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The National Strategy Forum does not propose policy solutions, but we do try to ask important questions to guide citizens and policymakers as they decide the most important courses of action related to national strategy. This issue of the *National Strategy Forum Review* focuses on the linkage between environmental instability—in its many forms—and national security. The emerging trends is called "environmental security." Policy development is ongoing on both domestic and international fronts. The common element is the creative means by which the U.S. aims to achieve its environmental security objectives. The military is a key driver of environmental and energy technologies. As can be imagined, this has significant implications for military planning, force structure, and operations. For example, in this issue, Oliver Fritz describes how the military is overseeing a transformation in its technological and strategic planning to minimize the danger of environmental instability in the future. Much work remains to be done, however, and any solutions will be long term. The energy challenge is so severe that we may need to consider alternatives that might be considered by some as fanciful or even the product of science fiction. Trevor Brown argues for one of these: the use of space-based solar power technologies to reduce our dependence on fossil fuels. No one expects this to happen soon, but if the U.S. is to solve its environmental security challenges, out-of-the-box solutions may need to be considered. This type of thinking may not reflect be the future of U.S. energy production, but it is interesting to consider what might someday be possible. Finally, Richard Friedman's article on the depletion of water resources notes a disturbing trend in this vital global resource.

There are also several important research studies worth mentioning. Bartosz Stanislawski's "Mapping Global Insecurity" studies the phenomenon of "black spots," or areas of emerging insecurity around the globe that are removed from government oversight. These areas are prime locations in which terrorist cells can operate. Blake Stone's "Blind Ambition" article is a recount of his experience working on the Iraq reconstruction teams. He has several policy suggestions that could improve this process. Given the American intervention in Afghanistan and Pakistan, these lessons may prove invaluable. Finally, the National Strategy Forum convened a group of national security experts to participate in a computer modeling exercise of a possible Israeli airstrike on Iran. The conclusions of this article have important implications for U.S. strategy and foreign policy.

Capping off this issue is a review of Charles Kupchan's new book *How Enemies Become Friends*. If a key objective of U.S. national security strategy is to turn enemies into friends, it is well worth considering the sociological and geopolitical factors that stabilize international relationships in flux.

Section 1: Environment

Linking the Environment and National Security

By Eric S. Morse

The environment is a major national security issue. Although there is an academic and scientific debate regarding the cause of environmental change (global warming and climate change), natural disasters have become commonplace. The most recent consequences are monsoon flooding in Pakistan (which has affected over 13.8 million people), spoliation of the Gulf Coast, severe water shortages, wildfires and droughts cause famines and shift power politics, and the mass migration of people from areas with depleted land. Oil is no longer the primary natural resource of geopolitical conflict. Today, water, land, air, energy, and food—all components and products of the environment—are vital issues of concern for national security strategy.

The U.S. is grappling with critical domestic environmental and energy security issues. Proposals for Cap and Trade, the energy efficiency of vehicles, nuclear power development, green energy, and biodiesel and ethanol are all issues being debated. The U.S. military is studying the effects of energy efficiency and its impacts on deployment logistics in various theaters of war. More efficient military vehicles, transportation routes, and food and water supplies dramatically affect the financial costs and tactics of warfare. The outcome of these debates will spell the future of America's economic security, foreign policy, and international standing.

The conceptual linkage between the environment and national security is increasingly clear. No longer the captive of special interest groups, environmental instability is at the top of the agenda for strategists in the military and U.S. Department of Defense (DoD). "Environmental security" was amplified in 2007, when a group of high level military personnel[1] published the "*National Security and the Threat of Climate Change*" report with The CNA Corporation.[2] The report argued that the U.S. military must begin to plan for the potentially devastating effects of environmental uncertainty. In particular, the report stated that:

> Climate change can act as a threat multiplier for instability in some of the most volatile regions of the world, and it presents significant national security challenges for the United States….Projected climate change will add to tensions even in stable regions of the world. The U.S. and Europe may experience mounting pressure to accept large numbers of immigrant and refugee populations

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[1] Members of the military advisory board included: General Gordon R. Sullivan, Admiral Frank Bowman, Lieutenant General Lawrence P. Farrell, Jr., Vice Admiral Paul G. Gaffney, General Paul J. Kern, Admiral T. Joseph Lopez, Admiral Donald L. Pilling, Admiral Joseph W. Preuher, Vice Admiral Richard H. Truly, General Charles F. Wald, and General Anthony C. Zinni.

[2] The CNA Report can be found at: http://securityandclimate.cna.org/

> as drought increases and food production declines in Latin America and Africa. Extreme weather events and natural disasters...may lead to increased missions for a number of U.S. agencies, including state and local governments, the Department of Homeland Security, and our already stretched military, including our Guard and Reserve forces.

