and livestock productivity, limiting the food supply. This can lead to both market and environmental effects. Concerning market effects, exports are likely reduced or imports increased—worsening the balance of trade. On the environment, this can place pressure to expand agricultural land use and can increase agricultural pollution externalities plus stimulate release of sequestered GHGs particularly in areas without greenhouse gas policy (i.e. rainforests may be threatened). Mitigation activities in other sectors would also increase the cost of fossil fuel related inputs, damaging economic growth and increasing costs of agricultural production.

Interactions

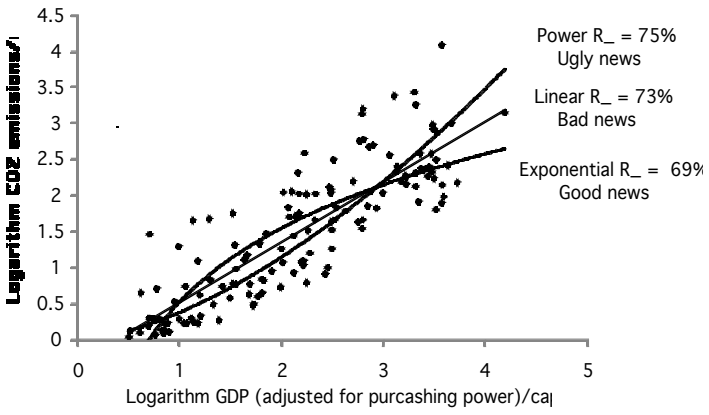
While climate change effects, adaptation, and mitigation are presented independently above, they are clearly interrelated, as are their implications for economic growth. A negative effect arising from climate change reducing agricultural productivity would increase investment needs for adaptation. Negative productivity effects of climate change, and related increases in fire probability, reduce the potential that agriculture and forests can generate offset greenhouse gases.

Across this multitude of issues, climate change creates a complex policy challenge regarding how to balance the demands for economic growth with the altered productivity of the agricultural sector and related mitigation demands plus needs for research and other adaptation investment.

Trading off economic growth and climatic change for developing countries

By Lynellyn Long

The notion that economic growth has a mutually exclusive relationship with environmental damage is an old one. The theory holds that as a country gets richer this is largely because of despoliation of the environment through extraction of raw materials and/or emissions as a result of production and consumption. The industrial revolution spanning the 18th and 19th centuries in the United Kingodm is typically held aloft as the classic example of this interaction, but some of the earliest recorded concerns are from the Arab Agricultural Revolution, part of the Islamic Golden Age from the 8th to the 13th Centuries. Contemporary writers expressed concerns regarding air contamination, water contamination, soil contamination and solid waste mishandling that arose from changes in agricultural practices. Perhaps unsurprisingly it is not difficult to show that pollution, of which carbon dioxide (CO_2) emissions are an example, can be linked statistically to national wealth. The graph below is but one example of many that can be found in the literature.



The data in the graph are from the recent (2009) International Energy Agency (IEA) report. The vertical axis is CO_2 emissions (tonnes) per capita in for a country while the horizontal axis is national wealth (here it is Gross Domestic Product, adjusted for purchasing power parity, per capita). Both sets of data are for 2007 and the logarithm of the raw data has been employed to compress the spread of data points. Sure enough as national wealth increases between countries so do CO_2 emissions. Three statistical models have been fitted to the data:

Exponential, where the line does level out with wealth. This is at least a limited good news story for the planet.
Linear, where the line just keeps going up as wealth increases
Power, the worst scenario of all where the rate of increase in emissions accelerates with national wealth

All three of them are statistically significant and they fit more or less equally well. If

anything, the evidence in this graph suggests that the 'ugly news' power model fits the data best, but there is not much in it. The Environment Kuznets Curve (EKC) is the best 'best news' version of all the hypothesised relationships between wealth and pollution. With the EKC not only is there a levelling of emissions with increased wealth but they eventually start to decline, perhaps reflecting better technology and regulation but also an enhanced public concern. Unfortunately, conclusive empirical evidence for the EKC has not yet been found and I have not shown it in the graph. The graph is a snapshot of just one year (2007) although the picture doesn't change that much even if we take the data from 1971 (36 years earlier) from the same IEA dataset. Countries are generally richer in 2007 compared with 1971 and emissions are greater in 2007 (points have tended to migrate up) but the story is the same.

Therefore, linking CO_2 emissions to national wealth can be achieved even if the exact nature of the relationship can be contested. Linking the CO_2 emissions to an increase in global temperature and ultimately to climate change is a much bigger challenge and some have sought to play down the statistical evidence which exists. The Intergovernmental Panel on Climate Change (IPCC) publication of 2007 claims (page 5) that:

> "Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic [man made] GHG [greenhouse gas] concentrations. It is likely that there has been significant anthro pogenic warming over the past 50 years averaged over each continent (except Antarctica)."

Where 'very likely' is defined as "the assessed likelihood, using expert judgment" being 90 percent and 'likely' as being 66 percent, figures of 90 percent and 66 percent are high but are still short of the 100 percent which represents certainty. Nonetheless, the scientific evidence is too strong to ignore and we are faced with a dual challenge of limiting CO_2 emissions and adapting to the damage that we have already done. Both of these come at a cost and countries vary in their ability to be able to achieve both or indeed either. For example, it needs to be remembered that the countries to the left hand side of the graph are not only the poorest in terms of GDP/capita but also in terms of human development. They are the countries with the lowest life expectancy and potentially will be hit the hardest by the effects of climate change. Calls for funds to address negative impacts from climate change will undoubtedly gain momentum:

> "We note with concern that the developed North, who are responsible for historical emissions that have caused climate change, and is responsible for the runaway emissions that we experience currently, remains averse to compensating desperate victims of climate change. The issue of compensation remains one of the potential sources of finance and African leaders have resolved to pursue this with the necessary wisdom and diligence. At the core of it is the concern of lack of development equity."
>
> H.E. Tumusiime Rhoda Peace, Commissioner for Rural Economy and Agriculture at the African Union (May 2009)

The Copenhagen conference in December 2009 attempts to encourage countries to reduce their carbon emissions as well as discuss adaptation and remediation.

Decoupling CO_2 and economic growth is not impossible, and the second graph included here is perhaps the most telling. It shows the percentage change in wealth (again as GDP/capita) and CO_2 emissions per capita between 1971 and 2007 (the full range of values in the IEA dataset). There are four types of nation state in this graph depending upon changes in both CO_2 emissions and national wealth over those 36 years.

Global couplers those having an increase in both CO_2 and wealth which while bringing national economic benefits cause global damage. This represents the majority of countries and exemplified by China (data point to the farthest right of the graph) with a substantial (more than 1,200 percent) increase in wealth.

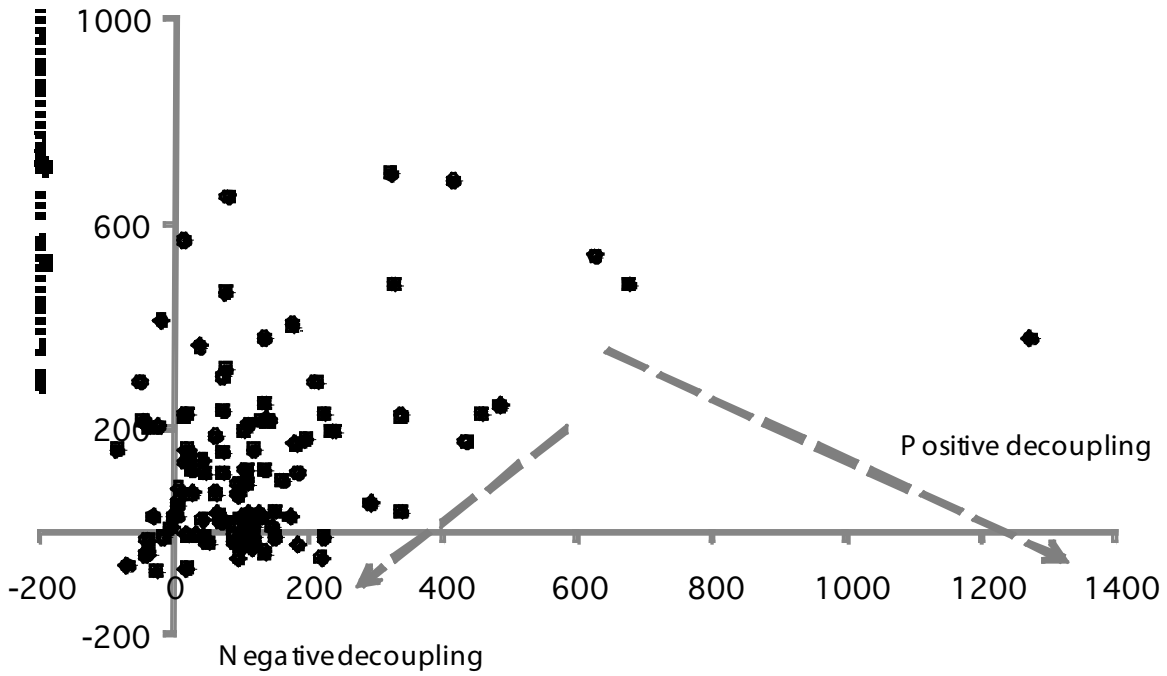
Wealth decouplers those having an increase in wealth but a reduction in CO_2. Examples are the USA and some European countries such as Germany, Denmark, and the UK but also the Congo and South Africa.

CO_2 decouplers those having an increase in CO_2 but a reduction in wealth. Examples are Libya, Haiti and Nicaragua.

National couplers those having a decline in both wealth and CO_2 which provides global environmental benefits but with negative impacts to the national economy. Examples are the Cote d'Ivoire, Togo, Zimbabwe and Zambia.

Although the analysis is simplistic, these categories can apply to any time scales being used to assess the trend. Over time a country may well change its behaviour as classified by this typology every few years although it has to be remembered that there is a time lag between wealth and CO_2 emissions.

In terms of global impact, as distinct from a narrow national self-interest, one does not want to encourage Type 1 (global couplers) behavior where increases in wealth go hand in hand with increases in CO_2 emissions. Ideally, over the longer term one would want all countries to be Type 2 (wealth decouplers)—and that direction is where the international agreements are encouraging states to go. There are two directions that could be followed when moving from Type 1 to Type 2 behavior as shown in the graph. First, a difficult, but ideal, positive decoupling where growth rate in wealth continues to increase as CO_2 emissions decline. Alternatively, is a less ideal negative decoupling where growth rate of national wealth declines as CO_2 emissions decline. So long as the change in wealth stays on the positive side of the horizontal axis (i.e. there is economic growth per capita) then the trade-off is arguably just. The question: How much of a decline in economic growth will be acceptable as a trade-off against a decline in CO_2 emissions? It is a brave politician indeed who argues for a decline in economic growth as a price to be paid to help reduce global pollution.



Type 3 and 4 behavior tends to receive far less attention amongst academics and policy makers. Neither, but for different reasons, do we necessarily want Types 3 and 4 behavior where national wealth/capita has declined over the 36 years, with or without an increase in CO_2. These are typically developing countries that are often in trouble and which are the most vulnerable to the effects of climate change. A shrinking economy can create social distress and weaken the ability of a country to adapt to environmental stress. People living in Type 3 (CO_2 decouplers) countries have the worst of both worlds; increasing CO_2 emissions, and hence all the international pressure that brings but a decline in wealth per capita. With Type 4 the argument may well be whether they should be allowed to increase emissions of CO_2 (i.e. become Type 1) if linked to an increase in wealth?

Thus even with these four types of behavior and the trajectories that link them there is much food for thought. In the coming years, actions, rather than just words, will be most important.

Climate change and the poor: Why support for adaptation is needed

By Lars Otto Naess, IOD, Sussex University

For delegates meeting at the 15th Conference of the Parties to the Climate Convention (COP-15) in Copenhagen in December, the top priority was—for obvious reasons—reducing emissions to prevent climate change rather than adaptation to its impacts. The Climate Convention (UNFCCC) was set up in 1992 to prevent 'dangerous' climate change. There has been considerable debate about what constitutes 'dangerous' levels. A threshold of 2 degrees C above pre-industrial levels was suggested in the mid-1990s, and has since been used as a benchmark. The 2 degree goal was finally endorsed in July this year by leaders of the G8 as well as emerging economies (including India, China and Brazil). Least Developed Countries (LDCs) and Small Island Developing States have since argued that the goal should be 1.5 degrees C, in their words 'to stay alive'. Achieving a 2 degree goal was very slim, however, given the pace of emission increases, and it is increasingly clear that we have to be prepared to adapt to significantly more: A recent scientific conference at Oxford University, for example, discussed implications of a global warming of 4 degrees or more.

The increased risk from these changes is a particular concern in areas already under stress from other social, economic or biophysical changes, and where people and societies have the least resources to adapt to changes. There are significant regional variations in climate projections, and it is not necessarily the areas where the climatic changes per se are the highest in absolute terms that will experience the most severe consequences. Equally important is the vulnerability of populations, in turn determined by two main factors: first how exposed they are to changes, such as where they live. A second factor is their sensitivity to change and capacity to cope with shocks and stressors and to bounce back, decided by factors such as economic assets or access to external support. Importantly, these factors are constantly changing, and in many parts of the world the vulnerability to climate risks have increased over the past decades. Examples are increasing urbanization leading to increasingly dense settlements in high risk areas, and localized increases in pressures on forest resources, leading to reduced options for using forests as buffers in times of crisis.

What is needed? In the run up to Copenhagen, much discussion centered on the need for increased funding for adaptation. The Climate Convention obliges developed countries to help developing countries adapt to human-induced climate change, and three international funds were set up in 2001 to help with this process. Support so far from the very limited amounts available has included supporting National Adaptation Programs of action (NAPAs) for LDCs, where they are currently funding to implement priority adaptation actions. Recent estimates suggest that adaptation will be a lot more

costly than earlier thought, perhaps in the order of $100-150 billion per year. Developing countries insist that adaptation funding must be additional to development aid, as it represents compensation for damages inflicted by industrialised nations. Parallel to this is an increasing focus among development organisations, including multilateral and bilateral government agencies as well as NGOs, to mainstream or 'climate-proof' their overall development support, and to support targeted efforts to make development more 'climate resilient'. This responds to a double concern, namely that climate change may undermine development projects and programs and hinder economic growth, but also that development support will affect populations' vulnerability and ability to adapt to current or future climate change.

[C]limate change invokes images of poor people as victims to forces out of their control. While this is obviously part of the story, it is an insufficient basis for policy.

This highlights two important points about linkages between adaptation and development, which are too often overlooked. First, poverty reduction or development is not synonymous with adaptation, and adaptation is more than a question of merely adjusting current development plans. Whereas economic wealth is often used as an aggregate indicator for a country's capacity to adapt, vulnerability and adaptation are highly context-specific, depending also on factors such as ecosystem health and distribution of access to resources. For example, growth of coastal tourism will undoubtedly give new economic opportunities for many, but a parallel loss of coastal forests removes natural defences and will leave the population more exposed to storms and floods. Likewise, poor rural farmers with access to a diverse range of resources may be in a better position to cope with changing environments than nominally richer urban populations living in areas prone to floods or other risks. Thus, to make development 'climate proof' will require not only a commitment to supporting concrete interventions such as drought-resistant crop varieties, but also a rethink of to what extent underlying assumptions about what constitutes successful development also means successful reduction in vulnerability.

Second, climate change invokes images of poor people as victims to forces out of their control. While this is obviously part of the story, it is an insufficient basis for policy. It is easy to forget that poor people are not passive spectators to a changing climate. They adapt all the time, to a whole range of different stressors, and it is important to consider what factors enable and constrain successful responses. Numerous studies have demonstrated the knowledge and ingenuity of humans in the face of changing environments. For example, societies and farmers in the Sahel tackled the droughts of the 1970s and 1980s far better than many expected, not least because of their local knowledge and informal systems for resource allocation and sharing. At the same time, local systems have their limits in the face of rapid change; they may change or disappear so that they no longer serve as buffers in times of crisis, and they reflect local power structures may not be socially equitable.

Thus, support to adaptation is needed—beyond normal development pathways—for two main reasons; first because climate change will create new winners and losers. Any change will present opportunities as well as constraints, at local as well as national levels: Some will be able to take advantage of new opportunities, others will be left behind. Through the Climate Convention there is an obligation for developed countries to assist vulnerable countries and population groups. Adaptation support is needed to help bridge the gap between what people, communities and nations are able to adapt to, and the level of emission reduction that the world leaders will be able to commit to, whether in Copenhagen or at a later COP. A second reason is that adaptation is neither automatic nor inevitable, but requires attention to factors that hinder adaptation. Adaptation is not a matter of quick technical fixes, and funds alone will not suffice. A nominal capacity to adapt—meaning access to information, funds, technology or other factors—does not mean that adaptation will actually take place, but may be hindered by formal or informal structures, rules or regulations.

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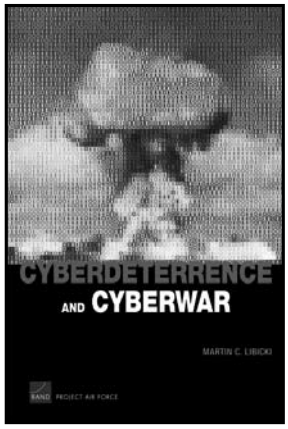

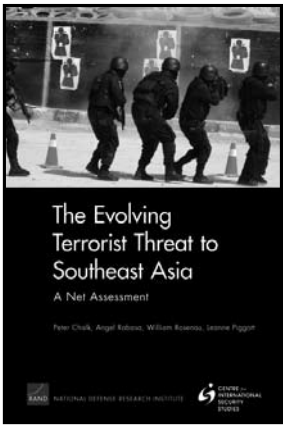

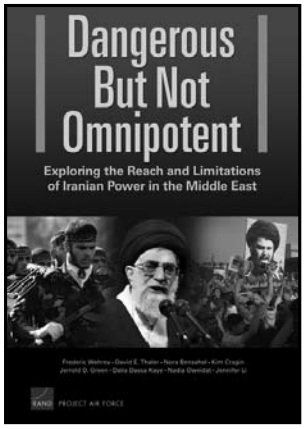

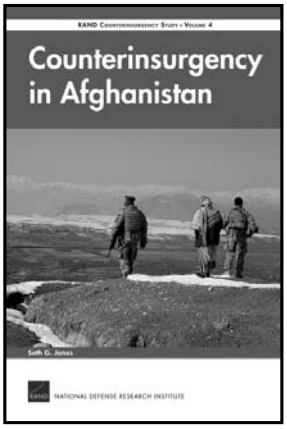

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'Corruption in the Afghan context'

By Michael P. Cohn, Glevum Associates

Hamid Karzai was sworn in as Afghan President on November 19th for another five years. He did so under significant scrutiny from foreign leaders who have recently stepped up pressure on the Afghan leader to act effectively against corruption. Corruption has turned into the key issue Karzai's government must address as it moves ahead in its second term, but he is likely to feel there is little he can actually do without suffering serious repercussions. At the same time, the international community may be insisting on too much too soon without appreciating the situation of corruption in the Afghan context and the implications of real reform.

In his inaugural speech, Karzai insisted his new government is committed to serious reform and would be immediately launching a new anti-corruption unit, headed by his Interior Minister, and with the support of the FBI, Scotland Yard, EUROPOL, and other NATO/ISAF elements. While there seems to be an atmosphere of genuine intent on the part of officials in Kabul, this is the third attempt at such an organ during Karzai's tenure.

In a matter of days, investigators in this new task force had already compiled sufficient evidence to begin charging several top officials. Fifteen current and former Afghan ministers are now under investigation by the Afghan Attorney General over allegations of embezzlement and misuse of public funds. While a few under investigation are former ministers now living in exile outside of Afghanistan, at least three are in the current Cabinet. President Karzai, however, continues to remain unwilling to issue any warrants.

Under the Afghan Constitution, a special court is needed to prosecute a Cabinet member. Such a court has not yet been established, although officials claim to be working towards its imminent readiness. Conveniently, Karzai has the authority for approving the judges for these special courts. Once an investigation is complete, it is then supposed to be submitted to these special-court judges for immediate proceedings. As it stands now, the president only has to grant his approval and the trials can begin. The problem, however, is that Karzai is all-too-keenly aware that the institutions and structures of official governance in Afghanistan, rightly or wrongly, have been built on dubious compromises and unsavory alliances with regional power-players and local strongmen since even before the fall of the Taliban in 2001, and as such, he can do little to address the issue without threatening a further destabilization of the country.

Gaining a modicum of control and influence in the absence of sufficient central au-

Karzai's reluctance to reform is a result of both his own personal culpability and his realization that his weak government has been built on accommodations with various regional and local warlords and power players, who have in turn built their own patronage and influence networks.

thority in many areas throughout the country has depended on co-opting existing networks of local patronage and significantly strengthening them with massive amounts of international aid funneled through the various national ministries. Attempting to break up this system of sometimes competing, sometimes cooperating, loosely connected, regionally-based networks could seriously threaten the stability of the country and could lead to a total collapse of the government. Karzai's reluctance to move ahead with the trials of Cabinet officials not only involves his own culpability for the present circumstances, as many accuse him of being just as focused on centralizing his own patronage networks as any of those he might grant approval to prosecute, but also because he knows the basis by which his government tentatively retains power and thus the insurmountable difficulties involved in any attempt to reform it.