The CNA report offered five policy recommendations to address these issues:

1. The national security consequences of climate change should be fully integrated into national security and national defense strategies.
2. The U.S. should commit to a stronger national and international role to help stabilize climate change at levels that will avoid significant disruption to global security and stability.
3. The U.S. should commit to global partnerships that help less developed nations build the capacity and resiliency to better manage climate impacts.
4. The Department of Defense should enhance its operational capability by accelerating the adoption of improved business processes and innovative technologies that result in improved U.S. combat power through energy efficiency.
5. The Department of Defense should conduct an assessment of the impacts on U.S. military installations worldwide of rising sea levels, extreme weather events, and other projected climate change impacts over the next 30 to 40 years.

The recent *Quadrennial Defense Review Report 2010*, the chief document for U.S. defense planning and resourcing guidance, devoted a section to the environmental challenges of climate change for the first time.[3] The *QDR* 2010 document states that, "DoD must incorporate geostrategic and operational considerations into force planning, requirements development, and acquisition processes." The *QDR* 2010 seeks to define how natural resources and climate change affect American security interests and highlights the need to conceive a comprehensive environmental security strategy. These factors not only shape the operating environment for troops on the ground and the logistics of a force dependent on fossil fuels, but also the assigned missions themselves.

Domestic environmental security concerns are evident, such as over reliance upon energy from foreign sources, but vulnerabilities to environmental security issues are also clear abroad. Environmental changes and natural resources affect geopolitics in diverse ways. Russia offers a prime example of the interface between the environment, national security, geopolitics, and the global economy. Russia recently experienced three environmental challenges: the highest recorded temperatures in over 130 years; the most widespread drought in over thirty years; and wildfires raging across seven regions. These three factors created a shortage of Russian wheat for export, Russia being one of the largest exporters in the world. In response to the fires and drought, Moscow is using the wheat shortage to increase its political leverage with neighboring Belarus and Kazakhstan, also large regional wheat exporters. Moscow has been able to advance

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[3] The QDR 2010 Report can be found at: http://www.defense.gov/qdr/qdr%20as%20of%2029jan10%201600.pdf

Russian foreign policy goals through environmental circumstances, thus affecting broader geopolitical trends.

Frequent droughts and unsustainable land use have opened Afghanistan to a high risk of deforestation and desertification, with devastating effects on the economy and population. Forest loss contributes to an increasing risk factors for floods, landslides, and other natural disasters. The security threat is critical. Land degradation hampers GDP growth and contributes to migration outflows. With only 31% of the population having access to suitable drinking water, this internal migration is also pushing water demand to unsustainable levels. 50% of Afghanistan's GDP is derived from agriculture and ranching, yet 75% of Afghanistan's land area is at risk to desertification and its remaining forests could be depleted inside of the next 30 years.

Addressing the fallout from international environmental effects is difficult. The element of surprise, high cost, and lack of apparent solutions are all major impediments to mounting an effective response. Nevertheless, international environmental disasters should remain a pillar of U.S. foreign policy and security strategy. The first step is to incorporate the environment into national security strategy. The second step is to implement foreign policy programs that target regions with environmental challenges with humanitarian and developmental aid. This should be a multilateral process.

The environmental link to national security is increasingly recognized by members of the U.S. military. The result may be that policymakers will develop a prudent environmental security strategy.

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Energy Performance in the Department of Defense

By Oliver Fritz [1]

Introduction

Energy has long influenced prosperity and security. The role of oil in motivating Japanese war aims in World War II, the stagflation aftermath of the OPEC oil embargos of the 1970s, $4 a

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gallon gasoline in 2008, and attacks on fuel convoys are only a few examples of how statecraft and military operations can be shaped by energy.[2] Faced with increasing operational vulnerabilities associated with the current and projected demand for energy, the Department of Defense (DoD) is implementing a series of time-phased improvements in the energy performance of bases and platforms, while posturing for a new, long-term architecture of alternative fuels.

Understanding the National Security Energy Challenge

The DoD is the largest user of energy in the U.S. Government and the single largest user of energy in the United States, spending over $13 billion on all forms of energy in 2009.[3] Of this overall demand, over 70% can be considered "operational energy," meaning the energy needed to power expeditionary bases and the aircraft, ships, and tactical vehicles being used to train, deploy, sustain, and employ forces around the world.[4] The remaining share includes the energy to power, heat, and cool permanent installations and power non-tactical fleet vehicles.

As an agency of the U.S. Government and a large consumer of energy, DoD is part of the larger geostrategic dilemma confronting the nation. Currently, the energy needed by the nation and DoD to enable transportation and movement is not found in the U.S. and possesses increasingly negative externalities. The costs of the U.S. energy system include distortions to national security priorities, lost benefits of resources sent overseas to import oil instead of being spent at home ($334 billion in 2008 and $199 billion in 2009), and increasing evidence of carbon-induced climate change.[5] As such a large user, the DoD alone estimates that even a $1 increase in the cost of a barrel of oil costs the DoD $130 million in increased annual energy costs, meaning resources that cannot be spent on more useful investments in combat power.[6] As a government agency and an outsized user of energy, DoD must be a part of the architecture for solving this national problem.

However, the large role of "operational energy" in its overall demand suggests the more specific challenges faced by DoD as compared to the commercial energy market. In particular, the DoD

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[2] Energy Information Administration, *Weekly U.S. Regular All Formulations Retail Gasoline Prices (Cents per Gallon), 1990-Present*, 27 Sep 2010; http://tonto.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MG_RT_US&f=W.

[3] Office of the Deputy Under Secretary of Defense (Installations and Environment), *Department of Defense Annual Energy Management Report – Fiscal Year 2009*, May 2010, p C-3; http://www.acq.osd.mil/ie/energy/library/aemr_fy_09_may_2010.pdf.

[4] Office of the Deputy Under Secretary of Defense (Installations and Environment), Ibid.

[5] Energy Information Administration, *Annual Energy Review 2009; Report No. DOE/EIA-0384(2009)*, 19 Aug 2010; Table 5.20, Value of Crude Oil Imports from Selected Countries, 1973-2009; http://www.eia.gov/emeu/aer/txt/ptb0520.html.

[6] Miles, Donna, "Military Looks to Synthetics, Conservation to Cut Fuel Bills," *American Forces Press Service*, 6 Jun 2008; http://www.defense.gov/news/newsarticle.aspx?id=50131.

has a requirement for liquid fuel and the need to move this fuel across global distances. Even with emerging alternatives (solar, wind, geothermal) for generating electricity, the ability to store such energy will be unsuitable for powering large and heavy vehicles, ships, and aircraft. The difficulty of matching the high energy intensity of liquid fuel means that the liquid fuel likely will remain a presence across battlefields of the future, even with emerging alternates to petroleum.

As long as forward presence and the ability to project and sustain power globally are cornerstones of U.S. defense posture, DoD will have to rely on logistics and energy supply lines to move these heavy, bulky liquid fuels. This need to transport and distribute energy, often outside of commercial supply chains, is accompanied by the vulnerability of attack by states and non-state actors, the challenges of geography and distance, and the need to dedicate combat forces to protect these supply lines. Indeed, the evolving security environment will strain the assumption that energy will always be available.

Attacks on fuel convoys are a well publicized consequence of the need for energy in increasingly irregular operations. The confluence of weak states, non-state actors, and irregular warfare is center stage in the Afghanistan and Pakistan region. Not only do fuel convoys face the basic challenges of geography, such logistics lines also face attacks by insurgent groups at rallying points and main trunk lines. Most recently, the temporary closure of a key supply route led to repeated insurgent attacks on fuel convoys in Pakistan, well before they even entered Afghanistan.[7] Reflecting the lack of front lines and dispersed ground force operations often prevalent in counterinsurgency, the challenge of irregular warfare is as much about doctrine and training as it is maintaining reliable supply lines with minimal casualties.

The proliferation of precision weapons in the form of guided rockets, artillery, missiles, and mortars will further increase the vulnerability of energy and logistics to disruption. While most indirect fire attacks on U.S. bases over the past 20 years have largely been inaccurate or ineffective, the spread of GPS guidance systems will transform the ability of non-state actors to affect centers of gravity that include energy.[8] At the higher end of the threat spectrum, the emergence of accurate and plentiful anti-access weapons ballistic and cruise missiles is not only causing the U.S. to re-consider its missile defenses and overall basing posture, but also should invoke concern over the assured delivery of energy through oilers, convoys, and regionally-based aerial refuelers and the storage of energy in large, above ground tank and bladder farms.

DoD Improvements to Energy Performance

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[7] For recent accounts, see Aaron Favila, "NATO oil tankers attacked in Pakistan," *The Associated Press*, 1 Oct 2010; http://www.armytimes.com/news/2010/09/ap-pakistan-blocks-nato-supply-line-093010/; and Sattar, Abdul, "12 NATO fuel tankers attacked in Pakistan," *The Associated Press*, 6 Oct 2010; http://www.washingtonpost.com/wp-dyn/content/article/2010/10/05/AR2010100506578.html?sub=AR.