During the development of the new Afghan government in 2001-3, ministries were split between the foreign-educated technocrats, remaining political elite, regional warlords, and militia commanders. While the technocrats and modernizers focused their efforts in some ministries such as Finance and Rural Rehabilitation and Development with some notable successes, the elite and warlords used the remaining ministries and the presidency to compete against each other in the formation of extensive patronage networks among the country's local and regional power holders. Strongmen also populated the ranks of district governors. As they themselves were under very heavy pressure to reward their followers with jobs and positions of influence, and given that ministers, governors, and chiefs of police had the power to make appointments in the structures that they were leading, the state administration was soon full of their clients.[1]

The former militia commanders and regional power-players were incorporated into the new government after the fall of the Taliban and were basically encouraged to run their own "fiefdoms," loosely connected to each other or to Kabul. These warlords now controlled and inevitably kept much of the tax and customs revenue in the provinces under their control, some collecting monthly emoluments that are unimaginable

[1] See Empires of Mud: War and Warlords in Afghanistan. Antonio Giustozzi. Hurst & Company. London. 2009.

even to many westerners, using the funds for both personal enrichment as well as to strengthen their own burgeoning patron-client networks. Because the U.S. administration at the time had little intention of conducting a massive state-building effort in Afghanistan for the long-term, having sights set on others in the Middle East, the next round in Afghan modernization was ultimately entrusted to a collection of foreign-educated technocrats which would have to cooperate and share significant power with these warlords, regional power-players, local militias and regional forces.

The perpetual difficulties of extending sufficient government authority throughout the country has made this reliance on local leaders loosely connected to Kabul the default form of governance structure for most of Afghan history. Like many aspects of Afghanistan, patterns of historical continuity persist invariably here; the players change but the relationships and dynamics always seem to remain the same. The three main limitations of government here, i.e. an insufficient level of expertise among the officialdom, insufficient security presence throughout the country, and incessant corruption have undermined almost every attempt at governance in Afghanistan. Drug money and other illicit commodities, control of transit highways, and government patronage have always been and continue to remain the currency of power. Compromises, pay-offs, and extensive networks of patronage and clientelism have always been the instruments by which temporary influence is purchased and violence is controlled. A constant influx of wealth from invading armies and international supporters has always tended to skew various aspects of the economy and create a dependence on foreign aid.[2]

[2] See also 'Assessment of Corruption in Afghanistan', USAID, 2009.

As such, Afghanistan has a rather unique legacy of poor governance. While several causative factors of the present crisis of corruption can be attributed to newly emergent conditions, relationships, and behaviors, Afghanistan's political culture helps to explain the prevalence of corruption, in that its patterns of social and political interaction are often incompatible/incongruent with the requisite behavior and disposition for modern, systematic, and bureaucratic self-governance. Attempts at forming a modern state in Afghanistan have always fallen victim to the same dynamics, forged by the very relationships needed to establish the initial conditions of peace required for long-term state building. Officials of all ministries have often been unqualified. Recruitment into civil service and police has always been driven by nepotism and favoritism, while efforts to supervise or instill discipline have often been abandoned before any real progress could be made. Patron-client relations are a traditionally dominant aspect of many tribal cultures in Afghanistan, and furthermore, it may be argued that there remains amongst many Afghans a long-standing shared lack of understanding and disregard for the advantages of bureaucratized systems of government. Afghan tribal society has consistently shown a tendency to be extraordinarily resistant and indeed hostile to the unifying political discipline required for nation building. Such cultural traditions have emphasized inward-looking values, kinship and favoritism, loose authority patterns, and lax social control, which has made the pursuit of personal financial gain an enduring aspect of Afghan political culture.

Most prior Afghan regimes kept the allegiance of the powerful "chiefs" by conferring on them various military honors, positions of power, and preference in distribution of booty and by involving them closely in his extensive campaigns of conquest. Organized governments, whether Mogul, Afghan, or British, learned through experience that the payment of bribes and blackmail (euphemistically labeled subsidies or subventions) was the touchstone of tribal diplomacy.[3] Replacement of kinship with clientage as the base of political organization and a patrimonial politics with a mere facade of bureaucratic regularity has almost always been the end result.[4]

Corruption in Afghanistan is both a reality and an issue of perception. It is a cultural phenomenon as much as it is a historical and political one. There are multiple old and new conditions fostering the same old problems. While the international community has the right to insist on more accountability, good faith, and real effort on the part of Afghans, the situation must also be understood within the context of several decades of constant war, coupled with increasing social and civil breakdown, irregular financing of the conflict from various sources, growing tensions among ethnic and tribal groups, and the expansion of informal/illicit economic activities. Hence in the Afghan context, corruption has been intimately linked with the development and destruction of the state. Since 2001, the burgeoning drug economy (combined with unintended adverse side effects of counter-narcotics efforts), large inflows of aid, and even the revived economy (in that regulations and red tape provide further scope for illicit gain) have greatly increased opportunities for corruption.[5] And while it must be said that not all Afghan civil servants are corrupt, the traditions of bribe taking and informal gratuities, coupled with little oversight or incentive to change, and extremely low pay in comparison to governors, ministry heads, and their business partners, have encouraged a sense of entitlement, lawlessness, and sanctioned plunder, which has trickled down to the lowliest district administrator and ANP recruit.

The practices developed under the new government in Afghanistan over the past eight years are not new phenomena, and they have now not only delegitimized the government (as it had done for previous regimes) but further deteriorated a sense of rule of law and community responsibility that had already suffered from decades of progressive social disintegration. Most unfortunately, the endemic corruption has progressively eroded the once palpable hope and enthusiasm Afghans shared in their new government when it was first formed after the fall of the Taliban. Since then, multiple forms of corruption have emerged throughout government ministries and up and down the hierarchy. Each ministry, at each level and in its own way, has contributed to an atmosphere of disappointment, alienation, and a dangerous decline in public confidence. Although we are still very far from a popular uprising against the Karzai regime, it would not be wholly surprising to see public demonstrations in Kabul and other urban centers over the next year.

When recently responding to criticisms from the international community about ad-

[3] Reform and Rebellion in Afghanistan 1919-1929: King Amunallah's Failure to Modernize a Tribal Society. Leon B. Poullada. Cornell University Press. NY & London. 1973.

[4] See Empires of Mud: War and Warlords in Afghanistan. Antonio Giustozzi. Hurst & Company. London. 2009

[5] United Nations Development Program. 'Afghanistan Anti-Corruption Roadmap', 2007. http://www.unodc.org/pdf/afg/anti_corruption_roadmap.pdf

dressing corruption in his government, Karzai has continued to emphasize concerns for Afghan stability. What he really means by this is that if he goes after the corrupt officials in his government, he is likely to lose any control he may have left. Thus, when considering how entrenched and institutionalized these practices have become, and further considering the historical legacy of failed attempts at reform in Afghanistan, several critical questions arise: What can Karzai actually do to fix the problem? Is there anything he can do? Could he clean up his government without addressing his own failures and not expect to lose more, if not all control of his country? Should he relinquish his own patronage networks and would that have any influence over others? Governors and other officials have simply ignored previous efforts to reform and minimize embezzlement and some of the more egregious practices.

Real reform of the system will ultimately threaten the accumulated power of these individuals within their spheres of influence. This leaves open the possibility that individuals and that their networks might separate from or possibly even rebel against the government.

Similar anti-corruption reforms have been tried many times in Afghan history, under many different regimes.[6] The nature of the system that develops is almost always the same, and without substituting the networks of political and personal enrichment for something else, the result for every Afghan leader, even with the best of intentions, is to see a subsequent decline of stability. When King Amanullah, in the early twentieth century, attempted to reform the intricate system of payment and support through which power was transmitted in Afghan tribal society at that time, he was not only threatening the economic position of many of his loyal supporters but was also unwittingly undermining his own political "machine" without providing an alternative system of financial and political rewards. Karzai faces the same dilemma. Reforms were popular under Amanullah, as will also be any high-profile prosecutions Karzai might conduct. Unfortunately as happened in the past, such efforts will be vigorously opposed by those individuals who hold local political power.[7]

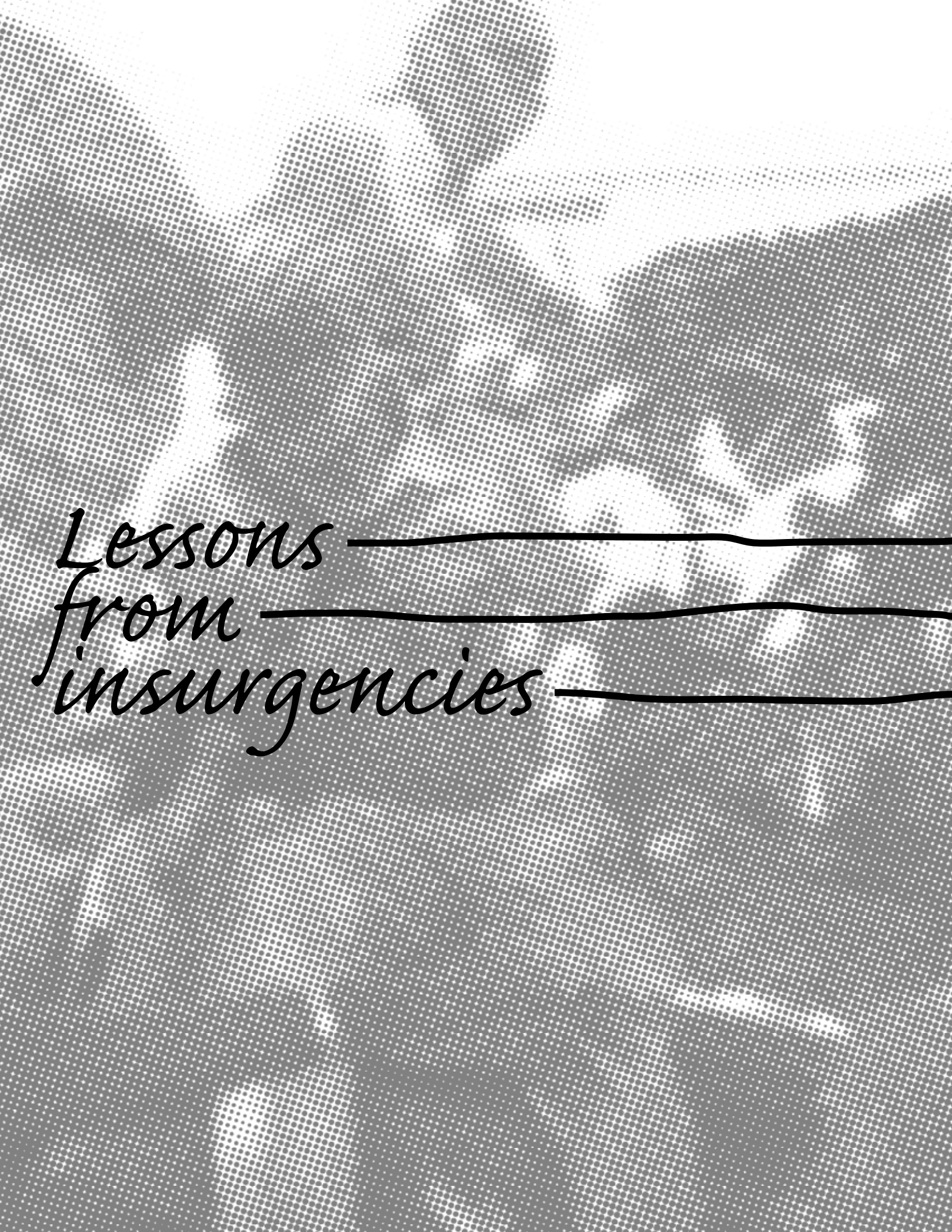
[6] For a good discussion of corruption in Modern Afghan history, see United Nations Development Program. 'Afghanistan Anti-Corruption Roadmap', 2007. http://www.unodc.org/pdf/afg/anti_corruption_roadmap.pdf

[7] See Reform and Rebellion in Afghanistan 1919-1929: King Amunallah's Failure to Modernize a Tribal Society. Leon B. Poullada. Cornell University Press. NY & London. 1973.

With the exception of a few idealists among the Young Afghans, most of Amunallah's officials turned out to be more interested in the lining of their own pockets and maximizing their personal and family power than in nation-building or modernization of the state. With the same few exceptions of idealists, modernists, and technocrats, many current Afghan officials have apparently behaved no differently. Ultimately, King Amanullah was forced to relieve influential personages from their offices; it won him few friends, made him some enemies, and diluted the loyalty of the traditional aristocracy, which was the principal link between the monarchy and the tribes. The web of political loyalties between ruler and ruled became further frayed, especially in the tribal and rural areas, as evidenced by sporadic restlessness, increased brigandage, a whispering campaign encouraged largely by the mullahs, and public grumbling against official corruption. Once his reform attempts were fully initiated, Amanullah was out of power and in exile within 6 months.

For the present regime, it will be no-less a delicate issue. Anti-corruption reform faces the same risks and is directly linked to the tenuous "stability" Afghanistan has developed over the past eight years since the fall of the Taliban. Karzai's reluctance to reform is a result of both his own personal culpability and his realization that his weak government has been built on accommodations with various regional and local warlords and power players, who have in turn built their own patronage and influence networks. In these conditions, the concept of "civil service" has been reduced to the pursuit of personal, familial, clan and other local interests. Supported by international donors, supplemented by a burgeoning black-market economy, and arbitrary tax and customs revenues, these regional players are strong enough to be able to destabilize whatever peace and administrative/governance presence the central state may have in the area. Since the existing structures were constructed upon these individuals and their clients, the majority of Afghan governmental institutions would have to undergo an immediate, significant reform or a thorough purge of existing officials. Both scenarios seem unlikely and unrealistic.

Karzai's spokesmen have recently announced a conference on corruption in the near future. The objective of the conference will be to discuss and decide on a more detailed plan of action to deal with corrupt officials and endemic practices, as well as to lay out the more general plan for the next five years. It remains to be seen what can actually be done to change the current state affairs, and it is unlikely anyone really has an effective solution. Real improvement will not only require genuine will on the part of Karzai's regime to curb these inimical practices but also demands from the international community and an acknowledgement and appreciation of corruption in the Afghan context. Aside from increasing oversight on the expenditure of government funds, there seems little else the international community can do to help. Little evidence points to Karzai's regime being able to overcome these historical pitfalls and legacy of dysfunctional political culture anytime soon. However, without a significant overhaul in public perceptions of government legitimacy and effectiveness in the very near future, it is unlikely Karzai's government will remain viable for the full five yeas of his second term. With these historical storm clouds looming over his shoulder, Karzai undoubtedly remembers how few Afghan leaders have left office alive.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from
insurgencies

Post conflict dynamics in Northern Ireland

By Carolyn Gallaher, American Univ. School of International Service

The study of guerillas, insurgents and paramilitaries is often focused on the role these groups play in ongoing conflicts. What, however, happens to such groups when conflicts ostensibly end? The 30-year conflict in Northern Ireland, known euphemistically as the Troubles, provides an interesting case for examining this issue. And, though the details are locally specific, the province's experience provides lessons that apply well beyond its borders.

Three trends stand out from the Northern Ireland case. First, peace does not mean that a conflict's guerillas or paramilitaries go away.[1] In Northern Ireland, the Irish Republican Army (IRA) did not order an end to its armed guerilla campaign until July 2005, seven years after the 1998 peace accord was signed. The province's paramilitaries were even slower. The Ulster Volunteer Force (UVF) issued a stand down order in 2007, but only completed decommissioning in September of 2009. The Ulster Defence Association (UDA) has yet to fully stand down or completely decommission its arsenal.

Second, peace tends to provoke internal conflict. Thus, while violence between formerly warring parties decreases, it often increases within armed groups and any constituency they represent/control. Indeed, internal factions quickly emerge to fight over a group's symbolic and material resources. Splinter groups are particularly common. Both the Real Irish Republican Army (RIRA) and the Loyalist Volunteer Force (LVF) formed as splinter groups during the Northern Ireland peace process.

Third, the experience in Northern Ireland suggests that peace accords must recognize differences between guerilla and paramilitary groups, and account for them in the structure of any agreement that is formed. In Northern Ireland, the peace accord was built on the notion that armed groups would leave the violence business by entering politics. This insurgent-cum-political transition worked relatively well for the conflict's guerilla group (the IRA) but functioned poorly for the conflict's paramilitary groups (the UVF and the UDA).

This report focuses on the especially slow path to demilitarization taken by Northern Ireland's paramilitaries. Before exploring these issues in greater detail, a quick background sketch is in order. Although the conflict in Northern Ireland is usually described as a religious one, the differences between the two sides-Catholic and Protestant-are rooted in colonialism. In the 1600s, the British crown allotted plantations to Scottish nobles in an effort concretize King Henry the 8th's 1542 declaration that Ireland belonged to the Protestant kingdom of England. During the plantation period, the domestic Catholic population was supplanted by Protestant settlers. Catholics were

[1] Guerillas and paramilitaries are both non state actors, but they are analytically distinguished in terms of their relationships to the state. Guerillas fight against an extant state while paramilitaries fight on behalf of the state (albeit informally) against guerillas. In Northern Ireland, most people use the term paramilitaries loosely to refer to all of the conflict's non state actors.

then systematically disenfranchised of political, economic, and social rights. Although plantations were established across the island, they were concentrated in the northern province of Ulster. This settlement pattern meant that Protestants were, unlike anywhere else on Ireland, a demographic majority in Ulster. When the British agreed to Irish independence in 1918 (after a bruising guerilla campaign fought by the Irish), they chose to retain Ulster. Britain made the choice after desperate entreaties by the Protestant elite, who feared payback in a Catholic majority country. After partition[2], the province was ruled directly from London, with Protestant elites dominating all aspects of civic life.

The contemporary conflict in Northern Ireland began in the late 1960 as a civil rights struggle by Catholics, who were protesting unfair housing allocation by the Northern Ireland Housing Executive. The Protestant-dominated government's response was aggressive and militarized, and Catholic protest soon morphed into a guerilla campaign, led by the Irish Republican Army (IRA). The Republican strategy-to 'get the Brits out'-centered on attacking police, British military units, and local paramilitaries. However, the IRA also killed a fair number of civilians, leading Protestant civilians to form self defense units. These groups called themselves Loyalists and soon morphed into full fledged paramilitaries. The two dominant groups were the Ulster Volunteer Force (UVF) and the Ulster Defence Association (UDA).

In 1998 the 30-year conflict in Northern Ireland came to an official close when the British and Irish governments, local political parties, and Republican and Loyalist armed factions signed a peace accord. The accord, known by Catholics as the Good Friday Agreement (GFA) and by Protestants as the Belfast Agreement (BA), established a power sharing assembly. Like many peace agreements, the GFA/BA is notable for its lack of specificity. This is especially true for the combined issues of disarmament, demobilization, and reintegration. Of the three issues, the agreement only mentions one—disarmament (termed decommissioning in the agreement)—by name. The agreement stipulated that all paramilitaries would decommission their weapons within two years, but it failed to lay out incentives for doing so, or sanctions for missing the deadline. The agreement was also silent on how weapons would be put beyond use and who would verify the process. The silences in the agreement would manifest in the slow, tortuous road to demilitarization.

Violence Continues

Compared to contemporaneous conflicts, the death toll in Northern Ireland is quite small. Between 1969 and 1998 when the agreement was signed, 3,443 persons were killed.[3] In Peru, by contrast, it is estimated that 69,000 people were killed or disappeared during the conflict between Sendero Luminoso and the state (Comision de la Verdad y Reconciliacion 2003). However, Northern Ireland's relatively low numbers are significant when considered in context. The province as a whole only has a population of approximately 1.7 million, and the majority of fighting, and attendant death,

[2] A partition commission was established to determine the boundary of the province. Partition sparked a bloody civil war in Ireland between those who accepted partition and those who believed the fight could only end when the entire island was free of British control.

[3] All data on conflict related deaths in Northern Ireland were calculated using the Malcolm Sutton Index of Deaths. The index is an updated and revised version of Sutton's 1994 book, Bear in Mind These Dead: An Index of Deaths from the Conflict in Ireland 1969-1993. The updated and revised data is available on the Conflict Archive on the Internet website at: http://cain.ulst.ac.uk/sutton/

was spatially clustered. Forty-four percent of all deaths occurred within one city, Belfast, which has a relatively small population of around a quarter million people. Moreover, within the city, 78% of deaths occurred in northern and western districts, where the city's working class population was/is concentrated.

Since the 1998 peace accord, violence has decreased, but not gone away. During the 1980s, an average of 85.3 persons died a year. Between 1990 and 1994, when a ceasefire was called, an average of 28.3 persons died a year. After the accord was signed, conflict related deaths continued, albeit at lower rates. Between 1998 and 2002, there was an average of 21.8 conflict related deaths per year.

Although violence remained part of the post-conflict landscape, its nature changed. Two patterns are especially notable. First, violence turned inward. After 1994, internecine killings made up a greater share of total killings by armed groups on both sides. Between 1968 and 1994, for example, 8.8 percent of Republican and 7 percent of Loyalist murders were internecine. After the ceasefire, internecine killings took up a greater share of total murders, with the largest increases occurring on the Loyalist side. Between 1995 and 2001, the share of internecine murders increased to 13.6 percent for Republicans and 36.4 percent for Loyalists. Much of the loyalist increase is due to the outbreak of feuding between Loyalist paramilitary groups (Gallaher 2007).

Post conflict, so-called 'punishment' beatings also increased. The term 'punishment' beating is a local euphemism for non-lethal violence meted out by paramilitaries against their own members and co-religious civilians. 'Punishment' beatings are, therefore, internecine by definition. The Independent Monitoring Commission (2004)[4] rightly opposes the term because it suggests that persons subjected to beatings deserved them, and that persons ordering them are authorized to mete out such 'punishments.' As the commission notes, paramilitaries are not elected officials and have no legitimate claim to serve as police, judge, or jailor. Traditionally, paramilitaries ordered 'punishment' beatings for behaviors considered socially deviant, such as stealing, joyriding, or rape. Increasingly, paramilitaries give out 'punishment' beatings for personal reasons, such as countering rivals in the drug trade or threatening those who refuse to pay monthly extortion rackets. 'Punishment' beatings are often brutal. A particularly macabre version is known as a 'six pack,' where six joints (knees, elbows, ankles) are beaten with pipes, bats or planks of wood. Between 1994 and 1995, 'punishment' beatings increased by 134 percent. They remained high in the years that followed. Paramilitaries also extended the instances where 'punishment' beatings were deemed appropriate. After 1994 children were increasingly subjected to 'punishment' beatings (Kennedy 2001).