[8] National Intelligence Council, *Global Trends 2025: A Transformed World*, November 2008, p 71; http://www.dni.gov/nic/PDF_2025/2025_Global_Trends_Final_Report.pdf.

Faced with these operational, fiscal, and opportunity costs, the DoD and the Armed Services are implementing a range of efforts to increase mission effectiveness by reducing the need for energy and the associated logistics.

At expeditionary bases across Iraq and Afghanistan, the need to generate electricity for lighting, heating, cooling, and communications systems creates significant demand for energy. The Army's recent effort to insulate tents in Iraq reduced air conditioning demand by 50% and reduces the need for fuel convoys to traverse treacherous roads in a theater with few front lines.[9] More broadly, the Marine Corp's Expeditionary Forward Operating Base – or "ExFob" – and the Joint NetZero Joint Capability Technology Demonstration are pursuing a broad range of demand reduction and power generation options that will minimize the need for re-supply, including insulation of structures, alternative means of lighting, solar powered perimeter lighting, demonstration of renewable power generation, micro-grids to better manage loads, and demand measurement systems.[10] After testing these concepts at home, a company of Camp Pendleton-based Marines soon will be evaluating these technologies while deployed to Afghanistan.[11] While the immediate effect will be a reduction in the demand for energy associated re-supply and the enhanced ability to support far flung forward operating bases and combat outposts, these kinds of pathfinder initiatives will help identify best practices and improve the flow of operationally-tested technologies into theater.

Improving energy performance in aviation – which comprises 63% of all DoD energy demand and powers the core of the U.S. conventional deterrent – is the subject of a broad range of operational changes, mid-life upgrades, and design changes.[12] In addition to benchmarking with commercial airlines and implementing the right information technology tools to track fuel consumption in its airlift and aerial refueling aircraft, the Air Force is pursuing a range of changes in operations and training that include "flight simulators for crew training and proficiency, optimizing cargo loads, decreasing empty legs, optimizing aircraft routing through better diplomatic clearances, and reducing aircraft weight."[13] In addition to these changes to current operations, there is more to be done. For instance, both the Air Force and Navy are

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[9] United States Government Accountability Office, *Defense Management: Increased Attention on Fuel Demand Management at DOD's Forward-Deployed Locations Could Reduce Operational Risks and Costs*, 3 Mar 2009, p 3; http://www.gao.gov/new.items/d09388t.pdf.

[10] Department of Defense, *Fiscal Year (FY) 2011 Budget Estimates: Research, Development, Test and Evaluation, Defense-Wide, Volume 3A*, February 2010, p 231; http://comptroller.defense.gov/defbudget/fy2011/budget_justification/pdfs/03_RDT_and_E/OSD%20RDTE_PB_2011_Volume%203A.pdf.

[11] Marine Corps Air Ground Combat Center Twentynine Palms Public Affairs Office, "Solar powered Devil Dogs," 30 Jul 2010; http://www.usmc.mil/unit/29palms/Pages/SolarpoweredDevilDogs.aspx.

[12] Office of the Deputy Under Secretary of Defense (Installations and Environment), Ibid.

[13] Laura McAndrews. "Fuel efficiency among top priorities in AMC's energy conservation." *Air Mobility Command Public Affairs*, 5 Oct 2009, http://www.af.mil/news/story.asp?id=123171233.

funding the development of advanced jet engines that aim to reduce specific fuel consumption by up 30%.[14]

At sea, the Navy is funding the development and testing of high payoff investments like hybrid electric propulsion systems to reduce the need for gas turbine engines over a given cruise and improving hydrodynamics through additions like stern flaps and underwater hull coatings. While often saving hundreds of millions of dollars over the lifetime of a single ship, these advancements will begin to make more significant progress toward reducing the frequency for replenishment and extending range and persistence. These increases in operational capability – over 900,000 gallons saved in one cruise of the hybrid-powered *USS Makin Island*, for instance – represent the real payoff for investments in energy performance.[15]

The Navy and Air Force also are leading the way in posturing the Defense Department to manage emerging alternatives to fossil fuels. Through its testing and certification program, the Air Force will ensure that all of its aircraft and systems can use a 50/50 alternative fuel blend by 2011, and aims to meet 50% of its domestic aviation fuel requirements by 2016 with cost competitive alternative fuel blends that emit fewer greenhouse gases than conventional petroleum.[16] Similarly, the Navy has already flown F/A-18E/F "Green" Hornet powered by biofuel blend with JP-8, and is aiming to sail a "Great Fleet" of "nuclear ships, surface combatants with hybrid electric power systems using biofuel and aircraft flying on only biofuels" by 2016.[17] On top of this operational test, the Navy plans to use alternative sources of energy for half of all Navy energy requirements by 2020.[18] While alternative fuels may lack the clear operational benefits compared to changes in the duration and persistence of the force, they nonetheless represent an "insurance policy" in a rapidly changing energy marketplace.[19]