[4] The Independent Monitoring Commission is an official body established to monitor the continued activity of the conflict's armed parties in the post conflict period.

Internecine Dissent over Peace

Many often think of conflict sides as being unified, but they usually have important internal divisions. Within Loyalism, for example, the UVF and the UDA have long had tense, sometimes violent relations. However, when the peace process started in 1994,

these internal divisions took new form. In particular, the loyalist fold found itself divided over the issue of peace. The leadership in both organizations formally supported what would become the 1998 Good Friday/Belfast Agreement. But, some leaders, and many of the rank and file in both groups were ambivalent, or even opposed to peace. Within the UVF, the split was especially nasty. In 1996, the commander of the mid Ulster brigade of the UVF, Billy Wright, broke with the Belfast based UVF leadership over the issue of peace, and to show his disapproval ordered two Catholics murdered. The killings put the UVF's ceasefire, and the benefits[5] attached to it, in jeopardy. The UVF leadership responded by standing down Wright's entire unit. Wright went on to form a new paramilitary group-the Loyalist Volunteer Force. The group has been involved in numerous bloody feuds with the UVF. And, between 1997 and 2001, the group was responsible for 18 deaths. The LVF is also heavily involved in the province's drug trade (McDowell 2001).

[5] Groups who participated in the peace process were promised that imprisoned members of their respective organizations would be let out of prison early.

The divides that emerged in the context of the peace process played out in surprising, and somewhat contradictory ways. The internal divide within Loyalism is no longer a simple split between the UVF and the UDA. Rather, the pro- and anti-peace factions cut both across and within paramilitary structures. For example, though the UVF is often seen as more 'pro peace' than the UDA, the UVF had its own problems with internal resistance to peace. Many rank and file members in the UVF showed little appetite for giving up local extortion rackets or market share in the growing drug market. Likewise, leaders in the UDA have staked out contradictory positions viz a viz. the march to peace. Some leaders have supported standing down, while others appear interested in continuing operations. The Independent Monitoring Commission (2009) notes that these divides have thwarted the efforts of those supporting decommissioning within the organization.

As the process moved from agreement to implementation, the pro- and anti-peace sides developed their own identity politics. Political Loyalists, who signed the agreement, acknowledged the right of their Catholic peers to participate in the politics of the province, and stood firmly behind the idea that Protestants could live peacefully with their Catholic neighbors. Their competitors, revanchist in outlook, took 'no surrender' as a battle cry. Many in their ranks also used their 'patriotic' rhetoric as cover for growing involvement in criminal enterprise.

These internal divisions have made for rocky relations between the state and Loyalist paramilitaries. For its part, the state has been wary the political Loyalists leaders it once negotiated with at the peace table. The state believed political Loyalist leaders were either unwilling or unable to secure the support of their rank and file, so it withheld material and symbolic support. Political Loyalists felt the state's reluctance to address Loyalist needs only fed into negative perceptions within the Loyalist fold that signing the peace agreement was counterproductive. Indeed, political Loyalists had little to show for their participation in the agreement, and their revanchist competitors used the situation to their advantage, publicly decrying political Loyalists as traitors

while legitimizing their criminality as a form of no surrender. Public opinion polls reflected the growing distaste for the agreement among Protestants. Five years after the agreement was approved by a plurality of voters, only 36 percent of Protestants said they would vote for the Agreement if the vote were held again (Gilligan 2003). Today, the Protestant working class is viewed as the group most in need of outreach by those involved in post conflict work.

One Size Fits all Demilitarization

In many ways the 1998 Agreement has been a success because the peace has held. This is no small accomplishment given that many conflicts reignite multiple times before peace takes hold. However, the persistence of paramilitarism over a decade after formal peace was reached suggests that the agreement is not without its flaws. A key problem was the 'one size fits all' mechanism for demilitarization implicit in the agreement. That is, the agreement assumed that political participation was a carrot strong enough to entice all of the conflict's non-state actors out of the violence business. This assumption made some sense for the IRA. The group has always been political, its violence notwithstanding. The IRA's overarching goal, to become a part of a united Ireland, was matched by the more immediate and quotidian goal of ending direct rule and devolving governance to the province. In short, as a guerilla group fighting to replace the state, the IRA was forced to develop a political program with broad Catholic buy-in. Not surprisingly, when the agreement was signed, the IRA's political wing, Sinn Fein, was well positioned to take advantage of devolution. In the 2003 elections, Sinn Fein won, for the first time, more seats than the long dominant Catholic party, the Social Democratic Labour Party (SDLP).

By contrast, Loyalist paramilitaries were ill-positioned to benefit from devolution. Unlike their guerilla competitors, Paramilitaries never faced the same impetus to develop a distinct political agenda. Rather, their agenda was to defend the state and the status quo. While there were always individuals within Loyalists ranks who thought politically, loyalist political thought was never as deeply rooted within either the paramilitary or Protestant working class culture. As such, when devolution occurred, Loyalist paramilitaries made few political gains. The UVF aligned Progressive Unionist Party (PUP), for example, has never held more than 2 seats in the Assembly; the political party associated with the UDA failed to secure any seats and disappeared by early 2001. The absence of Loyalist political participation is important because Loyalists have long felt disconnected from mainstream Protestant parties, known as Unionists. During the troubles, Unionist critiques of IRA violence as illegitimate made it difficult for them to sanction Loyalist violence. Unionist rhetoric often derided Loyalists as no better than the IRA for working through illegitimate channels. Unionists argued that young men who wanted to fight the IRA should have joined the police or military.

The Loyalist inability to take advantage of devolution has had three negative effects within the Loyalist paramilitary fold. First, it has limited the ability of political Loyalists to trumpet the advantages of participation in the process. Indeed, many working

class Protestants feel that the peace process has only benefited Catholics. While this view does not account for the peace dividend (reduced violence helps both groups), perception often counts for as much as data in a post conflict setting.

Second, revanchist Loyalists have been able to affectively exploit Protestant disenchantment to undermine political Loyalists' efforts at conflict transformation. Political Loyalists' work includes efforts to reduce youth rioting at interface areas as well as attempts to build cross-community political coalitions around issues that negatively affect working class people of both religions, such as water privatization. The peace dividend notwithstanding, it is now revanchist paramilitary elements that control many Loyalist neighborhoods in the province.

Finally, political loyalists have few legitimate tools at their disposal to keep criminal elements within their ranks from running amok. The typical mechanism for keeping the rank and file in line-the use of selective internecine violence-would put the UVF's benefits from the agreement at risk.

In this context Political Loyalists have turned to the Police Services of Northern Ireland to take on Loyalist criminality. Unfortunately, thirty years of collusion between the paramilitaries and the police has stymied effectiveness. In 2007, then police ombudsman, Nuala O'Loan, published a scathing report on the effects of collusion (O'Loan 2007). Her investigation found that since the peace process began police had colluded in over twelve murders by the UVF. In addition, O'Loan concluded that collusion had helped the UVF in North Belfast grow stronger when they should have been contracting. Off the record, Political Loyalists agreed, noting that their political efforts would have been helped if the police had effectively policed Loyalist criminal elements (see Gallaher 2007 for an extended discussion).

In sum, the greater reluctance of Loyalist paramilitaries to demilitarize (as compared to their Republican brethren) can be explained in part by the fact that the agreement failed to consider the differences between guerilla and paramilitary groups.

Lessons

There are a number of lessons from the Northern Ireland case that can apply beyond its borders. Three are particularly relevant. The first lesson is a simple, but important one. An agreement's structure must take into account the level of political development of all conflict actors. If a conflict zone has a political guerilla group and a classic paramilitary (i.e. a group defending the political status quo), the insurgent-cum-politician transition is not likely to work for the conflict's paramilitaries. A few paramilitary leaders may successfully make the voyage, but the majority of paramilitary rank and file (and the civilians they control) will not. In some contemporary conflicts, the insurgent-cum-politician transition is not likely to work for any conflict groups. So called 'new wars' include a mish mash of groups who have no discernible political goals and view fighting (and the chaos it creates) as good for black market business (Kaldor 2001). For

groups with limited or nonexistent political programs, other incentives will have to be developed. These will likely need to include promises of decent employment, but such reintegration efforts will have to involve substantial and long term supervision.

A second, and related, lesson involves post conflict policing. After a formal peace agreement is signed, policing of paramilitaries must be vigilant. It must also involve police untainted by prior collusion arrangements. Indeed, the relationships developed during a conflict between paramilitaries and the state's police and/or military will not go away over night. New forces will be required to effectively police paramilitary criminality. And, if paramilitaries are brought into extant police structures, their participation must be managed by independent groups with the power to investigate and discipline offenders.

The third and final lesson is more abstract. Armed groups are often marked by internal rivalries, debate, and conflict. Such divides are likely to become more pronounced in the wake of peace. As states enact peace accords-a slow process that can last years-they must always be conscious of how their actions affect the balance of power between pro- and anti-peace elements within paramilitary structures. The goal should always be to give an advantage to pro-peace elements over and against their anti-peace peers. This will entail exercising restraint when anti-peace peers 'act out'—something few politicians were willing to do in Northern Ireland. Particularly, when assessing blame, the state should be careful to indicate that the misdeeds of criminal or otherwise anti peace elements are not representative of the group as a whole. Nor should states punish pro peace elements for what their revanchist peers do. Rather, efforts to bolster moderates vis a vis. extremists should always be emphasized.

Considering the KLA

Interview with Dr. Christos Kyrou, American Univ. School of International Service

Q: **IA-Forum: In general, how would you characterize the KLA as an insurgent group?**

A: **Dr. Christos Kyrou**: The KLA, as a case of insurgency, is a rather peculiar case. If you look at all the theorists of war, from Sun Tzu to Machiavelli to Clausewitz, they all agree that the best way to win a war is to not have to fight in one. And that's most of what the KLA did.

The KLA did fight to an extent, especially during the late nineties, when there was the agreement in Bosnia and everything was suspended in regards to Kosovo. It was very strategic though. It was very intelligent how the targets were chosen, what the connection between the action and political messages were, how it connected to NATO and the priorities of the others, and how realistic it was in fighting big masses of enemy troops.

Most of the KLA was educated, but it wasn't found and led by intellectuals and ideologists, such as the Zapatistas or in the case of the Shining Path. The KLA consisted mostly of people who carried grievances and who built their case on nationalism and on old traditions and structures of resistance.

Overall, I would say it is one of the most successful insurgencies in history. They were efficient. They didn't use that many people. They didn't have to fight many significant battles. They explored all the existing domestic and international variables including political dynamics. They also survived a very difficult competition with a more powerful political opponent that was in charge, from the same camp, without bloodshed.

Are there any aspects of the KLA you found to be unique or of special interest?

Most insurgencies are in alliance with the main opposition to the authority they fight. When you look at Northern Ireland, even though the Socialist Party (SDLP) was not hardcore nationalistic back in the Troubles, they still had a good relationship with Sinn Fein, competitive but harmonious. They didn't undermine each other. The same thing can be said of the Nationalist Basque Party and others. In Kosovo there was a very strong competition between Rugova's party, the pacifists, and the KLA and abroad among the Diaspora Albanians. It was contentious to the degree that Ibrahim Rugova towards the end organized his own army instead of building it on the existent KLA structures.

Something else that's very interesting about the KLA, maybe peculiar, is that it didn't have time to season into a full insurgency in that, before the end of the war, it didn't produce a solid political wing. Insurgencies combine both political and military means in under-

mining the legitimacy of the authority that they fight against. The KLA did apply military means, but its political case was amorphous yet simple and pure nationalism, or at least grew into nationalism over time.

There also wasn't a strong role for prisoners in the KLA experience. There were martyrs, people that died in action, but there wasn't the role for prisoners, which in many other conflicts is huge. For example, the Basque country has prisoners that are considered heroes and they're a leading force, even though they as individuals are not necessarily designated leaders. You see the same thing with Hamas, the PKK, and the FARC in Columbia and it was an immense factor in the case of the IRA. Prisoners have been very, very important assets to the movement. Fighters of the KLA were often arrested, but we didn't see their role growing into a decisive political variable.

What was the political composition of the KLA?

At the beginning, all of the groups of resistance against the Germans in the Balkans were leftist.

After the events in Czechoslovakia and Hungary, Albania and Yugoslavia were afraid that they might be treated the same way by the Russians in the future, so they cut themselves off from Stalin, and they actually agreed to a pact of resisting any such invasion from outside.

Even though Albania was isolated from the rest of the Cold War politics for a long time, Yugoslavia grew into one of the most prominent members of the Non-Allied Movement and Tito one of its leading figures. So they declared themselves different from everybody else, but the politics of the left were the main politics. Gradually as the Cold War declined it became almost irrelevant to follow these lines.

In parallel, even though the founding members of the KLA started as Marxist Leninists, and some of them as Maoists, as the movement matured and by the time Kosovo and the KLA saw actual combat the idea of independence in the name of Albanian nationalism was the only ideology that had survived.

What effect, if any, did refugees from the war have on the KLA?

That characteristic undermined decisively the operations of KLA in Kosovo. The Serbs were very determined to ethnically cleanse areas, a policy that led at some point to 250,000 refugees within only a month. The region, with its mountains and rough terrain, is ideal for guerilla warfare, but it is terrible for people to survive in. So now that civilians from villages were in the mountains to survive, many members of the KLA chose to join the refugees so they could help their families. That undermined the coherence, the consistency of the movement. For a movement like the KLA to persist, it needed a sustained flow of volunteers.

Getting back to the Diaspora, how important was it to the KLA?

Most of the active Diaspora were people from Kosovo that had been expelled from or had been persecuted or marginalized and decided to leave the country. There were many such exiles in Switzerland, Germany, and Belgium. There was also a continuously travelling and moving group of people, businessmen, visitors, students, connecting the KLA in Kosovo with the Albanian Diaspora abroad. That connection remained strong in bringing materiel and money into the country. Most of the weapons, however, came from the collapsed neighboring state of Albania during and after 1997.

How extensive was the KLA's intelligence network?
The KLA was mostly covert, mostly invisible, until the late nineties. Until then, what they were doing was gathering intelligence and training their volunteers via a lot of improvisation such as by watching videos or even movies of American Marines and imitating their tactics.

The KLA was not widely known for its intelligence network. It was known in Kosovo but not in Serbia. Some of the operatives were former policemen with the Serbian police, trained in Serbia. These folks were useful in providing information mostly on collaborators and on Serb policemen who were known to have abused or even executed Kosovar Albanians under arrest within Kosovo. The KLA didn't have that thick, dense network of intelligence in Serbia that, say, the IRA had in Great Britain which Michael Collins established after the Easter Rising. Collin's network lasted for almost a century where the KLA's intelligence in Serbia was close to nothing. However, it was effective enough within Kosovo, especially during the last war, in providing information on military convoy movements for setting ambushes and/or evacuating volunteers from positions of vulnerability in time.

What aspects of the insurgency could have been performed better or more constructively?

One of the things that they did not do and they could have done better is what Sinn Fein did towards the end of the troubles in regard to the Protestants. They did not invest in cultivating a sense of security among the Serbs of post-war Kosovo within a future potentially independent Kosovo. It might have seemed inconceivable to the KLA to take such actions considering the climate of ethnic cleansing in the Balkans at the time; but even if they had decided to facilitate building confidence for the post-war Kosovar Serbs, the KLA didn't have the time to do it, and I don't think they had the capacities to do it either. As an insurgency, their political capacities even toward the Albanians in Kosovo were limited, much less trying to build and implement a strategy towards the Kosovar Serbs.

The Balkans have a long history of conflict...

Yes, it's a region characterized by a system of alternating occupation and oppression. We can go back to the Illyrians and the Scythians and of course the Greeks and later Alexander, and through to the Ottoman Empire. All local cultures were affected from their experiences as both occupiers and as occupied people. That is the cycle that goes on and on in that region. Everybody carries grievances, and everybody has been accused of playing the role of the oppressor. It's amazing, from one war to the next, how one group would emerge as the oppressor against another and later would dissent back to the role of the oppressed. That has created a tradition or a culture of resistance within almost every ethnic group, which is reinforced by popular art, by songs, by politics, by the way families and values adjust to the need for resistance.

So here we have a tradition, a culture of resistance and a culture of oppression, and one group alternating with the next. In Kosovo, the holy ground of Serbian resistance against the Ottomans, there was the emergence of a demographic majority of Albanian-speaking people. Kosovo used to be always an Albanian-dominant area, but not as much as it became in modern times. A lot of Serbs were leaving Kosovo and the state reached the point of providing incentives for Serbs to remain and work in Kosovo just to guarantee their presence. Such demographics increasingly challenged Serbian dominance. The Albanians started rising, not as much politically and economically as they did demographically. Of course the politics of demographics in that region are significant. Everybody suspects the increase of the population of the other to mean future trouble.

How do you view the effectiveness of military action with insurgent group conflicts?

Many people consider military victory as the only success of an insurgency in meeting its objectives. I consider this to be a dangerously limited view because the objective of any insurgency is primarily to undermine the legitimacy of the authority, or state—very rarely the state itself. Most frequently, just setting up the conditions for transforming these disputed authorities through political reforms may be sufficient for an insurgency to seize to exist. Fair elections, constitutional reform, devolution, or long anticipated land reform might change the landscape of an insurgency drastically.

Where a military counterinsurgency campaign may not succeed, a political reform might work miracles.

Greece, the Philippines, Peru, Algeria, and today Sri Lanka are mentioned often as successful counterinsurgency military campaigns. A closer look at each one of them reveals the opposite, especially if one includes the long lasting economic, political, and psychological cost. In Greece, after the civil war we had 30 to 40 years of misery and instability, including military coups, exiles torture, and disappearances. In the Philippines, we had Ferdinand Marcos' regime until the mid 80's and instability which continues in some areas even today. In Algeria, the war was lost through politics three years after. In Peru the Shining Path has recently returned to action and new, indigenous inspired insurgencies

have come to life. And Sri Lanka is far too early to call a success. Most of the Sri Lankan Tamil are still in internment camps and the strength of the insurgents had always been linked to the Tamil Diaspora. The Tamil have already declined the government's invitation to participate in elections with the exclusion of the LTTE as a condition.

So how do you view a successful resolution to the insurgency problem?

I think it should be judged from the degree of the smoothness of its transformation into politics and by that I mean the lack of violence, in respect to siege fires, and commitment of all parties to negotiate, etc. These are the stronger indicators of success in transforming the power dynamics which brought the insurgency to life in the first place. Such smooth transformation signals that the vacuum of legitimacy—in regards to beliefs and morals, the making and enforcement of the law, the provision of opportunities, or the protection of the most basic human rights for not only the majority but all of the citizens or subjects of an authority—is being replaced by lawfulness, security, freedom of expression, and a fair system of politics.

When the so called social contract is violated at the expense of a minority group, because the land is being used as a dumping ground, or because they are considered second class by the elites, or because the state is absent all together due to the region's geography, there is an opening, a vacuum of legitimacy of those who are supposed to lead. Under such circumstances of lawlessness, injustice, corruption, and/or occupation, it is likely that social groups will look inward for answers to the challenges that they face. They become ethnocentric and develop structures of self regulation, self defense and gradually structures of resistance. They fill in the gap left by the illegitimacy of a state which has abandoned them, or is hostile to them or was not their own to begin with, such as in the case of an occupation.

A smooth transformation to politics shows that this gap is being renegotiated and that means of renegotiating the gap non-violently are put into action. These first stages of a smooth transformation to politics carry the promise of a peaceful society where every difference, every power asymmetry, and every dynamic that might become an obstacle to a society reaching towards its highest potential, is negotiated through non-violent means; conflicts do not any more consume people and resources but instead they become opportunities for creative improvement. Peace is an extremely demanding dynamic process, continuously adapting to new situations which challenge its institutions and processes. Granting space for the politics of insurgents into the main stream politics of authority, such as in Northern Ireland, El Salvador, South Africa, and Nepal, seems to guarantee the shortest and most cost effective way to the end of insurgent violence. Land reform in Colombia, cultural autonomy for the Basques in Spain or the Kurds in Turkey, might seem simple from a distance, but they require reform on a multitude of levels in each one of those states before even the discussion for such simple solutions begins.

Military counterinsurgency comes with the promise of a short term solution to long term

political issues, which tend to survive regardless of the outcome of war and which require political creativity and ingenuity and a culture of inclusion and reconciliation to be put to rest. From Uruguay and Nicaragua, to Greece and the Philippines, political persuasions that fuelled insurgencies in the past are now contributors of policy and law making processes channeled through elections. Former insurgents such as Nelson Mandela, or Martin McGuinness and heads of state such as Tony Blair share their wisdom from their success stories with those who look for a way out. It is our duty in conflict studies to provide, through research, effective models and theories that will assist in the smooth transformation to politics of insurgencies in regions such as Colombia, Turkey, Morocco, India, and Palestine. The cultural and political potential of almost any insurgency movement can become the source of synergistic diversity, an element of strength, efficacy, and stability in a post war society if all parties to the conflict commit seriously to their active, mutual, collaborative, and inclusive transformation.

Why most counterinsurgency wars are unsuccessful

By Ivan Eland, Director, Center on Peace and Liberty

In recent history, very few counterinsurgency wars have ended in success. Guerrillas are often outgunned by a wealthier invading power, but they do have two powerful advantages. One is that they are fighting on their home turf, which they usually know much better than the invader. Guerilla warfare at the strategic level is defensive, even though at the tactical level, raiding insurgents are many times on the offense. As a result of being on the strategic defense, the second advantage is that the attacking power will find it difficult to overcome the "foreign invader" label among the population of the invaded country. Thus, because winning the support of the local population is the most important—and difficult—objective in any counterinsurgency war, most such campaigns end in failure.

But there have been a few notable exceptions. At the turn of the 20th century, the United States refused independence to the Philippines after the Spanish-American War and then outfought Filipino guerillas to make U.S. colonial rule stick; a U.S.-supported Greek government beat back communist insurgents in the late 1940s; and the British beat back Marxist guerillas in Malaya in the late 1940s to the early 1960s. Although it might be tempting to assume that the only way to beat guerrillas is to use ruthlessly brutal tactics, this only occurred in the first of the three episodes. The United States used concentration camps, torture, and a scorched earth policy in taming Filipino guerrillas. But even here, such drastic and unacceptable methods may not have been what tipped the outcome to a counterinsurgency success.

The common thread in these three success stories seems to be that either the guerilla movement was divided or did not win the overwhelming support of the local populace. In the case of the Filipino insurgency, Emilio Aguinaldo, the guerrilla leader, never really had the support of most of the Filipino population. Similarly, in Malay, the rebellion occurred only in a minority of the minority Chinese population, thus allowing the British to eventually stamp it out. In Greece in the late 1940s, the opposition movement was divided, allowing the U.S.-backed Greek government to prevail.

How do these conclusions apply to current counterinsurgency wars? In both the rugged terrain of Afghanistan and the urban landscape of Iraq, guerilla groups have taken advantage of familiar environments to effectively harass the U.S. superpower. In addition, the United States, in some sense, has been more restrained than the Taliban and Iraqi insurgents toward the local populations. The Taliban is known for its harsh methods of justice and killing, and some of the Iraqi guerrillas have slaughtered civilians with suicide bombs. In contrast, in both nations, the United States has built infrastructure projects and handed out candy to children. Yet the United States has

failed to win the hearts and minds of either population, because of excessive collateral killings from air and ground attacks. At the end of the day, even a foreign invader who tries to be more sharing and caring is still regarded as a foreign invader.

In Somalia, the militant Islamist Shabab movement had little public support until the United States, as part of its global "war on terror," began funding unpopular and corrupt Somali warlords to promote "stability"—turning the local population toward the movement and away from the perceived meddling superpower and its Somali government lackey. Then, making things worse, a U.S.-backed Ethiopian invasion provided only some temporary stability as long as Ethiopian troops were willing to occupy the country. The cross-border invasion by Ethiopia—long regarded by Somalis as their archenemy—to quash the militant Islamists only enhanced the radicals' standing in Somalia once Ethiopian forces withdrew. In short, history shows that the presence or influence of foreigners only feeds the flames of any insurgency, which can then be portrayed as a defense of the nation against outside aggression.

But isn't there hope for Iraq and Afghanistan because opposition forces are divided and often unpopular? Not really. In Iraq, the United States was able to take advantage of Al-Qaida of Iraq's brutal killing of civilians to divide the Sunni guerrilla movement and bribe the Awakening Councils to battle the group. The problem in Iraq is that as U.S. forces draw down, the now reduced guerrilla war could turn into a civil war among the Sunni, Shii, and Kurdish ethno-sectarian groups. In Afghanistan, the Taliban is unquestionably brutal, but Afghans do regard the United States as a foreign occupier, are suspicious of the U.S. long-term military presence, do not support a surge in U.S. forces, do not think it will defeat the Taliban, and thus support negotiating with the insurgents. In short, the prognosis is not good in either case.

The transnational future of insurgency

By David Malet, Colorado State University

It is widely recognized that the long peace in the nearly 70 years since World War II has been one devoid of major inter-state warfare rather than armed combat. Instead, the world has witnessed dozens of civil conflicts and millions of resultant deaths, with the proliferation of small arms, and developments in globalized communications and transportation, enabling insurgent groups to field increasingly powerful conventional forces.

What has received scant notice is another trend in insurgency: The growing number of third-party combatants who have joined internal conflicts on the side of the rebel groups. Since 1945, in about one quarter of civil wars—more than 50 out of approximately 200—foreign fighters have joined the local insurgents in the theater of combat. More insurgencies have been going transnational over time, those that do tend to be disproportionately successful (as compared to most insurgencies which win only a fraction of civil wars,) and anecdotal evidence indicates that the foreign fighters are responsible for higher levels of violence than local insurgents.[1]

[1] The Foreign Fighter Project observation set, available at www.foreign-fighter.com

Transnational recruitment by insurgencies is hardly a new development. The Continental Congress paid private French citizens to participate in the American Revolution, and the London Greek Society (comprised of Philhellenic Britons rather than actual Hellenes) sent a multinational volunteer force to aid in the Greek War of Independence. In the twentieth century, a growing number of insurgencies recruited foreign fighters, whether they were fellow travelers in the Communist International, or ethnic diasporas such as South African Jews who traveled to fight in Israel's War of Independence or Armenian-Americans who left California to do the same in Nagorno-Karabakh.

While a great variety of insurgencies succeeded in recruiting transnationally to bolster their ranks with either military specialists or simply with sheer manpower numbers, there has been little attention from either academics or policymakers into this prevalent and growing phenomenon. What recent work is now available tends to examine only isolated cases of jihadis in either Iraq or Afghanistan, reinforcing the view that foreign fighters can be dismissed as martyrdom-seeking fanatical Islamists, while the many other types and the lessons that they offer remain overlooked.

Despite a number of academic studies covering transnational chains of arms, finance, and contraband used by rebel groups, participation in civil conflicts is widely treated as a local affair. In prevailing theoretical approaches, insurgents are widely presumed to be motivated by "greed" for plunder (which would explain foreign mercenaries) or,

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less popularly, "grievance" over their socio-political conditions.[2] Yet, while either explanation might suffice for the mobilization of local insurgents, it is difficult to imagine how either applies to foreign fighters. In civil conflicts from the Texas Revolution of the 1830s to Iraq in this decade, transnational insurgents have been responsible for more suicide and other high risk attacks than have locals, something a prudent mercenary would seem loath to do. And it is not immediately clear why local grievances in these states would be sufficient motivators to draw individuals from distant regions to take up the burden of fighting in insurgencies that are generally weak relative to the forces that they confront, and when the outcome of that conflict would not seem to change conditions in their home countries.

[2] For example, a prominent civil conflict scholar attempted to persuade me that foreign fighters in the Yugoslav wars of the 1990s had traveled there for the sake of looting television sets.

Policymakers in the field of counter-insurgency have been too preoccupied as information consumers by the particulars of Al-Qaida and its affiliated groups to ask the right questions about the bigger picture about how insurgencies transnationalize their recruitment. While the proffered mantra "Islam is the Answer" has appeared on bumper stickers, equating foreign fighters with Islamists is a bumper sticker solution to a more complex issue and produces the false impression that conditions unique to jihadis are responsible for transnational insurgency. Most modern insurgencies that have recruited transnationally have not been Islamic.

Current jihadis, if not directly connected to the transnational mujahidin of 1980s Afghanistan, at least cite them as exemplars of the effective marshalling of foreigners in a

common transnational cause to the side of local rebel groups. The Arab Afghans were directly inspired by the participation of Egyptian Muslim Brothers in Palestine in 1948, which was a response to Jewish volunteers on the other side of the lines, who had self-consciously modeled themselves after volunteers in the Spanish Civil War, and so forth. Despite national laws and international norms of citizenship, transnational insurgents are recognized actors whose relative success, even in defeat, inspires emulation.

Insurgents have realized that they no longer need go through the slow and difficult process of mass mobilization, described by Mao and others, of slowly and painfully building in the wilderness a guerilla force to eventually face the superior power of the state. Instead, by widening the scope of conflict to include outsiders, they can quickly field a large or experienced force and confront conventional militaries directly. Alternatively, in cases such as the apparent Irish Republican Army members serving as battlefield consultants to Colombia's FARC, violent non-state actors can forge transnational links that benefit both groups as they share both knowledge and supply chains.

Just as globalization has permitted "Battle of Seattle" type protest movements to coordinate and mobilize transnationally, so too has it offered actors in even more contentious forms of political dispute the chance to draw resources and strength of numbers from abroad. These groups build upon existing transnational social links, such as among diaspora groups or militant co-religionists, and it is at this level that they must be disrupted.

A focus on purely local explanations for mobilization will continue to miss the significant development that has taken place among and between insurgencies worldwide; erroneously attributing all foreign fighters to Islamists neglects the real mechanism at work in the evolution of more effective insurgencies. Globalization has been accelerated by a period of generally peaceful relations between major powers, but it has also increasingly enabled rebel groups in internal wars to reach beyond their borders for resources. This strategy has proven to be both effective and adoptable and will therefore continue to alter the profile of insurgencies in the decades ahead.

More to Sri Lanka conflict than Sinhala versus Tamil

Interview with Dr. Asoka Bandarage, Georgetown University

Q: **IA-Forum: Where does the situation in Sri Lanka stand today? Is the humanitarian situation in the Tamil areas in the North as bad as it was following the 2009 military offensive?**

A: **Asoka Bandarage**: First of all, in Sri Lanka there are no areas that are exclusively Tamil or Sinhalese or Muslim, and much of this conflict is about that. In the Eastern Province, there are populations from all the ethnic groups, and the Tamils are a minority there. The notion that the North is a Tamil area is not true as there was ethnic cleansing of Sinhalese and Muslims from the area. I want to make that clear from the outset.

Along with that, it needs to be said that the majority of Tamil people in Sri Lanka live outside of the Northern Province and a very large proportion of the Sri Lankan Tamils are also outside of the country, one quarter or so is part of the diaspora. These demographics are important to understand the situation.

With regard to the humanitarian situation, there is no question that there has been a crisis, not just following the military offensive but during the armed conflict as well. There is a lot of criticism of the government for maintaining Tamil people in camps—over 300,000 of them after the offensive. From what I've read, now there are less than 200,000, so 100,000 or more have been resettled. There is no question that this is the most important issue, but the issue is nonetheless a very complicated one given that many of the people in the camps came from areas that were under the control of the LTTE and there is evidence that there are LTTE cadres in those camps. For the security of all the people, it is important to make sure that potential terrorists are not released into the larger population. So checking and taking care of other security matters are important. And de-mining the northern areas is also important, since so many mines have been planted there over the years.

One of the criticisms that have been leveled at the government is that it has not allowed media to go into the camps and that it has stopped the rest of the world from finding out what is really going on. I think that needs to be corrected, just as the rehabilitation of all Tamil civilians needs to be addressed. But there is also the reality faced by the government. It has been under a lot of attack from the international media and there have been fabricated stories and criticisms. So there is a reluctance on the part of the government to open up certain areas to the media. For example, there was a video that Channel 4 in London aired which supposedly documented Sri Lankan soldiers shooting and killing Tamil civilians. It received a lot of attention around the world. But later it was revealed that this was a concocted video, and Channel 4 expressed apologies accepting that it was duped by a group

claiming to be a human rights organization which had provided the video. I'm just giving that as an example of why the government and certain segments of the Sri Lankan population are wary of the international media and human rights groups. This is not to justify keeping the media out because we need to have accountability and transparency. But at the same time, it is important to recognize the possible continuation of the LTTE, which was the most ruthless terrorist organization in the world. So, the government has to take the necessary precautions against the LTTE rearming and reactivating itself.

So are you saying that the current policies are purely security-based? Seeing all the celebrations that occurred in Sri Lanka following the military victory, one wonders if there was there was any element of collective punishment or spoils going to the winner.

We have to move beyond seeing this as a Sinhala versus Tamil primordial conflict, which is the dominant analysis of this conflict, and I take this on in my book. I'm not denying there is an ethnic dimension. But the fact is that the entire population—Sinhalese, Tamils and Muslims—were all victimized by the LTTE. Terrorism is the greatest of all human rights violations. The Tamils were more victimized in a way by the LTTE than any other group. They were forced to give their children up as suicide bombers. In certain regions, like for example the Eastern Province, each family supposedly had to give a child for the cause. The LTTE established a totalitarian regime which did not allow any kind of dissent. So not having the LTTE opens up possibilities for Tamils and other groups to come together and try to fashion a better future for all the people.

What was the nature of this conflict as you see it? A civil war? A regional conflict?

It is a separatist conflict with domestic, regional and international dimensions. There are Tamils as well as Sinhalese and regional and international actors supporting the creation of a separate Tamil state in the north and east of Sri Lanka. Likewise, there are Sinhalese as well as Tamils and regional and international actors supporting the continuation of the unitary state of Sri Lanka.

As I said before, there is an ethnic dimension to the conflict, but the predominant tradition in Sri Lanka has been one of mutual coexistence. Different ethnic and religious groups have lived together side by side for hundreds if not thousands of years. But in the course of this war, ethnic polarization deepened. But it is wrong to see this simply as a domestic conflict. In my book, I present the broader regional dimension—the demand for a separate Dravidian-speaking state of Dravidasthan in southern India and the quashing of that separatist movement by India when it passed the 1963 anti-secessionist amendment to its constitution. The spread of Tamil nationalism in southern India in conjunction with developments in Sri Lanka produced this conflict. And then, as I discuss in my book, the conflict became internationalized by the Tamil diaspora, which is quite wealthy and influential in western countries, and which is still supporting the separatist struggle in Sri Lanka.

From a counter-insurgency perspective, what worked and what didn't? Which tactics by the Sri Lankan government improved the situation and which exacerbated it?

I'm not a counterinsurgency expert, but from what I understand there were a number of factors. The Sri Lankan government started working with other governments in the international community—and interestingly, it was a Tamil, Lakshman Kadirgamar, who was a former foreign minister, who initiated contact with some of the western countries to ban the LTTE as a terrorist organization, including in the United States. Efforts to cut off funding for the LTTE and efforts to separate the Tamil issue from the LTTE also had a role to play because the LTTE presented itself as the sole representative of the Tamils. Making that distinction was important.

Also, the country became war weary. It had gone through several peace processes and attempts at negotiation with the LTTE, including the 2002 peace process. When that failed, not just the Sinhalese, but also some Muslim and other Tamil groups became fed up with the LTTE. So there were both internal and external factors which came together to create a sense of urgency to bring the armed conflict to an end. This doesn't mean that the political conflict is resolved. There is still a lot of work to be done, but, the conclusion of the armed conflict opens the space to address those broader issues.

What, if anything, did the insurgency achieve for the Tamil people?

The Tamil people really lost a lot due to the insurgency. The community lost its moderate leadership. It lost some of the best and brightest people, who left the country. That is not just a loss for the Tamil people—it is a loss for the entire country because they were among the most talented and experienced professionals. And with the insurgency, the Tamil culture and community were destroyed and weakened. The Tamil community had been a relatively advanced community, so this was a tremendous loss. So many leaders were killed. That's why it's important not to continue this conflict and start another cycle of war. Instead Tamils have to take their rightful place in society because they have a lot to contribute to Sri Lanka and they always have.

Through the use of violent struggle, did the insurgency succeed at all in at least calling attention to the legitimate grievances of those Tamils who felt they were disadvantaged?

Yes, I think so. For example, if we look at some of the post-independence legislation, which was meant to redress grievances of the Sinhalese majority that had been discriminated against during the British colonial era. In retrospect, the insurgency has made people question if those were the right steps. So I think it has opened up an opportunity to really look at the whole history of the country and relations between different communities. The loss of all those lives also raises questions about the meaning of democracy and justice for all groups. I try to do this in my book—to look at Tamil grievances but also the grievances of other groups, and how all of that can be redressed.

One thing that often gets overlooked when we talk about the Sinhalese or the Tamils as monolithic groups is the differences and inequalities within groups. Within the Sinhalese, the majority are underprivileged. Similarly, within the Tamil community, there are differences between elites and masses and caste differences. And now, of course, you have the difference between the diaspora and the people on the ground. The diaspora supported the armed conflict, which was the longest running armed conflict in Asia. Now, after the military offensive is over, they are continuing the separatist struggle outside of the country through political means. This makes it difficult for the government and domestic Tamil groups to move forward in terms of rehabilitation and development because the political conflict has intensified. This is not to say that that political issues should not be addressed, but it should be done in a constructive way rather than in a way that polarizes communities and continues the acrimony. The diaspora and other groups should be focusing on how to bring communities together—and they should think of the people on the ground, like the people in the camps, who are the ones that have suffered the most. They are the real victims. Meeting the basic needs—shelter, employment, land, access to water, and education for children—needs to become the priority over the political interests of elites from all communities whether they be Tamil, Sinhalese or Muslim.

Now that the LTTE has, for all intents and purposes, been dismantled, what happens next? Who represents the Tamils? Will there be new efforts at political reconciliation or will the government try to maintain a sort of status quo with the Tamils in a very weak state?

Again, I go back to my earlier point about looking at different communities and differences within the Tamil ethnic group. If you look at the group known as the Indian Tamils or the Hill Country Tamils who are the descendants of laborers brought by the British to work the plantations during the colonial era, for a long period of time they did not have Sri Lankan citizenship. They were considered stateless citizens—neither Indian nor Sri Lankan. But now they are all Sri Lankan citizens and enfranchised. As far as they are concerned, their motivation was to be integrated into the Sri Lankan state and the Sri Lankan polity rather than be separated from it. So there has been a disjuncture between the interests of the so-called Indian Tamils and the Sri Lankan Tamils, who have a longer history on the island and who claim the North and East as their homeland. The Indian Tamils have their own political parties and leaders, for example the Ceylon Workers Congress, who fought for their rights, and they have their leader who is a minister in the cabinet. They have fought for representation, and their focus has been on gaining greater access and power within the Sri Lankan parliamentary system rather than to separate from it.

And then there are the Tamils in the Eastern Province and Karuna, who were the leader of the LTTE in the Eastern Province. Now he has his own political party, which rose out of a breakaway faction from the LTTE. He is a minister in the government and his party has joined the parliamentary process. So it's not like all Tamils are outside of

the parliamentary political process. There are still other groups as well including other former militants who have joined the political process. The majority of Tamils want to participate in the Sri Lankan political process and gain greater power and strength rather than separate, but there are issues that need to be addressed in terms of the sharing of power, not just by Tamils, but all groups. The decades of mistrust and the fears coming from decades of violence are intertwined. Those political and psychological issues need to be dealt with in order to bring reconciliation and lasting peace.

What does the government have to do in order to convince the Tamils that they are not second-class citizens? Might it be necessary to put aside the idea of Sri Lanka as a Sinhala-Buddhist state and make it an officially secular or officially multi-religious state?

In the Sri Lankan constitution, all groups and individuals are equal. There is nothing that says that one group has privileges over the other. In fact, during the British colonial period—and I give the statistics in my book—the Tamils as a group were disproportionately represented in the higher professions and the administrative service, and had economic and political power that was disproportionate to their numbers in the population. After independence, the Sinhalese politicians tried to change that, which is what led to the emergence of the modern conflict. Affirmative action quotas based on ethnic grounds failed and created a lot of problems. It led to the perception that the Tamils are second-class citizens, but constitutionally that is not the case.

Let me go back to the issue of the Sinhala-Buddhist state. Sri Lanka has a clause in the constitution which says that Buddhism has a special place. But if you look at the reality, Sri Lanka constitutionally allows freedom of religion and consciousness and the right to change one's religion, which is a right that is not allowed in many countries throughout the world. This is not just the Islamic countries, where you can't change your religion or have any proselytization in the country, but even in a liberal country like Norway, the constitution states that it is an Evangelical-Lutheran state and that the Norwegian king must always be of that religion, and so on and so forth. So although there is a statement that Buddhism has a special place, in reality there is much greater freedom of religion and freedom for conversion or proselytization in Sri Lankan than is available elsewhere.

Having said that, I still think there is great mistrust and animosity between groups, and it's not going to change overnight. There is a lot of work that needs to be done for people from different ethnic and religious communities to come together. But in order to do that, especially for the younger generations, opportunities must be made available. Here I think the diaspora has an important role to play, because as far as the people of Sri Lanka are concerned, the military offensive is over, the war is over, and the country needs to move forward. But the diaspora, which is far removed from what's happening on the ground, likes to perpetuate the conflict—I hate to generalize, but a certain, small segment of it doesn't want to give up their dream of a separate Tamil homeland in Sri Lanka.

It is important to work with the younger generation of the diasporas—both Sinhala and Tamil, as well as Muslim—and the international community has an important role to play. The Tamil diaspora is quite wealthy and influential. They have been influencing international media as well as politicians, using the power of votes and money to perpetuate this struggle for separatism. But that is going to continue the conflict and possibly lead to violence in the future. Also, on the other side, the enormous political pressure on Sri Lanka is creating a lot of anti-Western feeling. Many groups feel that the West or the international community is supporting the continuing diaspora separatist effort. It is contributing to the weakening of the Western—especially United States—authority and influence in the Indian Ocean region and alienating many groups from the international community.

I'm not saying there shouldn't be international influence or even intervention, but it has to be done carefully. The human rights concerns need to be raised with an understanding of the reality of terrorism and the need to eliminate it. It is necessary to take into account the struggles of a small country like Sri Lanka to withstand the enormous pressure brought by the confluence of powerful states, NGOs, media and the Tamil diaspora.

Is there anything other countries facing similar situations can learn from the Sri Lankan example?

That's a good question. Sri Lanka is a country that tried its hardest to negotiate with terrorists, which is a position that is not generally taken by more powerful—especially Western—countries. Sri Lanka tried to do so a number of different times, and it failed. So if countries try to negotiate with terrorist organizations, what are the conditions that need to be laid down? For example, should disarmament of terrorist organizations be made a requirement? In the Sri Lankan case, that was not made a requirement because the focus was on bringing the LTTE to the table. But, it led to the perpetuation of these cycles of war and peace, where hundreds of thousands of people lost their lives. The economy was weakened and the country and the society really fell behind as a whole. So there are some lessons to be learned from Sri Lanka's experience of these cycles of war and peace and negotiations. Even this military victory cannot be taken for granted as a permanent situation, so what can be done to avoid a return to war?

Other countries should also learn from Sri Lanka not to give into this notion that wars are unwinnable against terrorist organizations, which was the belief with regard to Sri Lanka. During the 2002 peace process, there was an attempt to give into a lot of the demands of the LTTE in order to keep them within the peace process. But it ended up creating a situation in which that group got control over a vast extent of territory in the North and East and was essentially running a de facto government keeping the Tamil people under their totalitarian control. That was not a solution to the conflict.

How can countries win these wars? It can't be done by countries going at it alone. Even in the Sri Lankan case, there were many regional and international forces that supported the defeat of the LTTE. But, the issue is not just the struggle against terrorism. The

broader struggle for democracy and justice too needs to be approached from a regional and international perspective, which means that fundamental issues of human rights need to include the economic rights of people-the rights of employment, education, healthcare, housing, so on and so forth. I think that if these can be addressed globally, then the potential for mobilizing people along ethnic or religious lines by terrorist organizations would be greatly reduced. The question of economic rights of all groups and individuals, is the fundamental one.

Hamas' ideological crisis

By Matthew Levitt, Washington Institute for Near East Policy

This article is excerpted, with permission, from the author's full article by the same title in the journal Current Trends in Islamist Ideology (www.CurrentTrends.org)

Despite its success as the first Muslim Brotherhood organization to control and govern territory, and in part because of that success, Hamas is under significant stress. In the West Bank, Hamas faces a severe security crackdown that has driven the movement underground. And in Gaza, the movement has been forced to choose engaging in acts of violence or attempting to effectively govern the territory won by force of arms. An acute ideological tension within the Islamic Resistance Movement is the result. The movement has been forced to suspend the resistance for which it is named and by which it defines itself. For some, the cessation of violence is a sign of moderation within Hamas. For others, Hamas's actions, including continued radicalization and smuggling weapons into Gaza, better denote the movement's true intentions and trajectory. Hamas is not a monolithic movement, but the one constant among its various currents is its self-identification as a resistance movement.

The ongoing Israeli military presence in the West Bank, together with a renewed commitment by the Palestinian Authority under President Mahmoud Abbas, has largely denied Hamas the ability to function effectively there. With new, U.S.-trained Palestinian battalions successfully bringing law and order to West Bank cities, places like Jenin—commonly referred to as the suicide bomber capitol of the West Bank just a few years ago—are now calm and enjoying significant improvement in economic prosperity.[1] Within the Ministry of Interior, a department overseeing charitable organizations is systematically removing Hamas members from the boards of charity committees and social service organizations and registering each charity office and its board—something that was not done under the administrations of either Yasser Arafat or the short-lived Hamas-Fatah unity government in 2006.[2] Still, Israeli and Palestinian security officials concur that Hamas remains present and capable in the West Bank. Hamas operates largely underground in small cells, and would quickly rebuild itself were it not for the day-to-day security and intelligence activities of Israeli and PA forces both.[3]

Whereas Hamas is suppressed in the West Bank, it is in the Gaza Strip—where it is the de facto governing regime—where Hamas is under significant ideological stress. Ironically, as the result of the uneasy merger of Hamas, a social, political and military "resistance" movement with an Islamist government, the crisis is of its own making. As a government, Hamas has failed to provide for the needs of its constituents and

[1] Lt. General Keith Dayton, "Peace through Security: America's Role in the Development of the Palestinian Authority Security Services," Washington Institute for Near East Policy Soref Symposium, May 7, 2009, available online at http://www.washingtoninstitute.org/templateC07.php?CID=456; see also Jim Zanotti, "U.S. Security Assistance to the Palestinian Authority," Congressional Research Service, June 24, 2009, available online at http://ftp.fas.org/sgp/crs/mideast/R40664.pdf

[2] Author interview, PA Ministry of Interior, September 2008 and September 2009, Ramallah

[3] Author interviews with Israeli and Palestinian security officials, Tel Aviv and Ramallah, respectively, September 2009.

Hamas opposes the Salafi-jihadi groups in Gaza, sometimes violently. Yet, Hamas leads a proactive campaign to radicalize Palestinian society and transform the Israeli-Palestinian conflict from an ethno-nationalist conflict over land into a religious battle over theology, thus creating an environment conducive to Salafi-Jihadi ideology.

remains an international pariah under economic siege. At the same time, its credentials as a "resistance" movement lose currency as the movement continues to refrain from attacking Israel for fear of reprisal attacks in the wake of Israel's Caste Lead operation in December 2008 and January 2009. Hamas failed to inflict significant Israeli casualties over the course of the Caste Lead battles, and instead of protecting its civilian population, Hamas hid its leaders and armaments within civilian structures such as mosques and hospitals.[4] Disenchanted with Hamas, Gaza residents reportedly rue having voted for Hamas in 2006.[5] Engaged in secular politics, failing to institute sharia law, and cracking down on fellow Palestinians who attack Israel or threaten its rule, Hamas has created a vacuum which salafi-jihadi groups have been keen to fill.[6]

It should not surprise that Hamas will not tolerate challenges to its supremacy in Gaza such as Jund Ansar Allah's declaration of an Islamic emirate there in August 2009. Yet, the public spat between Hamas and al Qaeda which played out over the Internet following Hamas' takeover of Gaza in 2006 was unexpected. After all, while Hamas is not part of al Qaeda's global jihadist movement, or even an affiliated regional franchise, it is a "glocal" Islamist group committed to global jihad in defense of the Umma. In the wake of its 2006 military conquest of the Gaza Strip, Hamas won the admiration and respect of Al-Qaida operatives and global jihadis. Likewise, sharing a baseline ideological commitment to jihadism, former Hamas members, have joined several of the Al-Qaida inspired organizations in the Gaza Strip.

Following Hamas' violent takeover of the Gaza Strip in June 2006, Al-Qaida congratulated Hamas on its military victory over the secular Fatah. "Today we must support the mujahidin in Palestine, including the Hamas mujahidin," Zawahiri stated, even as he challenged the Hamas leadership, to "redress your political path."[7] That did not happen and prompted al Qaeda to take advantage of an opportunity to lure Hamas operatives away from the movement's nationalist focus to the cause of global jihad. In February 2008, the elusive Abu Omar al-Baghdadi, head of Al-Qaida in Iraq, denounced Hamas' leadership for betraying Islam and called on Hamas' military wing

[4] See Yoram Cohen and Jeff White, Hamas in Combat: The Military Performance of the Palestinian Islamic Resistance Movement, Policy Focus #97 (Washington, DC: The Washington Institute for Near East Policy, 2009), available online at http://www.washingtoninstitute.org/templateC04.php?CID=318

[5] Howard Schneider, "What to Do with Hamas? Question Snarls Peace Bid," Washington Post, October 7, 2009

[6] For a complete discussion of salafi-jihadi groups in the Palestinian territories see Yoram Cohen and Matthew Levitt, with Becca Wasser, Al Qaeda Inspired Groups in Palestine: Determined but In Check (Washington, DC: The Washington Institute for Near East Policy, forthcoming 2009)

[7] "Al-Qaeda's Zawahiri Voices Support for Hamas," Agence France Presse, June 26, 2007.

to break off from the group and join the global jihadist movement.[8] That has not happened, although several salafi-jihadi groups have sprung up in Gaza and all include within their ranks disaffected former Hamas members.

Tensions came to a head in mid-August 2009, when Hamas security forces raided a mosque affiliated with a Salafi-Jihadi preacher who denounced Hamas and declared the establishment of an Islamic Emirate in Gaza. A gunfight ensued with the group Jund Ansar Allah in which some twenty-four people were killed and 130 wounded. Among the dead was Fuad Banat, a Hamas operative sent from Syria by leadership in Damascus to improve training of operatives in Gaza. Banat soon split with Hamas over the group's commitment to a ceasefire with Israel and served as Jund Ansar Allah's military commander alongside Abdelatif Musa who served as the group's spiritual leader.[9] Al-Qaida in Iraq denounced the Hamas attack on its website, calling on Allah "to avenge the blood of the murdered men and to destroy the Hamas state."[10] The episode highlights the presence of Salafi-Jihadi groups inspired by but (not yet) formally affiliated with Al-Qaida in Gaza and tensions between these groups and Hamas, a violent Islamist but still Palestinian nationalist group now in power in Gaza.

The ironies are telling. Hamas opposes the Salafi-Jihadi groups in Gaza, sometimes violently. Yet, Hamas leads a proactive campaign to radicalize Palestinian society and transform the Israeli-Palestinian conflict from an ethno-nationalist conflict over land into a religious battle over theology, thus creating an environment conducive to Salafi-Jihadi ideology. As the responsible government, Hamas has at times tried to reign in militant groups planning to conduct attacks or fire rockets at Israel—despite its continued support for such actions—and has incurred the wrath of Salafi-Jihadi groups in return. For such groups, Hamas' participation in local elections and temporary ceasefires with Israel are anathema and a violation of the requirement to wage violent jihad. Therefore, it should not surprise that some groups are in large part comprised of former Hamas members disillusioned by Hamas' failure to vigorously enforce Islamic law (Shariah) in the Gaza Strip and launch attacks on Israel.

Recognizing the damage such challenges pose to Hamas's own jihadist credentials, in September 2009 the movement's terrorist wing posted a paper on its website, entitled, "The Concept of Jihad as the Islamic World Understand." [sic] The paper highlights the work of Sheikh Yousef Qaradawi, famous for his religious edicts (fatwa) justifying suicide bombings targeting civilians in Israel and supporting the insurgency in Iraq.[11] Qaradawi, the paper stresses, "is extremely careful to distinguish between extremist groups that declare war on the whole world, killing indiscriminately, tainting the image of Islam and providing its enemies with fatal weapons to use against it, on the one hand, and on the other groups resisting occupation."[12]

And yet, for some in the Salafi-Jihadi community, Hamas's jihadist credentials still make the movement a legitimate partner of the global jihadist movement. In June 2009, Mustafa Abu al-Yazid, the Al-Qaida commander in Afghanistan also known

[8] Audio Statement from Abu Omar al-Baghdadi, the "Amir al-Mumineen" ("Leader of the Faithful") of Al-Qaida's "Islamic State of Iraq" Released on February 13, 2008.

[9] Author interview with Israeli officials, Tel Aviv, September 10, 2009.

[10] "The Struggle between Hamas and the Jihadi-Salafist Networks in the Gaza Strip Affiliated with the Global Jihad," Intelligence and Terrorism Center, October 4, 2009, available online at http://www.terrorism-info.org.il/malam_multimedia/English/eng_n/pdf/hamas_e084.pdf

[11] "The Concept of Jihad as the Islamic World Understand," September 26, 2009, posted on the Izz al Din al Qassam Brigades website, available at http://www.qassam.ps/specialfiles.html (accessed October 6, 2009); The Qaradawi Fatwas, Middle East Quarterly, Summer 2004; Michael Issikoff and Mark Hosenball, "Terror Watch: Preaching Insurgency in Iraq, "Newsweek, September 30, 2004.

[12] "The Concept of Jihad as the Islamic World Understand," September 26, 2009, posted on the Izz al Din al Qassam Brigades website, available at http://www.qassam.ps/specialfiles.html (accessed October 6, 2009)

as Sheikh Said, stated that both Al-Qaida and Hamas "share the same ideology and the same doctrine."[13] But in a sign that Hamas remains a hotly debated issues among salafi-jihadi ideologues, Islamist theoretician Abu Muhammad al-Maqdisi quickly disputed this claim, asserting that the Salafi-Jihadis and "Hamas share neither ideology nor doctrine."[14]

In October 2009, Hamas leaders rejected the latest Egyptian-mediated proposals for intra-Palestinian reconciliation. The reason, according to the statement issued by the Damascus-based leadership, was "the wording submitted by Cairo to the factions makes no reference to the struggle (with Israel) and the aggression against our people."[15] Such hardline positions are unsurprising, even coming on the heels of what some described as the moderating of a Hamas co-opted by the everyday needs of governance. Consider, for example, that in the days following its sweeping electoral victory in 2006 Parliamentary elections, Hamas leaders did not soften their rhetoric. Instead of allowing participation in the political process to co-opt them into moderation, Hamas leaders underlined their intention to continue attacking Israel and make Palestinian society more Islamic.

Hamas leader Mahmoud Zahar insisted the group's Qassam Brigades "will remain, they will grow, they will be armed more and more until the complete liberation of all Palestine." Under Hamas, Zahar predicted, the new Palestinian government would promote "martyr tourism" to draw tourists interested in the history of armed Palestinian resistance and the ministry of culture would produce literature about jihad. If elected, a Hamas candidate from Rafah promised, Hamas would enact legislation consistent with Islamic Shariah (religious law). "We would present to the ummah [Muslim nation] and the Palestinian people the laws and legislation compatible with the Islamic Shariah and would do our best to nullify the non-Islamic ones." This would come hand in hand, the candidate promised, with enhanced social services courtesy of the Hamas da'wa."[16]

These predictions are now coming to fruition, though Hamas has occasionally softened its message to facilitate Egyptian-moderated talks with Fatah and in the hope of easing the international isolation. Hamas's tactical flexibility, however, should not be mistaken for strategic change. Even in recent interviews, Mishal has been clear that Hamas has not rejected terrorism, but has put it on hold due to current circumstances. "Not targeting civilians," Mishal explained, "is part of an evaluation of the movement to serve the people's interests. Firing these rockets is a method and not the goal."[17] In the context of discussing the sharp drop in Hamas rockets fired at Israeli civilian population centers, Mishal added, "The right to resist the occupation is a legitimate right, but practicing this right is decided by the leadership within the movement."[18]

Even as Hamas advances its public-relations blitz for tactical gains, the group continues to advance strategic goals through ongoing terrorist activities, robust radicalization, weapons smuggling, and the election of militant hardliners to leadership posi-

[13] "Prominent Salafi-Jihadi Scholar Abu Muhammad al-Maqdisi: 'We and Hamas Share Neither Ideology Nor Doctrine," The Middle East Media Research Institute (MEMRI), Special Dispatch No. 2482, August 11., 2009.
[14] "Prominent Salafi-Jihadi Scholar Abu Muhammad al-Maqdisi: 'We and Hamas Share neither Ideology nor Doctrine," MEMRI, Special Dispatch No. 2482, August 11, 2009.
[15] Albert Aji, "Hamas in Syria Spurns Plans to Reconcile with Fatah," Associated Press, October 15, 2009

[16] For Zahar quotes, see Anne Barnard, "Hamas Hardens Campaign Rhetoric: Leaders Praise Jihad and Renew Calls to Fight Israel," Boston Global, January 24, 2006; For comments by Hamas candidate, see "Hamas' PLC Hopeful: We'll Enact Islamic Laws if Elected MPs," Daily News, http://Palestine-info.co.uk/, January 23, 2006
[17] Transcript, Interview with Khaled Meshal of Hamas, The New York Times, May 5, 2009.
[18] Transcript, Interview with Khaled Meshal of Hamas, The New York Times, May 5, 2009.

tions. Based on public comments intended for Western consumption, and against the backdrop of such activity, it is difficult to describe Hamas as moderating its positions. Discussion of moderates and radicals almost invariably invites well-meaning efforts to engage with the former to further splits with the latter. In the case of Hamas, this will be counterproductive—on issues relevant to U.S. policy, there are no substantive divisions between the two groups, only tactical differences. And given the importance of strengthening the anti-Hamas Palestinian Authority, any effort to engage with even part of Hamas will be sure to erode confidence within the PA, further diminishing long-term prospects for real diplomatic progress. The policy readjustment must come not from the West but from Hamas.

Were Hamas to couple its moderate talk with a disavowal of violence in word and deed, that would be a palpable step. Though unlikely, such moderation would likely fracture the group into factions divided between those who see "resistance" as the group's primary calling no matter the cost, and those focused more on the building of an Islamist state in Gaza today for the purpose of resisting the enemy tomorrow. As a corollary, more Hamas hardliners would leave Hamas and join Al-Qaida-inspired salafi-jihadi groups in Gaza that remain ideologically committed to violence in the name of religion. In all likelihood, Hamas will revert back to terrorism and political violence targeting Israel. With ongoing radicalization and weapons smuggling programs, Hamas is well suited to do so at any time. In the meantime, promises of moderation that coincide with continued violence, weapons smuggling, and radicalization are, as they say in the region, kalam fadhi (empty words).

ETA: An assessment

Interview with Dr. J.P. Linstroth, International Peace Research Institute, Oslo

Q: **IA-Forum: Who are ETA and what do they want?**

A: **Dr. J.P. Linstroth**: ETA stands for 'Euskadi Ta Askatasuna', meaning 'Basque Homeland and Freedom' and was created in 1959 as a response to the extreme oppression of Basques by dictator Francisco Franco's military regime (1939-1975). During the Franco dictatorship, the patriotic Basques believed it was necessary to counteract the many assassinations and tortures of Basques as well as combat the regime's attempt to eradicate Basque culture and the Basque language (euskera). (Similar measures of repression occurred in Catalonia against the Catalans by the Franco regime.) Actually in the early years, ETA had a lot of popular support, not only among Basques, but also among Spaniards in general because of the group's militant opposition to Franco and the general dislike of Franco in the country. Of course popular opinion in Spain has changed now. Interestingly, at the outset of its existence, ETA was influenced by the Catholic Church, especially from the inspiration of young Basque seminarians who were quite nationalistic toward the Basque cause of independence and fighting Franco's dictatorship. This changed in the '70s to a more Marxist and Socialist approach. So ETA was predisposed to other liberation movements in the world such as IRA Republicanism, the Palestinian PLO, and the South African ANC, as just some examples.

Basically, ETA is a militant insurgency group—some call them 'Freedom Fighters', while others consider them to be 'terrorists', a perspective highly dependent on their view as either a Basque or a Spanish nationalist or government agency. There have been acts of violence performed by ETA since 1968, with the killing of the Basque secret police officer Meliton Manzanas who had been responsible for torturing and killing hundreds of Basques. But, probably the most famous assassination was in 1973 of Admiral Luis Carrero Blanco, who was to be the successor to the Dictator, Francisco Franco after he died.

Today, what ETA wants is an independent Basque country, which would mean not only independence for the Basque territories in Spain but also the Basque territories in France. Recently, news reports in the Spanish media and Basque media, suggest that supporters of the 'Basque Patriotic-Left' (Izquierda Abertzaleak) wish to negotiate their right to a peaceful end to the Basque conflict. (This Basque political movement is the equivalent of Sinn Fein and the Republican movement in Northern Ireland during that conflict.)

Has ETA made any progress toward achieving their goals?

There have been ceasefire negotiations with the Spanish government. In recent years, there was the 1998 ETA ceasefire and then the ultimate one lasted from March 2006 to June 2007. During these last ceasefires there were secret negotiations between the Spanish government and ETA toward a political solution for resolving the Basque conflict. Yet nothing came of these meetings in terms of resolving the conflict.

But have they been successful in achieving any of their goals?

I would say as far as territorial independence, no. Yet, since the establishment of the Spanish Constitution in 1978, the Basque Country in Spain (Euskadi) has enjoyed considerable autonomous powers. For example, if comparing other nationalistic and ethnic-minority groups, whether in Europe or elsewhere, the Basques have considerable autonomy in regional governance, taxation, and a separate police force. The last Basque President of the Basque country, Juan Jose Ibarretxe, tried unsuccessfully to make Basque autonomy even greater with less interference from the Spanish federal government and pushed for a referendum for Basque independence.

Why have negotiations failed?

In my view, and shared by others, Spain did not keep all of its promises with ETA during the negotiation process of the last ceasefires. Of course, in the last negotiation ETA also broke its ceasefire with the bombing of Barajas International Airport in Madrid at the end of December, 2006. But I think the Spanish federal government did not concede on issues such as the disbursal of Basque political prisoners throughout Spain.

It is equally important to understand what is happening at the present time regarding the Basque conflict in order to understand why negotiations have failed in the past. For example, there are clear indicators which demonstrate not only the Spanish state's reluctance to negotiate with ETA but also abuses of state power as well. To many Basque political activists the Spanish federal government has continued its oppressive measures against Basques to the present from the period of the Franco dictatorship. This may surprise some, but examining the Basque conflict and what has happened from the late 1970s during the democratic transition to the present, analysts will find the use of a 'state of exception' by Spain in relation to the Spanish-Basque provinces.

There are also many examples of 'dirty tactics' employed by the Spanish security forces against the Basques, especially against the Basque 'patriotic left' (Izquierda Abertzaleak), whether in relation to reports of questionable suicides, disappearances, or the continued torture of Basque activists.

This past spring, in April 2009, a Basque political-militant and former political prisoner, Jon Anza, disappeared somewhere in southern France. Anza was expected to travel by train from Baiona to Toulouse, but has not been heard from since. In protests

against Spain and France, Basque activists have demonstrated with signs reading: Non Dago Jon? (or 'Where is Jon?'). To this day neither the Spanish government nor the French government has adequately explained to the family members of Jon Anza what has happened to him. For Basque militants such a questionable disappearance has parallels to the past when Jose Antonio Lasa Arostegui and Jose Ignacio Zabala Artano, two ETA activists, were tortured and killed in 1983 by Spanish security forces.

Furthermore, International Affairs Forum readers may wish to have a closer look at Spain's human rights records concerning questions of torturing Basque detainees and political activists. Since the democratic transition period in Spain beginning in 1978, a majority of Basques from the left-patriotic movement (Izquierda Abertzaleak) have claimed to have been tortured while in police custody. For a more thorough investigation on torture and Spain, readers may wish to read the United Nation's reports from the Special Rapporteur of the Commission on Human Rights, Theo Van Boven from September 2004 and also the Special Rapporteur on Human Rights, Martin Scheinin report from December 2008.

What about the current state of ETA, have their strategic aims changed at all in terms of what the current group wants to do, using violent tactics or going back to the negotiation table?

In the '90s it was fairly radicalized and there was a clear shift from former leadership. In the 1980s and throughout the 1970s, the targets were mostly military and police. This had changed in the 1990s to include civilians and politicians. In 1997 the town councilor Miguel Angel Blanco was assassinated by ETA. Thousands of people protesting against Blanco's kidnapping and execution demonstrated a clear shift in popular opinion against ETA. This shift in popular opinion clearly had an impact on Basque activists. Then in 2004 ETA was falsely accused of the March 11th bombings at train stations in Madrid which were carried out by al-Qaeda related groups from Morocco. These events prompted Basque nationalists to look for other avenues in resolving the conflict and to begin reassessing the political strategies of the Basque independence movement.

Yet other factors have influenced the conflict in other ways and increased Basque nationalist resolve to continue with the struggle. For example, outlawing the Basque political party, Batasuna (United Front) in 2003 and then labeling it a terrorist organization was a clear mistake for solving the conflict. It would be equivalent to labeling Sinn Fein a terrorist group on the eve of peace negotiations in Northern Ireland. What is more, the civil liberties of Basques and Basque political activists are continually being violated in terms of right of assembly, right to vote, and the right against suspending the writ of habeas corpus. Incomunicado detentions of Basque militants by Spanish security forces are carried out for days (as much as two weeks) before a detainee is able to have access to a lawyer or make a statement before a judge.

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Such repressive measures against nationalist Basques do not help if there is to be a concerted effort in moving forward to a peace process and thereby end the conflict. In recent media reports from the Spanish and Basque press, the left-Basque patriotic front (Izquierda Abertzaleak) has made several statements for a willingness to negotiate an end to the Basque conflict through political dialogue with the Spanish state.

What steps would you advocate to facilitate a sustainable peace with ETA?

Clearly there needs to be international mediation of this conflict, because from my perspective the Spanish government has a very intransigent position against the Basques. In my view, Spain has arbitrarily arrested those who are not linked to any types of terrorist acts and put them in jail for a long period of time.

The case which comes to mind is 18/98+, which is actually several judicial cases, implicating 50 Basque nationalists who were served sentences on the average of 16 years each. The Spanish government tried to link these Basque nationalists from the Izquierda Abertzale with ETA. But none of those implicated in the charges were involved in ETA paramilitary activities. Therefore, much of these heavy handed approaches have only served to prolong the conflict, or will serve to prolong the conflict. Such police measures by Spain will only make the Basque nationalist movement that much more determined to continue in its struggle against the Spanish state.

In the long run what needs to happen is intervention by international mediators helping to bring all Basque political parties together with the Spanish governing party (PSOE, Partido Socialista Obrero Espanol, Spanish Socialist Party) for a dialogue to end the stalemate between ETA and Spain.

U.S. President Barack Obama and his administration have a good window of opportunity here to change the intractability of the Basque conflict and help a peace process along in moving forward with resolutions. The Basques hope to have a solution to their conflict similar to what happened in Northern Ireland after the Good Friday Agreement.

Unfortunately in the past, the issue of ETA was viewed as an internal security problem for Spain (and nowadays France as well). As such, the United States did not interfere in these matters in so far as resolving the conflict through political means. Moreover, Spain's prominent involvement in the North Atlantic Treaty Organization (NATO) and its leadership role as a member state in the European Union (EU) have in part prevented other nations from becoming involved in stepping up efforts for a peaceful resolution of the Basque conflict.

Any final thoughts on your research and analysis of the situation?

My academic training is in social and cultural anthropology and therefore my perspec-

tives about this particular conflict are derived from having lived in the Basque country during fieldwork and knowing many Basques. Further to this, it is important also to realize much of what is reported in the media about the Basque conflict is generally superficial at best. Most interpretations of the Basque conflict do not consider the point of view of the political activists themselves to understand why the Basque political struggle has continued to the present. The anthropological approach of interviewing people face-to-face and actually participating in and observing the daily lives of people from another culture such as the Basques for an extended period of time, in my view, provides a more nuanced perspective about other cultures. This approach is also particularly important in relation to understanding ethno-nationalist conflicts and subaltern movements.

Fort Hood reminder of potential threat to U.S.

Interview with Jeff Goodwin, New York University

Q: **IA-Forum: Your website says you are currently researching what factors cause an insurgent group to decide whether to employ violence on civilians. Can you tell us what you have found out so far on that subject?**

A: **Jeff Goodwin**: What I've found is that it has to do with the relationship between civilians and political authorities and armed actors. And basically, when civilians are understood to be complicit in the actions of the political authorities or armed actors there is a tendency to treat them as legitimate targets, whereas if they do not seem to be directly involved or benefiting from the actions of those authorities or armed actors, they will not be targeted. There will be no point in targeting such civilians. But as I say, it comes down to whether or not they're understood to be complicit in the actions of armed actors.

Can you tell me of any current insurgent groups that have chosen not to employ civilian violence?

There have certainly been cases in the past in which certain guerilla movements have generally not targeted civilians, but have limited their attacks to soldiers and security forces and have tried really hard to mobilize civilians. I think this is the classic guerilla strategy, which is certainly not to target indiscriminately civilians but to try to build alliances with them. You tend to get the terrorist element when we're talking about ethnic conflicts—ethnic or nationalist conflicts—in which the ethnic group or the national group on the other side of insurgency, or on the other side of the counter-insurgency, tends to be viewed as complicit in supporting armed actors. They then become targeted in counter-guerilla warfare, or they become the target of terrorist attacks by insurgents.

So, when the ethnic dimension is there in insurgencies in ethnically-divided societies, there's a high potential for terrorism on both sides of the conflict. If we're talking about insurgencies against a dictatorship, or class-based insurgencies, you tend to see less insurgent terrorism. You do typically see a great deal of state terrorism in such conflicts, but not so much insurgent terrorism. So, in classic insurgencies like China, Vietnam, Cuba, Nicaragua, and El Salvador, most of the insurgent killings or violence by far was directed against soldiers, police, and security forces, not against civilians.

Over the past few years there have been media rumors and speculation that there might be Al-Qaida threats in Latin America. Based on your research in Central America, do you think the area could be vulnerable to transnational insurgent groups and/or Islamic extremists?

I don't really think so. I'm not sure what the scenario would be for that. One could imagine Islamist militants perhaps trying to insinuate themselves into Latin America from overseas, but I would think that they would be rather conspicuous, quite frankly. It would be hard to operate there without generating a great deal of attention. Now, perhaps some militants could melt into some large city—Mexico City or somewhere like that—and from there try to organize attacks on the United States in the same way that Al-Qaida militants used Hamburg, Germany, to organize attacks on New York and Washington. What 9/11 shows is that you can organize terrorist attacks involving a relatively small number of people from anywhere on the planet, wherever you have some degree of safety and access to funds. But in this sense, though, it's not a specifically Latin-American problem. I think if Islamist militants are going to set up shop somewhere to organize attacks, it's much more likely to happen in Europe than in Latin America.

Why do you say that?

Well, first of all, Europe has a much, much larger Muslim community in which such militants could operate without attracting attention. There are very large Muslim populations in France, Germany, the U.K., Spain, and even in Italy. You don't really find such Muslim communities in Latin America, where the Muslim population is in fact extremely small. So, for this reason alone, I would think that Europe would be a much more attractive site for launching these sorts of attacks compared to Latin America even [when] compared to Afghanistan or Pakistan.

Now, on the other hand, Europe also has more proactive police and security forces who are involved in counter-terrorism and who might induce some of these groups to try and set up shop outside of Europe, in Mexico or somewhere else in Latin America. But, again, I think that the problem there is that because there are so few Muslims, these groups would quite readily come to the attention of the local community and local law enforcement. I think it would be much more difficult to operate freely there than in Europe, where of course Muslims are a significant part of the population. Also, Europe is not only the staging ground for terrorism but also an incubator of anti-American sentiment among the Muslim population in those countries. The best example of this of course is the individuals involved a few years ago in the attacks on the transportation system of London, individuals who were British citizens but also Muslims who were quite unhappy with the United States and with British support for U.S. actions in the Muslim world. So I think that's a more likely scenario, namely, that Muslims living in Europe would become involved in attacks on the U.S.

Do you think this possibility is something the U.S. should be concerned about?

Well, I think the U.S. has been well aware of this possibility ever since the so-called shoe bomber incident in which a British Muslim apparently attempted to bring down an airliner flying to the U.S. by lighting some explosives in his shoes. I think ever since that

incident this potential threat from Europe has been on the radar screen of U.S. officials. And there have been other plots involving airplanes flying from the U.K. to the U.S. None of these have come to fruition, but I think it's something that intelligence services are actively looking for at the moment and will continue to expect.

Are there any other countries or areas that you think are currently particularly vulnerable to a new surge in terrorist or insurgent activity?

Perhaps the U.S. itself. This recent incident at Fort Hood is quite interesting. It seems to be a case of an American-born Muslim, an army officer, becoming extremely upset with U.S. policy in Iraq and Afghanistan and killing fellow soldiers to prevent them from going there. And there's another recent incident, I believe, prior to this, involving an American Muslim who also attempted to carry out a terrorist attack. So, I think this is something that authorities may be worrying about in the future, especially in the light of the Fort Hood attack, namely, that there may be Muslims in the United States who might start attacking troops or even civilians—so-called "homegrown terrorists"—out of a sense that this is a way to oppose U.S. actions in the Middle East and the rest of the world. But it's hard to say if this is a major threat. I think the consensus is that the Muslim-American population is not particularly anti-American or hostile to the U.S. government. Politically, it's quite moderate compared to at least some sectors of the Muslim population in the U.K. and in Europe. It seems to be better assimilated than those populations, and it feels less discriminated against. And yet the Fort Hood incident reminds us that it there are some in that community who are nonetheless upset by U.S. policy in the Muslim world. So, time will tell if in fact this is a serious threat or if this Fort Hood incident is really quite an aberration. But if the wars in Iraq and Afghanistan drag on, we may see more such incidents. We'll just have to see.

Based on the research you've done on the workings and goals of terrorist organizations, how do you think U.S. policy needs to be structured in order to be most effective at stopping these insurgent groups?

Well, I don't think that U.S. policy is really capable of changing in the short or medium term in ways that would reduce the terrorist threat. That would really require, I think, a major reorientation of U.S. foreign policy. The principal concerns of the Islamist jihad, if you like, this loosely organized movement against the United States involving Al-Qaida and similarly-thinking groups, are reducing the U.S. role in the Muslim world and more specifically ending U.S. support for states that are abusive of Muslims and of human rights. We're talking about Saudi Arabia, we're talking about Israel, we're talking about Egypt, among other governments, and I just don't think anyone should hold their breath for the United States to end its support for these governments. That's just not going to happen in the foreseeable future. So, what this means is the terrorism will likely continue. The motivation for terrorism will be there, so counter-terrorists will have to operate on a tactical plane, trying to reduce the opportunities for attacking the United States and trying to undermine the capacities of

certain groups that are waging these sorts of attacks. However, I don't think it's possible to eliminate the underlying conflict given the current realities of political power in the United States and in the Muslim world itself. So I don't really see anything the United States can or will do to remove the motivation that some Muslims have to attack us. Mind you, I don't think this is a major concern of the U.S. government, to be honest, compared to the geopolitical and especially the economic stakes—above all, oil-involved in the Middle East and in the Muslim world. The U.S. is much more interested, I think, in maintaining a position of power and influence in that part of the world than in addressing the problem of terrorism. I think political authorities in the U.S. can and will live with the terrorist threat and, as I say, address it on a purely tactical level as best they can.

THE FUTURE OF CYBER SECURITY

Economics driving cyber security moves

Interview with Dr. Udo Helmbrecht, Executive Director, ENISA

Q: **IA-Forum: Your organization began operations in September 2005. How would you say cyber security threats have evolved since then?**

A: **Dr. Udo Helmbrecht**: Broadly speaking, both the need for more security and an interest in more security has increased hugely in the last couple of years. If the most influential man on earth, U.S. President Barack Obama, has a problem with his PDA, then security is a matter to be taken very seriously. There will never be 100% security, but more awareness of security and the need thereof for the economy, raises the stakes. Cyber security threats, mainly committed by organized, professional criminals, have increased. There are also, as always, other new risks when developing new technologies, services, and applications where new solutions have to be found for mitigating security gaps.

So, the willingness to increase the speed, to walk in the same direction, and to increase the cooperation in security matters is clear. Why? Well it's no wonder; the economic driving forces are very strong; this touches the daily life of business, and thus the economy, as well as of citizens. Access everywhere-secure nowhere is the title we have for a report on mobile EID. In that sense, 'security *is* the business.' So with the economic drivers it is only natural that the temperature has risen and that security is higher on the political agenda. Also, President Obama has installed a High Representative for security matters in the White House. The EU President Manuel Jose Barroso has highlighted the digital agenda as a particular focus priority for the new EU commission in his speech of Sept. 3 and nominated a new Commissioner for these matters, Mrs. Nellie Kroes. So that shows the way security matters will be more in the limelight in the years to come.

How well prepared would you say European nations are in terms of cyber security?

Overall, quite good, but Europe's member states need to increase the speed and work more together more closely to be more effective. There's a group of member states who are more advanced, the frontrunners, who have been working with security for 15 years or more. And there are of course also others who are quickly picking up speed, mainly smaller or new member states.

You work with both member states and the business community. How well would you say the two have been at working together?

Both sides of the coin exist—governments are regulators whereas the private indus-

try owns at least 80% of the companies and operators concerned, who are governed by laws. One example of this is the key question of EID cards and how to authenticate yourself in a secure way doing online banking or tax declarations. But with better and more online services, online fraud is also on the rise. We recently launched one of our studies on EID in our new position paper, this time focusing on authentication risks with European EID Cards. For Europe, secure EID interoperability is crucial for making the internal market at a digital level. Thus security is key for the economy of Europe—security economics. One of the most used electronic services by European consumers is online banking. With 24 hour service availability, it's very convenient. What we can establish in this field is that electronic identity cards offer reliable and secure electronic authentication to Internet services. Nevertheless, banks and governments must cooperate better for it to be possible to use national EID cards for banking purposes. So that is one example of where more cooperation, contacts and trust are needed.

What kinds of threat are you particularly focused on moving forward, and do you see the main threats coming from individuals, criminal organizations or other states?

It's important to bear in mind that ENISA is only working in the prevention area, one of the three 'P'-drivers in security, not the operational area of Prosecution or Protection. That responsibility lies at the member level. Nevertheless, we produce our expert reports—the recommendations or guidelines that often are the first step for the EU commission to legislate in the security field. Our technical reports are, as such, important to mitigate threats at a structural level across the EU. The level threats you mention are of different characters, therefore they consequently cannot be measured at the same scale; external threats from states are in the driver-field of protection or defense. Cyber criminals have other financial objectives, and are in the driver/field of prosecution.

For state level threats, it relates to the internal capability of a state to implement and take up the best security practices. Another field, where do not operate in the field, is external threats, such as massive cyber attacks. Again, what we do here is to support the build up of so-called 'digital fire brigades', the Computer Emergency Response Teams. We are pleased to have supported the buildup of these across Europe with best practices and training. In 2005, when we started operations, there were eight CERTS, in 2008 there were 14 and in 2009 there are 16, with nine more in a well advanced state of planning to go live. This means that now there's only a handful of countries still missing a CERT. That is an accomplishment for Europe.

Another level is e-identity where we do a lot of work and which will be crucial because of the economic need for secure electronic identities. Cyber criminality like phising, identity theft, and botnets are other areas where focus is likely to increase in the years ahead.

Broadly speaking, how would you assess overall awareness of these threats in Europe?

It is very difficult to give a precise picture, as the situation varies a great deal among member states. Also, within the member states themselves, and different sectors of society, awareness differs. It's picking up, but there is also much to be done still by the member states. But it's safe to establish that the major, big companies, are doing well and are well protected. SMEs however, constitute the vast bulk of Europe's economy, and are less well equipped. The SMEs often lack the knowledge and financial resources to address these matters. However, new technologies like cloud computing, where we have recently produced a comprehensive report http://www.enisa.europa.eu/media/press-releases/enisa-clears-the-fog-on-cloud-computing-security-1, is pointing the way forward in a positive way, especially for SMEs. They could use our check list for assessing risk while using cloud computing services, where they could find much better security at the same investment levels.

Any thoughts on what you would like to see member states doing moving forward?

We would like to see every member state have a clear cyber security strategy, and a national or governmental Computer Emergency Response Team, as should the EU-institutions. To raise more awareness of security matters is also on the table for the member states, as the best security measure is using your grey brain cells. In the end, it's not only about the member states themselves, but how they cooperate at a European level, which is crucial for the common security challenges that we face together.

We're in the midst of a cyber war, but we can win

By Gail Harris, author 'War on any Given Day'

We [the U.S.] are in an undeclared cyber war; one that could at anytime bring our nation to its knees. Reported incidents of malicious cyber activity against the Department of Defense (DoD) reached 43,880 in 2007 and 54,640 in 2008—a 20 percent increase. In the first six months of 2009 there were 43,785. Projecting out to the end of the year we're looking at a 60 percent increase compared to 2008.[1]

One incident in particular is very disturbing. In 2008, United States Central Command (Centcom), in charge of the conflicts in Afghanistan and Iraq, came under attack.[2] In a *60 Minutes* interview, Jim Lewis, Director and Senior Fellow of the Technology and Public Policy Program of the Center for Strategic Studies, discussed the incident, stating the unknown foreign adversaries were able to imbed themselves in the Centcom networks. "They could see what the traffic was. They could read documents. They could interfere with things. It was like they were part of the American military command."[3]

In spite of the Herculean efforts by many, government officials continue to voice concerns that not enough is being done and efforts are fragmented. United States Strategic Command (Stratcom) is the DoD cyber lead but is responsible for DoD networks only. The Department of Homeland security is responsible for defense of the civilian government infrastructure and can call on support from Stratcom as needed; but, the question of who is responsible for protecting the rest of America has yet to be solved.[4]

Perhaps those working the issue today might find some inspiration in studying lessons learned from one of the greatest collaboration success stories never told. In August 1999, I was assigned to United States Space Command's (Spacecom), the initial DoD cyber lead. My task was development of the cyber intelligence architecture for all of DoD. In laymen's terms this meant designing the role intelligence would play. This would involve working with and building a consensus among over 30 different DoD commands as well as the intelligence agencies.

Although there were pockets of dedicated intelligence professionals doing great things at various commands and organizations, there were no community wide agreement in place that defined the roles and missions. There was no plan in place to determine how the community would handle reporting and analysis on cyber threats, no intelligence information collection plan nor was a system set up to share intelligence databases on cyber threats. There had been various attempts over the preceding two years

[1] 2009 Report to Congress of the U.S. China Economic and Security Review Commission, page 168. Available at http://www.uscc.gov/annual_report/2009/09_annual_report.php. Accessed November 30, 2009.

[2] Rebecca Grant, "The Cyber Menace." Airforce-magazine.com. Available at www.airforce-magazine.com/

[3] Steve Kroft, reporter, www.cbsnews.com/

[4] General Kevin P. Chilton, Commander-in-Chief United States Strategic Command, Washington D.C. House Armed Services Committee Testimony, www.stratcom.mil/speeches/21/House_Armed Services Committee Testimony 12/5/2009.

to build a consensus but those efforts had met with only limited success. Many felt the problem was unsolvable.

I encountered several obstacles. First, I found myself in the midst of a firestorm dealing with some very angry and frustrated people. Although Spacecom would not actually assume the cyberspace mission until October 1999, many felt the intelligence people in the command had been given enough lead time that some preparation should have been done ahead of time. There were some who feared Spacecom would develop the intelligence architecture without consulting with anyone. There was also lots of political infighting with various individuals and organizations fighting over who should really be in charge of the intelligence architecture development. Some of the individual organizations had developed solutions they were happy with and were afraid of change. There was a lot of "mine is better than yours" mentality. Others didn't want outside intelligence organizations accessing their computers and data.

The anger was also fueled by a tremendous sense of urgency. Real world events coupled with the results of a high profile war game, "Eligible Receiver 97" caused many within the community to fear our nation would suffer a cyber Pearl Harbor if we did not get our act together soon.

"Eligible Receiver 97" was the first large-scale military exercise designed to test U.S. response to an attack on both the military and civilian infrastructure. During the exercise NSA personnel were able to inflict a large amount of simulated damage on DoD networks as well as power grids and 911 systems in major U.S. cities.[5] There was one incident called Moonlight Maze that sent chills up and down the spines of the community. "U.S. officials accidentally discovered a pattern of probing of computer systems at the Pentagon, NASA, Energy Department, private universities, and research labs that had begun in March 1998 and had been going on for nearly two years...the invaders were systematically marauding through tens of thousands of files. The Defense Department traced the trail back to a mainframe computer in the former Soviet Union...Russia denies any involvement."[6]

Second, there were many within the intelligence community, probably motivated by budgetary concerns, who did not believe cyberspace was an intelligence problem. They felt it was an issue the communications and information technology specialists within DoD needed to resolve. The Clinton administration had made significant cuts in the intelligence budget after the fall of the Former Soviet Union. With reduced assets and personnel, some found themselves hard pressed to deal with the traditional intelligence issues without adding yet another intelligence problem in the mix.

Opposing that view were those who believed cyber weapons were simply the newest forms of weapons and like the more traditional threats posed by enemy aircraft, ships, missiles, etc; could cause some very significant damage especially to nations like the U.S. that are so heavily dependent on technology supported by the internet. At the time something like 70 percent of DoD communications at some point in their trans-

[5] Interview with former Deputy Secretary of Defense John Hamre conducted Feb. 18, 2003, www.pbs.org/wgbh/pages/frontline/shows/cyberwar/warnings, Info published Apr. 24, 2003. Accessed 11/30/2009.

[6] Interview with John Arquilla, Associate Professor of Defense Analysis at the Naval Post Graduate School. Interview conducted Mar. 4, 2003. Info published Apr. 24, 2003. www.pbs.org/wgbh/pages/frontline/shows/cyberwar/warnings.

mission path went over the internet and were thus very vulnerable to disruption. It followed then that just as the intelligence community tracked the capability of potential enemies to use these and other weapons against us, the intelligence community should also focus on the capability of nations and transnational organizations to use cyberspace against us. As always, the role of intelligence would be to support the decision-maker by providing necessary threat information in the time and format required to make decisions. This support would not just be working with the traditional customers of military intelligence, the war-fighters, but also the people responsible for maintaining our communications networks as well as well as those responsible for monitoring threats to our critical civilian infrastructures. In business parlance the intelligence community would need to expand its customer base.

The Spacecom intelligence staff decided the problem was so huge that the best tactic was to approach it like the old joke: "How do you eat an elephant? Answer: One bite at a time." We decided to host a conference and put together working groups composed of people from all DoD commands and organizations as well as the major intelligence organizations and industry representatives.

The focus of the conference was to have three working groups, each focused on one problem. The first would determine what type of information the intelligence community should be looking to collect in order to determine cyber capabilities of potential enemies. The second group would look at the cyber intelligence database issue. In order to provide the best support everyone in the intelligence community needed to use the same or interoperable databases so that information could be easily shared or retrieved. The third group would look at the intelligence reporting issue. When and how would intelligence reports be sent out on computer incidents?

The conference was a success. In just one week we were able to solve problems that people had not been able to solve over the preceding two years. It was actually pretty simple, but that didn't mean it was easy.

First, we asked the commands to only send individuals who were authorized to make decisions for their command.

Second, at the start of the conference we reminded everyone what our purpose was as a community. Intelligence exists only to support the decision maker. There lies our true loyalty and purpose.

Third, we set up a rule that if during the course of discussions an individual brought up a problem, in the next breath he or she had to give a recommended solution.

Fourth, each day the working group chairs had to give a report to the senior Spacecom Intelligence Officer, Captain Mike Kuhn, on their daily progress and on any issues that came up. This was critical as his presence showed the high priority Space-

com was making towards these efforts.

Fifth, we arranged for the working group chairs to provide detailed briefing to senior leaders of the intelligence community via video conferencing at the end of the week. We counted on both the professional pride of attendees and a reluctance to appear ineffective in front of the leaders of the community to make them want to succeed.

Sixth, each of the working groups was lead by individuals from other commands. This showed Spacecom was really serious about consensus building. The Spacecom intelligence staff attitude was best personified by a Harry Truman quote: "It's amazing what you can accomplish if you do not care who gets the credit."[7]

[7] www.quotegarden.com/goals.html. Accessed December 7, 2009.

Seventh, the Working Group Chairs kept their groups together long after the conference ended following up on all of the action items. Particular mention should be made of the extraordinary efforts of Captain Terry Roberts, Captain, USN (Retired) and Commander Bob Gourley, USN (Retired) who co-chaired the Database Working Group and Don Lewis who chaired the Reporting Working Group.

Don Lewis, now retired from the Defense Intelligence Agency, told me as he attended Cyber Conferences in the years following our effort that he was frequently asked to give a presentation detailing our early efforts. People were always amazed and inspired that so many different organizations were able to work together so well.

I read with a sense of pride the March 2009 House Armed Services Committee Testimony of General Kevin Chilton, Commander-in-Chief of Stratcom. "...what we have been asked to do...is to operate and defend the military networks only and be prepared to attack in cyberspace when directed. But day in and day out, our focus is on operating and defending our networks. And that takes a close relationship with the intelligence community. We rely tremendously on support from the intelligence community."[8]

[8] House Armed Services Committee Testimony, General Kevin P. Chilton, Washington, D.C., 3/17, 2009. www.stratcom.mil/speeches/21/House_Armed_Services-Committee_Testimony accessed 12/5/2009.

When you are a nation at war, even an undeclared one, you need to motivate people to think beyond their organizations or companies and focus on winning the war. We need only look only at our history for inspiration. During World War II, by the end of the first year of war, our country had raised its arms production to total of all three enemy powers put together, and by 1944 had doubled it again. To the more cynical I would say you cannot tell me there is not a business case that can be made to fight cyber threats. This is a war we can win...but only if approached with strong centralized leadership and lots of good old American ingenuity.

Multi-pronged offense is always a best defense

Interview with Terry Roberts, former Deputy Director of Naval Intelligence

Q: **International Affairs Forum: You had a long and diverse career in military intelligence. Where do cyber security and intelligence work dovetail?**

A: **Terry Roberts**: I take this from a much broader perspective and look at it as the overall cyber environment. It is all those missions and functions that we perform; it is all the people who are living, working, and socializing in that operational space. So all mission sets are now conducted within and are a part of cyberspace. So the cyber arena is a key area for knowing our adversaries, knowing their capabilities and intentions, and protecting ours. That's how I think they interrelate.

On October 1st, Deputy Defense Secretary Lynn noted that the DoD faces many cyber threats "from teenage hackers, to organized crime networks, to attacks by foreign intelligence services." From your vantage point, having recently left a senior position in Navy intelligence, what are the two or three most important issues concerning cyber security vis-a-vis the DoD?

I've thought a lot about this one over the last couple of years. So I do have a "top three." I think getting the entire DoD military and civilian leadership on board is the most important thing because today's cyber environment is the most revolutionary change to our civil and military defense since the dawning of the nuclear age. I don't mean to say that in a reactionary way. I actually believe it has even greater implications because it impacts everything that we do, both in the military and outside of the military. It is our operational imperative of today, but I think those of us who are baby boomers, and a lot of the leadership of today are, we just don't get it. There needs to be a focus on enabling them to get it, that it is our greatest threat to our operational capabilities and our national security today, other than nuclear and biological warfare.

Do you think that new leaders coming up in their 20s, 30s and 40s in the military do get it?

I think they get it at a tactical level. They're looking for that leadership and that vision and that operational framework to play within. There are leaders within the landscape who get it but they are the minority. So then it's about what is it that we need to educate the leadership on? You can have seminars, senior-level forums and panels to provide that feedback. Whatever are the normal venues that we do to educate and to promote dialog and discussions with our government seniors, I think it's leveraging all of those vehicles but focusing on this. When you look back to the nuclear age and you see all of the discussion, dialog, venues, strategies, brainstorming, and engagement

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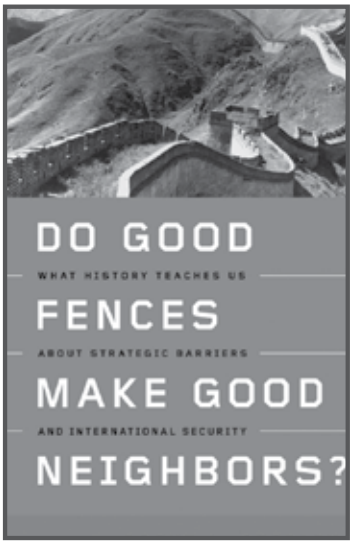

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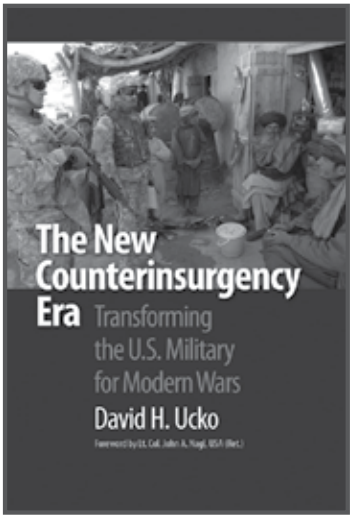

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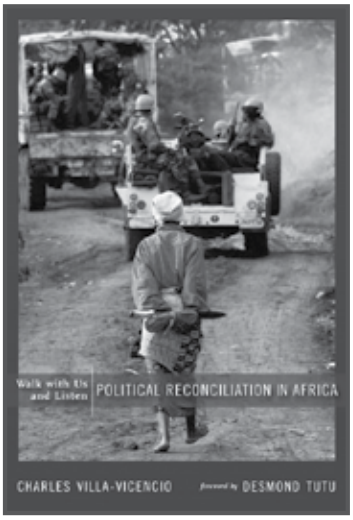

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with academia and internationally, it was a decade or two long process. And I think we need to be embarking on that at the same level.

So I assume that you would look at President Obama's formal cyber security review this past spring as sort of a top-down leadership way to keep this thing moving forward.

Absolutely. The three major venues that I'm familiar with are the CNCI, the Comprehensive National Cyber Initiative that Melissa Hathaway led; the cyberspace policy that the President brought out in May; and, then the cyber security commission that Congress led the first phase and is now in the second phase. All of that is great cross interagency, high-level driven kind of vision and stuff.

The DoD has begun sharing intelligence on cyber threats with some of its largest contractors, and in turn they've shared their security breaches with the DoD—this is in the "Defense Industrial Base" (DIB) initiative. This hardens some of the contractor networks, but surely it missed some of the other smaller contractors and subcontractors?

Right. As you probably know, our CEO, Paul Nielson, is a member of the DIB. I really think it's a critically important pilot program, and that's really what it is. It's an initial approach. There is definitely a recognition that smaller contractors and subcontractors are equally at risk and that we need to eventually broaden the effort. But if you don't start somewhere and build it up, try out your processes and build that trust and sort of set up a battle rhythm, you've got to start there. Then you can start going in the next level. One of the venues that was recently brought up that could be the next level is the INSA [Intelligence and National Security Alliance] recent white paper that came out, called "Addressing Cyber Security Through A Public/Private Partnership, An Analysis of Existing Models." It focuses on that sense of urgency of the development of a private/public formal partnership that's broader and inclusive of DoD, but of all industry; it's really a model that could be a comprehensive approach that provides a platform for that mutual benefit for showing that we got to focus on what we call 'net safety', very similar to the axioms for aviation safety and electric reliability forums that we have set up before. This is not an area where DoD drives all the innovation. This is an area where the commercial sector owns most of the infrastructure that we're relying upon and ties to. So it really has to be between DoD and the larger group.

Now, it seems that cyber warfare has become another tool in a military arsenal, ours and others, and information networks are a new virtual battlefield. According to a 2008 report, China's cyber capabilities are outstripping the U.S.'s to the point that the United States cannot detect a Chinese cyber attack or intrusion. Yet on October 1st, Deputy Defense Secretary Lynn said that DoD must cooperate with nations around the globe. So how do we deal with trading partners who may likely also be virtually attacking us?

I think you have to approach each area in its own arena. We will always be competitors, and this is with the greater partnerships around the world, and at times, we may find ourselves as adversaries, and maybe not even in a state-to-state way. So with China or any other adversary, it really doesn't matter. This is a global threat arena. So we have to know how to deal in that global threat arena and keep things separate, our economic relationships, and then work the cyber threat arena in its totality. But it isn't just a Chinese issue. There are a lot of other adversaries out there with even greater, more cutting-edge capabilities than we've seen from China.

What scenario do you imagine in which a cyber attack could occur or escalate that would justify a military response?

I can't walk through the national command authority logic train. Why I am involved and passionate about cyber assurance and cyber security is because I know what can happen. I visited Singapore and other places in the world where I can see if they attack that port authority's net and infrastructure, and that port authority can't operate, you shut down that port where 50% of the world's trade is going through, you can have a huge impact. Long Beach was closed for a few days because of strikes; billions of dollars were lost. If a port can't operate, then it can be a huge international economic issue and that's just one microcosm of what could occur.

The Secretary of Defense is about to announce a DoD policy on the use of social networking services [SNS] for military personnel. A DefenseLink article in August listed some of the risks of using SNS, such as violations of operational security, network vulnerability, and bandwidth drain. Yet the Chief of Naval Operations recently said that sailors were using social networking tools for operational tasks, such as command and control. With your expertise in communications technologies, software and architectures, what's the real risk in the military's use of SNS?

When you become a member of the civilian or military team in the U.S. government, you are then in a position of trust, and sometimes there are varying levels of trust, confidence, and insight that you're provided. So you always know that by joining that team, that you therefore have to limit some of your personal life and personal interaction. And the more sensitive a position you're in, the more limitations there may be. Ten to fifteen years ago, when I was in the Navy, I first gained insight into adversaries going on our open source lines to track where our commanding officers lived and who was in their command. So you can imagine how much more sophisticated it's gotten today. So unfortunately with joining the government or the military, there has to be some limitations on what you can put out for our adversaries to exploit.

In 2007, the Navy created an expeditionary intelligence command whose mission was to provide tactical force protection, indications and warning intelligence, enabling commanders to conduct missions across the full spectrum of expeditionary and major combat operations. How might that kind of unit be involved in

cyber warfare?

With a wireless environment, and with the capabilities that we have on both the commercial and the military side, with a cyber-enabled adversary, all the tools of the trade are at play. So why would you kill an adversary if you could disable their C2 [command and control] or their power source or their re-supply, or discern their intentions by exploiting their C2? You would want to use all of those tools at your fingertips, which are quickly being able to go into almost any arena forward.

Government Executive and other sources have talked about the Navy combining the functions, personnel and resources of separate intelligence and communication networks into one large information dominance unit, which will create the Navy Cyber Command, which I believe is the 10th Fleet. The goal is to better equip, man and train the Navy in the 21st century. How do you think this new unit will be an improvement?

Having been a member of the intelligence community, I focus on one of their key strategies, which is decision advantage. To me, that is what we have to deliver today to both our commanders and our operators in the field. And it really doesn't make sense to have your networks not operationalized and not leveraged and truly insuring that we are providing decision advantage down to the tactical level. So this kind of aligned and unified focus makes a lot of sense. Where it's going to eventually go and how comprehensive it's going to become, vis-a-vis the other commanders and their sphere, is still yet to be worked out, but I think it's the right first step.

It seems there are quite a few cyber commands popping up in various levels and organizations throughout the U.S. government, e.g., a naval cyber command, the Dept. of Homeland Security, the Commerce Dept having their own internal cyber commands, also the DoD the cyber command, which goes up through STRATCOM which may have a line going to the National Security Agency. Is this going to create too much stovepiping?

Well, anyone who owns, operates, and has responsibility for networks is going to have to perform basic 'man, train and equip' functions for those networks, whether on the DoD side, the civil side, or the industry side. What is important is that we set up leadership alignment, synchronization, coordination, and transparency in key functional areas, like situational awareness, indications and warning, and new threat sectors. So it really becomes a matter of what are the roles and responsibilities that are inherent at the department and agency level, or industry, company, and corporate level. Then, what are those that truly need to be instituted at an interagency level?

The Defense Advanced Research Projects Agency is putting up a "cyber range", a model internet to actually do some tests for simulations and threats. Should the U.S. Cyber Command have offensive as well as defensive capabilities?

I think they have to work through all the national command authority issues associated with that, but the Department of Defense side is an offensive and defensive capability, so they have to have the full gamut available to them. But it has to be structured in a unique way, because it isn't strictly always in a military sphere.

How can the acquisition process be streamlined to keep up with new cyber security technologies and software and hardware vulnerabilities?

At Carnegie Mellon's Software Engineering Institute [SEI], we have worked on this extensively because we support over 100 DoD, intelligence community, and civil major acquisition programs, many of them systems, or 'system of systems' or ultra-large systems. So there's a difference between if it is truly a major acquisition program, or it's more of a developmental evolutionary architecture that is evolving, and then you're adding software applications and services, and you're integrating and upgrading. There needs to be a defined difference between something that is truly a startup major acquisition program versus a developmental or evolving network environment. For that we need to be more in tune with the kinds of gates and availabilities on the commercial side, so that we can keep up with the commercial sector's R&D and advancement in that arena, which is where most of it is taking place. We have to have different approaches, different models. This is something that SEI is on the forefront with, along with Department of Defense.

When you went to this new position at SEI, as Executive Director for Acquisition Support, Cyber/Interagency, what were two or three things that were most appealing about this new job?

First of all, being the interagency lead for SEI to include its CERT [community emergency response] function because I felt that there was just an incredible amount of innovative and truly groundbreaking work that was being done, but they were not able to go in at the senior levels and to connect with the right people who were making those key decisions right now, so that we can help them to have a positive impact. Number two was the realization that, as the first CERT that was ever established in 1988, and the groundbreaking work that SEI has been doing ever since, that if we didn't partner effectively with the government, that our advances were ultimately going to show up on the industry side, versus being a part of the overall government foundational approach to cyber assurance for the next ten years. And so I wanted to be a part of those discussions, and hopefully some of the solutions.

Can you explain a little bit about what the CERT is?

There are all different kinds of CERTS, and actually ours is broader than the current definition, which is limited more to emergency response. Ours actually focused both on current operations and what you see in the cyber security arena. But more importantly,

we focus on research and development in some foundational areas, such as 90% of all cyber vulnerabilities are the result of software weaknesses, but many folks don't focus on the software side of the issue, because it's not seen as the sexy work, or of the foundational work. But the bottom line is, if you don't use our software standards that we help to develop with the international community, then you're starting with a faulty, insecure foundation to your cyber environment.

So at this point are there international standards that people are adhering to or working towards?

Yes, we work with the international community to help establish those standards. But there are no mechanisms in place to promote the international acceptance of those standards, unless you're a member of one of the international associations, like First. First is actually the first international CERT-focused organization that has brought together many of the international CERTs and players, to try to work on these kinds of cyber security issues and partnerships. We were established in 1990.

Is it possible to create a more secure network, maybe a classified kind of network for defense contractors and power grids for instance that's not so vulnerable as the internet and open source software are now? Maybe a second-tier internet?

Absolutely. SEI and others in the research community have developed many of those approaches, frameworks, and models. For instance, out most recent textbook is on resiliency modeling. That approach is the idea of truly "baking in" assurance and security and how you design, develop, acquire, integrate, implement and operate your architectures, so that you are truly baking in that resiliency into your processes. You can use open source software, but then you have to put it through its paces. So tools, protocols, and approaches for doing that are also initiatives that we work on with the community. There are a lot of things that you can do that are foundational and enduring, as opposed to only focusing on a patch, reactive kind of mentality, which is not a long-term solution.

Does it make sense to create keys and encryption to harden networks?

I have not had the time yet to become a technical expert in this arena, but I would say that a multi-pronged offense is always a best defense. Encryption is certainly a part of that but it is not the solution. Encryption protects your data, but it won't protect your network.

What is foremost in your mind when you hear about the increasing sophistication and capabilities of cyber attacks on U.S. military networks?

Inevitable. I've watched it from the very beginning when I first became involved in the mid-'90s. I think when you look at it today, you realize the reason that we're in the

position we're in is because we looked at the enabling power of the networks as opposed to treating it as a command and control capability and building in the assurance and security from the beginning. Now we're in the reactive or band-aid approach, and then realizing that's not going to work. So we are truly looking at how to design things from the bottom up. The good news is, because of all that activity, I think everyone on the industry and the government side is taking notice and realizing that the approaches that we've taken in the past are not going to be enduring and are not going to be the solutions. Certainly the volume of malware generation development and evolution has gone up a hundred-fold over the last 10 years. So then, again, traditional methodologies are not the long-term solution. Research and development and all of us working together in that arena are going to be key approaches that we're going to have to adopt.

Is there anything else about SEI and your current work that you'd like to highlight regarding cyber security or assurance?

I think the most important thing today is that there is a tremendous amount of great work being done at places like SEI and the labs. What we don't have is the enablement, the focus. I think setting up a cyber technologies task force within DoD and perhaps across the interagency and partnering with industry is something that we need, so that our work is connected and enabled in support of all government requirements and key government partnership with industry.

Thank you, Terry.

Public-private collaboration key to cyber security

Interview with Mohd Noor Amin, IMPACT, Malaysia

Q: **IA-Forum: Your organization has been set up to combat cyber-terrorism. Do you see such threats most likely coming from individuals, groups or even states?**

A: **Mohd Noor Amin**: IMPACT's mandate is to combat not only cyber-terrorism; that scope has been expanded to address all cyber threats that could potentially be harmful to nations, be it distributed denial of service, online scamming, or malware and hacking attacks.

The blurred borders of cyberspace and the anonymity provided by the Internet are factors that have fuelled the spike in cyber threats; and IMPACT does not see this trend diminishing anytime soon. While we are unable to pinpoint individuals, groups or states due to our non-prejudicial and politically neutral premise, what we can tell you is that cyber threats are already a critical concern for many countries.

Take the U.S. and the U.K. Both governments are seeking to review and overhaul their organizational structures, policies and procedures to strategically and effectively respond to the escalation of cyber threats.

In the U.S., President Barack Obama announced the creation of the post of national cyber-security coordinator who will report directly to Mr. Obama. The U.S. government will also be collaborating with private groups to create a comprehensive national cyber-security policy. These actions indicate that the White House is designating cyber-security as a key management initiative. Besides this, the U.S. government will create a national cyber-security education program and will invest in cyber-security research and development.

In the U.K., the government is starting two new organizations, both of which have been established in September 2009, and will be operational by the end of March 2010. An Office of Cyber Security (OCS) will provide strategic leadership for and coherence across the entire government. According to news reports, this establishes and manages a cross government program that addresses priority areas in pursuit of the U.K.'s strategic cyber-security objectives.

The second center, the Cyber Security Operations Centre (CSOC) will compile existing functions that actively monitor the health of cyber space and coordinate incident responses, while enabling better understanding of cyber threats against U.K. networks and users. In the longer term, this aims to provide better advice and information about the risks to business and the public.

Do you think governments in Asia are treating the threat as seriously as they should?

Certainly. Governments in Asia are either looking at increasing their cyber-security teams, or are currently in the process of doing so. It must be noted that cyber-security is a relatively new area for governments to manage and the fastest way to strengthen public sector cyber-security is through partnerships with the private sector and academia. Only through a collective effort, can the private and public sectors collectively play a leadership role in the interest of national cyber-security.

What kind of emerging threats are you seeing?

We see botnets as one of the biggest threats that will affect the cyber-security landscape. Botnets are malware programs, which enter an end user's machine without consent or knowledge of the end user. It is estimated that one in five internet-connected computers are infected by botnets. No longer are these bot infections or cyber crimes random; rather, they are acts motivated by financial gain. Experts during the latest World Economic Forum Annual Meeting in Davos estimate that online theft costs $1 trillion. That is larger than the GDP of some countries.

These cyber crimes are often carried out by sophisticated transnational crime syndicates that can be mobilized within a very short period of time. Through botnets, a centralized command and control server can access an end user's personal and private information, leading to very dire consequences, such as phishing, hacking, identity theft and complete shutdowns through distributed denial of service.

A typical command and control server overseeing botnets, can manage up to two million personal computers. As a real life example, Conficker is an example of a botnet. Besides botnets, hacking is another rising cyber threat we see at IMPACT.

One of the goals impact has set is to create a cross border approach to combating cyber-security threats. What have you found to be the biggest challenge in encouraging cooperation between states?

There is an assumption that sharing security information will necessarily lead to the loss of a country's sovereignty. Security protocols and proprietary knowledge—online or otherwise—will be believed to be compromised once governments start to share information with each other. While this may have been the case before, it certainly does not reflect the realities of today where the borderless nature of cyberspace and the fast pace at which technology evolves necessitates governments, the private sector and academia to engage with each other in the interest of securing cyberspace. The lack of a suitable—and politically neutral platform—to enable governments, the private sector and academia to engage each other has also been a hindrance.

That is how IMPACT was first conceived—to provide a politically and commercially neutral platform that merges the academia, private and public sectors, helping with the protection and security of government's cyber territories and critical ICT infrastructures. As with any new initiative, it is a challenge promoting understanding and the value of our propositions, which will enable the private and public sectors to collectively play a global leadership role in the interest of national cyber-security.

That said, the response from governments have been quite overwhelming, and we have seen an increase in inquiries about IMPACT.

A broader goal, beyond promoting an understanding of IMPACT's services, is also potentially drafting and implementing a framework, whereby governments globally can leverage upon, to catch and deal with cyber offenders. The issue is that the borders of the Internet are not defined; and with the differences in the legal systems from country to country, the complexities in apprehending cyber offenders can spurn enforcers from proper governance.

Have there been any notable successes so far, or any particularly good examples of best practice by government or the private sector?

A number of countries have recently taken concrete steps in preparing themselves against the heightened risk of a direct attack on their networks. Singapore announced the formation of a new cyber-security authority, the Singapore Infocomm Technology Security Authority which will be responsible for safeguarding the country's infocomm technology assets under the aegis of the Ministry of Home Affairs. The United Kingdom set up the Centre for Secure Information Security to keep crime off the Internet and combat antisocial behavior.

Australia also has advanced its Computer Incident Response Team (CIRT) team, with a new team set to commence operations in January 2010. The new CIRT will work with the Cyber Security Operations Centre set up as part of the Defence White Paper earlier in the year.

Also, in a bid to further help governments boost their internal monitoring and compliance information security systems, IMPACT has made available the IMPACT Government Security Scorecard (IGSS). The IGSS is an automated system that monitors information security compliance based on main internationally recognized standards. IGSS can even manage compliance remotely, spanning different regions and government agencies.

Through IGSS, public sector agencies can effectively manage information security risks against a government's critical IT assets by identifying weaknesses and measuring compliance with latest cyber-security practices.

IGSS provides a centralized and automated analysis of the cyber-security compliance

landscape across the entire government, from the region or office, right to the end user.

IGSS provides a single dashboard view of a government's cyber-security postures and positions via an automated audit environment, which can be distilled down or up to respective ministries and agencies. This is so that governments can individually play a global leadership role in the interest of national cyber-security.

The report augments a holistic approach to managing government-level cyber-security, where a user-friendly report tabulates the final results of respective cyber-security compliance numbers, onto a single platform.

It can also be used as a benchmarking tool, where respective agencies can continually improve cyber-security compliance performance in order to minimize and mitigate risks.

Broadly speaking, what steps would you like to see governments in Asia taking that they haven't already?

As a first step, we would like to call on the governments to advance their basic CIRT, to ensure that basic incidents that involve citizen violations online—that are in-country—do not slip through the cracks. As the world gets increasingly connected, there is a need to protect national infrastructures focused on enabling a connected economy.

Industry statistics share the importance of protecting a connected economy. According to the Internet World Stats, as of 30 June, 2009, Asia Pacific boasted 42.2 percent of the world's Internet users; Africa hosted 3.9 per cent; and the Middle East laid claim to 2.9 percent. During the World Economic Forum in Davos, experts called for a new system to tackle well-organized gangs of cybercriminals, claiming online theft costs $1 trillion a year, and attacks continue to rise. More importantly, the Global Response Centre's (GRC) statistics confirm this grim landscape. From 11 to 17 November 2009, more than 14 million computers globally were newly infected with bots—bots are software applications that run automated tasks over the Internet and are often associated with malicious intent. Conficker had infected 210,000 new computers in that period. On 16 November 2009 alone, the GRC detected eight new malicious bot types. Feeds coming into the GRC saw a 17 percent spike in October 2009, compared to this month.

Without the minimal level of cyber-security infrastructures, response teams, compliances and policies in place, the potential damage from cyber threats by malicious attackers leveraging the Internet would be unimaginable.

Time to enclose the Commons: International agreement and cyberspace

By James A. Lewis, CSIS

Most people did not believe cyber conflict to be a problem for international security until the 2007 events in Estonia, which forcibly reminded nations that we are in a new security environment. Estonia highlighted important features of a new kind of conflict. The perpetrators carefully designed their efforts to take advantage of the anonymity and uncertainty provided by the internet. They planned their intrusions carefully and prepared the assault with a detailed and thorough reconnaissance of Estonian targets. They stayed well below the threshold of an act of war—there was neither violence nor damage in Estonia—although this may in part reflect a warning from Germany that should the attacks escalate, they could trigger NATO's Article 5, where an armed attack against one member is considered an attack against all.

There is little doubt as to who was responsible—the likely scenario is that the Russian security services encouraged their nation's hacker community and provided targeting information. We saw a similar pattern the next year in Georgia, with cyber events coordinated with military action and proceeded by methodical reconnaissance. Neither attack produced casualties, but this reflected a degree of self-moderation rather than some strength of defense. In both cases, it was clear that an opponent who can devote considerable resources to cyber attack would have little difficulty penetrating government and critical infrastructure networks.

And the events in Estonia and Georgia are not the most troubling aspects of cyber conflict. Advanced opponents have the capability to disrupt critical services using cyber techniques. They are likely to use this capability only in the event of conflict, but cyber attack is now part of the arsenal of every major power, just like aircraft and missiles. More importantly, in the absence of overt conflict, advanced opponents will use cyber capabilities to gain significant intelligence advantage—the U.S. has lost the most in this intelligence battle. Cyber criminals, sometimes abetted by the state, are increasingly sophisticated and we are on a path leading to increased extortion, loss of intellectual property, and troubling financial crimes. Terrorist groups will eventually acquire advanced capabilities and will be less constrained than governments when it comes to using them.

The invocation of Article 5 in the Estonian incident is suggestive. It may have had a deterrent effect by creating a threshold that the attackers chose not to cross. Agreements on explicit norms and thresholds for cyberspace could reduce the willingness of states, which have the most advanced cyber capabilities, to use them. This runs counter, however, to the original vision for cyberspace, where governments had a limited

role. Internet gurus in the first flush of commercialization declared the independence of cyberspace from traditional government activities and said it would be a self-organizing global commons. This original approach has failed in the face of organized crime and untrammeled state action.

A signal element of this failure lies with the inability of the private sector to secure cyberspace. We do not expect airlines to defend our airspace against MiGs and Sukhois, nor do we tell banks that they are on their own when it comes to armed robbery. Yet this is a common approach to cybersecurity. The private sector does not have and will never acquire the capabilities to defeat an advanced opponent like the SRV or the PLA (and other nations would add NSA), entities that invest hundreds of millions of dollars and employ thousands of people to penetrate any defense.

Our current "governance structure" is optimized for commerce, but it is inadequate for conflict and crime. There is nothing to prevent or discourage other episodes like Estonia or Georgia. We can only make cyberspace more secure if governments take an active role. The decisions of the 1990s to defer sovereignty in cyberspace to a collection of commercial contracts must change. For international security, this means some kind of formal governance, with rules and structure. It means norms and principles agreed among nations for security, stability and perhaps openness, and some mechanism to hold states accountable when cyber attackers resident on their territory, whether government employees or private individuals, assault another nation's networks.

Our current "governance structure" is optimized for commerce, but it is inadequate for conflict and crime. There is nothing to prevent or discourage other episodes like Estonia or Georgia.

Better security requires formal commitments between governments. There are many obstacles to negotiating these commitments: we lack an agreed lexicon for cyber conflict, there are numerous, conflicting venues for negotiation populated by many nations with a range of interests and unequal capabilities, the cyber problem engages economics and trade as well as security, and there is a hesitation, at least in America, to engage with other countries. Reaching agreement on norms and responsibilities in cyberspace will not be easy, but until as long as cyberspace remains a global commons, do not expect to be secure.

Unresolved policy issues surrounding cyberattacks on critical information infrastructure

By Prof. Pauline Reich, Waseda University, Tokyo

In 2007, Estonia became the first country in the world to experience cyber attacks that shut down its critical information infrastructure.[1] This was viewed as important in the information security, law and military communities worldwide because Estonia is one of the most highly Internet-connected countries in the world. It had the first e-voting. It relies on the Internet for 98 percent of its banking. Even parent-teacher conferences can be conducted online in Estonia.[2]

[1-5] Gadi Evron; NATO War in cyberspace- Tallinn, Estonia 4/27/09 (YouTube), last accessed 12/8/09.

Estonia was once occupied by the Nazis and then "liberated" from them by the Soviet Union. Many Russians saw their country as the liberator of Estonia, and thus saw it fitting that a statue of the unknown Russian soldier stood in the heart of Tallinn, the capital of Estonia, from Soviet times.

However, Estonia was again "liberated", this time from Soviet rule after the breakup of the former Soviet Union.[3]

In 2007, the Estonian government decided to move the unknown Russian solder statue to a site outside the center of the capital, a location near a military base and a Russian cemetery.[4] It was this event that is believed to have touched off the series of attacks lasting several weeks.[5]

The same year I was teaching in Venice for several months, and in June attended two Information Technology/Security conferences in Europe. One was held in Nice, France, the other was the FIRST conference in Seville, Spain. At the meeting in Nice, I met a tech professional who told me he was the first outsider on the scene after the Estonia attacks. I invited him to write a chapter about it for the book series Cybercrime and Security, but he declined and ultimately published a brief article in an International Affairs journal.[6] In the article, he uses the terms "cyber war", "cyber incident" "cyber riot" and "cyber attack" to describe what happened in Estonia. Other articles written about the Estonia events use other terms.[7] The lack of a clear definition made me wonder exactly what happened and how it is that there was no clear, unified legal and policy responses by countries around the world, NATO and the United Nations?

[6,7] Evron, Gadi, Battling Botnets and Online Mobs. Estonia's Defence Efforts during the Internet War, Georgetown Journal of International Affairs, Winter/Spring 2008, p 121-126.

Estonia Calls in NATO after the Attacks

After the attacks, Estonia called in NATO for defensive purposes. A Global Center of Excellence was started by the Estonian Government and NATO near the new location of the unknown Russian soldier statue.

In September, 2009, that Center held a cutting edge conference to brainstorm legal

responses to such attacks. This writer and Ikuo Takahashi, an attorney from Japan, attended.

The conference was an excellent opportunity for experts from various fields to present their perspectives given their varied professional backgrounds—military, defense ministries, intelligence analysts, police, law professors, military affairs professors and others. We were able to share views, raise questions, and realize that these attacks represent an emerging area in which no one is an expert, nothing is carved in stone, and yet things are serious enough to require that we come up with some ways of dealing with such attacks within the parameters of the rule of law. It is also clear that we must devise prudent policies on technological measures in relation to the military.

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Why do Terms and Definitions Matter?

The eminences grises[8] who wrote the Council of Europe Cybercrime Convention[9] reportedly avoided definitions of certain terms in order to allow room for future technological developments. It makes some sense to describe attacks on networks, etc. in functional terms not limited by type of technology. The problem is the existing laws may not address the use of technology in new spaces, e.g. "cyber", a term coined by the military.[10] Military, intelligence, law enforcement and other communities are also now brainstorming what to do when the problem is not crime but national security, i.e., attacks on the critical information infrastructures[11] in countries highly dependent on computer networks, and on which many developing countries are attempting to develop more dependence.

Several years ago, when the Council of Europe Cybercrime Convention was in its initial stages of adoption, Professor Ulrich Sieber, one of the leading criminal law experts in Europe,[12] wrote a book commissioned by the Council of Europe outlining cybercrime[13] issues in Europe and elsewhere. The book looks at various kinds of crimes that could be committed using computer equipment and computer networks, or crimes that could be committed against them.

More recently, the Council of Europe commissioned Professor Sieber and Philip Brunst of the Max Planck Institute in Germany to conduct a research study on cyberterrorism and the Internet, entitled Cyberterrorism: the use of the Internet for terrorist purposes. The book[14] sets out the general questions raised about the issue and then analyzes the laws, country by country, in the EU that might be applicable to cyberterrorism. The problem is, the Convention doesn't define what cyberterroism is![15] Another problem is that there's no consensus among experts in the law and policy fields about whether there is such a phenomenon, and to make matters even worse, the United Nations has not even come to a consensus about what constitutes "terrorism". What is terrorism in one country might just be disagreeing with the government in a vocal manner in another country.

The book looks at how existing cybercrime laws in EU countries can or cannot be ex-

[8-10] See Wikipedia, eminence grise, http://en.wikipedia.org/wiki/%C3%89minence_grise, <accessed 12/6/09>

[11] See Stewart D. Personick and Cynthia A. Patterson, Eds., Critical Information Structure Protection and the Law; An Overview of Key Issues, pgs 69-72, Committee on Critical Information Infrastructure Protection and the Law, National Research Council, 2003, http://www.nap.edu/catalog/10685.html <accessed 12/8/09>

[12,13] See http://www.mpicc.de/ww/en/poub/home/sieber.htm

[14] Council of Europe Publishing, 2007.

[15] For a full literature review of the term, see, e.g., .Maura Conway, "Terrorism & The Internet: A Review of the History, Issues and Responses, "in Pauline C. Reich, Ed., CYBERCRIME AND SECURITY IIA-1, (Oxford University Press, 6/09) and Maura Conway, "What is Cyberterrorism and How Real is the Threat? - A Review of the Academic Literature, 1998-2008,"to be published in Pauline C. Reich and Eduardo Gelbstein, Eds., LAW, POLICY AND TECHNOLOGY: INFORMATION WARFARE, CYBERTERRORISM AND DIGITAL IMMOBILIZATOIN, to be published in 2010 by IGI Global.

The situation with Estonia also raises the question of at what point national security experts move in and what they should rely on for guidance on how and whether to respond.

tended to cover this new issue, which is not even defined.

There are other key players in the discussion of cyberterrorism. One is the United Nations, which had a task force examine whether cyberterrorism really exists.[16] The task force limited its research to looking at use of the Internet for terrorist purposes—one of the possible connections between the Internet and terrorists found by a number of researchers. Its report, republished in 'Cybercrime and Security', concludes that "Perhaps the single most compelling conclusion to emerge from the Working Group's activities has been that there's no single, easily identified 'use of the Internet for terrorist purposes'. Terrorism could occur on, or by means of, the Internet, but it's disputable whether it has happened yet...In the main, tackling terrorism on the Internet doesn't call for measures different from those employed for tackling either terrorism in general, or cyber-crime in general.[17]

Nonetheless, countries that have suffered from real, on the ground terrorism see it far differently, and have passed cyberterrorism laws. These countries include India, Pakistan, Bangladesh and Sri Lanka.

Who Needs these Definitions—and Why?

Law Community

Legal professionals depend on definitions. Lawyers are taught to understand the elements of a crime, while military law experts also need to have some structures that allow them to decide when certain types of attacks constitute acts of war—there are very definite standards for deciding when there's a legal basis for engaging in war.

Judges

Judges must hear cases and apply the law to the facts. Yet there was no law at the time to apply to the Estonia attacks. Since then, though, Estonia has passed legislation to address such attacks[18] and adopted new policies.[19] These are definitely worth a look by

[16, 17] United Nations Counter-Terrorism Implementation Task Force (CTITF), Report of the Working Group on Countering the Use of the Internet for Terrorist Purposes, February 2009 in Pauline C. Reich, General Editor, CYBERCRIME AND SECURITY, IIIA1-UN-1 UN-CTITF (issued 9/09)

[18] The English translation of the Estonian Penal Code is available at the website of the Estonian Ministry of Justice at: http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X30068K8&keel=en&pg=1&ptyyp=RT&tyyp=X&query=karistusseadustik

[19] Implementation Plan 2007-2008 of the Estonian Information Society Strategy. Available at http://www.riso.ee/en/information-policy/policy-document/implementation_plan

other countries, though whether they are suitable for their own particular and legal systems is another question entirely rote copying by other countries would be ill-advised.

National Security

The situation with Estonia also raises the question of at what point national security experts move in and what they should rely on for guidance on how and whether to respond. Again, the Estonian policy may or may not work as a model for other countries worldwide—each country will have to determine what works within its own political and legal system and for its stage of dependence on computer networks and critical information infrastructure.

Policymakers

The same is true for policymakers. One piece of legislation that is now being reworked was introduced in the US Senate by Sen. Rockefeller under which the president would be permitted to shut down private sector critical information infrastructures under certain circumstances (something that might compound the damage rather than resolve it).

The Tech Community

The law and policy communities need the tech community to advise them on the nature of the attack and what is technologically possible to do within the parameters of law. It's that simple.

One problem which I've seen in both the Council of Europe annual Cybercrime meetings I've attended, in 2007 and 2009, is the near-absence of discussion of privacy and human rights. Although the Council of Europe was started as a human rights organization, and some of the experts pay some lip service to privacy and other rights, they're being overlooked at many of the conferences and in publications of the Council of Europe Cybercrime unit and the ITU.

Another problem is that several of the Council of Europe, FIRST and Interpol leaders with whom I have attempted to engage in discussion have indicated that there's no interface between those responsible for cybercrime and those dealing with national security. This raises two issues. One is that a combination of Dr. Strangelove and Big Brother could end up taking over when military, police, cybercrime and tech experts collaborate. The other issue is that if these two groups work within legal parameters, there may be a need for interdisciplinary research to deal with the very serious problems of attacks on critical information infrastructure, which will vary from country to country. The tech community is key, of course, because legal measures may be applied to decide which tech measures to take (deterrence, counterattack, shutting down one's own networks when attacks occur and are ongoing), and then later if and when the identities of the attackers can be determined (the problems of anonymity and traceability are linked to law enforcement and information security).

Conclusions

The gaps noted, including technological difficulties in tracing anonymous attackers and the lack of guidance on what to do about non-state actors and the uses of botnets and DDoS (Distributed Denial of Service attacks) present problems for the legal, policy and military communities. In the case of Estonia, these gaps prevented authorities from establishing the source of the attacks and taking legal or military or technological measures to address them.

Ultimately, cyberterrorism is an evolving area of law, policy and technology and more conferences and collaborations are necessary like the excellent meeting held in Estonia in September 2009. Governments don't know what to do, and we're all still trying to figure out how to respond to the threat. The experience and expertise of the information security and law enforcement communities is therefore needed to inform other parties to the discussion how to frame law and policy for this new age of Internet insecurity.

Critical infrastructure protection against cyber terrorist attacks

By Dr. Lech Janczewski, University of Auckland
and Allan Charles Watt, e.law

The World Trade Centre symbolized the centre of the Western world's economic and financial life and when the towers fell, Western civilization was thrown into a state of panic. Al-Qaida succeeded in sending a message that America and its allies had something to fear.

This act of terrorism is remembered for the human tragedy, but New York also remembers it as a display of resilience. But, while the United States can be pleased with its fortitude, Al-Qaida may also have learned a lesson—about the limitations of conventional terrorism.

The World Trade Center was the center of financial activity in the United States, but when the towers fell, commercial activity was spared from obliteration. Within a few hours, NASDAQ systems were trading again and some World Trade Center firms simply continued operations from another office (Homer-Dixon, 2002, p.52). In a similar vein, all emergency services were quickly alerted and damage control began immediately.

The attack illustrated how effectively critical infrastructure was able to respond to an emergency. It was stretched due to a sudden spike in demand, but there was no prolonged and widespread electricity shortage, telecommunications retained some degree of functionality, water was not disconnected and so on. Had an attack on the critical infrastructure been carried out by controlling the Supervisory Control and Data Acquisition systems, the consequences would have been amplified dramatically. America would not merely have been shocked, America would have been crippled.

Terrorism has been evolving for over two hundred years, and the trend is toward increasing complexity—whatever a nation relies on becomes a potential target for those with malicious intent. The irony of the information technology revolution is that while it makes daily trade and communication simpler, it also turns commercial centers into targets, and is abetted by modern telecommunications. Since 9/11, heightened security has made it difficult to carry out a physical attack, but the concentration of resources and society's acute technology dependence has made a cyber attack more appealing to terrorist groups (Homer-Dixon, 2002, p.61). These attacks wouldn't necessarily involve a bomb or a hijacked plane because they won't be targeting places—they will be targeting the computers that control a nation's critical infrastructure. Governments and employees within a critical infrastructure agency should therefore be aware of this new risk.

Government organizations are responsible for collecting intelligence on security

threats, but ultimately, it's a nation's critical infrastructure that needs to be alerted and prepared for this new danger, regardless of whether they are public or private entities. Critical infrastructure includes sectors that are essential to the everyday functioning of a country. Examples include: water, sewage, electricity, telecommunications and so on. Many of these systems are also often interfaced with Supervisory Control and Data Acquisition systems that are also connected to networks that are accessible through the public domain. Should access to one of the networks be obtained by someone with sinister motives, remote control of some critical infrastructure could have catastrophic results.

And this is the essence of the problem in many countries—on the one hand, governments are responsible for providing smooth delivery of basic public utilities (like transport, power, water, etc), but on the other these utilities are often operated by the private sector.

As a result, there's a visible gap between efforts of central government authorities responsible for national security and preparedness of public utilities organisations to handle cyber terrorist threats. Research conducted recently in New Zealand confirmed the existence of such a gap.

The New Zealand study (Watt, 2008) identified the sources of this problem: Non-government agencies are not required to adhere to any particular direction or education on the entire issue of cyber terrorism, while government agencies were just as deficient in their knowledge. The overall results made clear that the central government has not influenced non-government agencies in any way that pushes them toward planning for an act of cyber terrorism. However, this isn't merely a reflection of poor communication between public and private sectors; government agencies are as unprepared as non-government agencies. The results of the research suggest that the central government and agencies responsible for cyber security have not been proactive in promoting cyber terrorism awareness, a failure that could have serious consequences.