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[14] Daniel E, Thomson, Air Force Research Laboratory Propulsion Directorate. *Versatile Affordable Advanced Turbine Engines Provide Game Changing Capability with Superior Fuel Efficiency*, April 2010. Presented at the NDIA 11th Annual Science & Engineering Technology Conference/DoD Tech Exposition, p 5; http://www.dtic.mil/ndia/2010SET/Thomson.pdf. F/A-18E/F & EA-18G Program Office, PMA265, "Green Hornet Team for the FY 2009 Chief of Naval Operations Environmental Awards Program Category: Environmental Excellence in Weapon System Acquisition–Team," p 2; https://www.denix.osd.mil/portal/page/portal/Awards/FY09SECDEF/EEWSA%20NAVAIR%20Narrative.pdf.

[15] Surface Forces Public Affairs, "'Green Ship' Makin Island to be Commissioned," *Navy News Service*, 19 Oct 2010; http://www.navy.mil/search/display.asp?story_id=49049.

[16] U.S. Air Force, *Air Force Energy Plan 2010*, p 8 – Figure 4, http://www.safie.hq.af.mil/shared/media/document/AFD-091208-027.pdf.

[17] Liz Wright. "Green Hornet to take Flight on Earth Day," *Navy Office of Information*, 30 Mar 2010; http://www.navy.mil/search/display.asp?story_id=52291.

[18] Wright, Ibid.

[19] Sharon E. Burke, Director of Operational Energy Plans and Programs, quoted in Erwin, Sandra I., "Next Up on the Pentagon's Efficiency To-Do List: Energy," *National Defense Blog*, 19 Aug 2010; http://www.nationaldefensemagazine.org/blog/Lists/Posts/Post.aspx?ID=178.

Operational concepts are also being adapted to increase warfighting capability while reducing the risks associated with assuring the delivery of energy in the face of a broad array of air, sea, and undersea threats. For instance, the Air Force and Navy are cooperating on AirSea Battle to, in the words of the Air Force Chief of Staff, "rethink legacy force projection concepts," and "ensure continued access to, and ability to operate in, these increasingly contested environments."[20] In the recently released *Marine Corps Operating Concepts*, the need for distributed operations means that energy efficiency is a "central enhancement" that will "allow the MAGTF [Marine Air Ground Task Force] the ability to conduct operations in the most austere of environments—where excess and luxury is [sic] not practical."[21] These changes at the conceptual level of warfare do not immediately affect operational energy demand, but begin the process of revising the warfighting strategies across air, land, and sea that directly feed the requirements and acquisition processes.

Taking its cue from Congress, DoD recently established the Director of Operational Energy Plans and Programs under the Under Secretary of Defense for Acquisition, Technology, and Logistics. Among the duties identified in the enabling legislation, the Director is responsible for coordinating Service activities related to the "consideration of operational energy demands in defense planning, requirements, and acquisition processes."[22] This portfolio includes the use of an energy key performance parameter to fully account for the energy, logistics, and sustainment requirements that typically are not included with initial requirements and cost estimates. The explicit consideration of operational energy in requests for proposals should encourage the DoD to better balance a larger basket of requirements and use competition to increase the overall capabilities of the fielded system.

In addition, the legislation specified implementation of the fully burdened cost of fuel. Applied in analyses of alternatives and acquisition program design assessments, the fully burdened cost of fuel is intended to capture the full opportunity costs of procuring, storing, transporting, protecting, and distributing a single gallon of fuel to achieve the mission with a given platform. Initially popularized in a 2001 Defense Science Board report, the fully burdened cost of fuel should help incentivize the inclusion of energy performance further "upstream" in the analysis of alternative phases of the requirements process to more fundamentally change – and improve – the capabilities of fielded equipment.[23] While the precise methodology and application of both the fully burdened cost of fuel and energy key performance parameter will evolve over time,

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[20] General Norton Schwartz, USAF, "Air Force Association Air and Space Conference Keynote Speech," Given at Air Force Association's *Annual Air & Space Conference and Technology Exposition*, 14 Sep 2010, p 10; http://www.af.mil/shared/media/document/AFD-100914-056.pdf.

[21] U.S. Marine Corps, *Marine Corps Operating Concepts, Third Edition*, June 2010, p 37; http://www.quantico.usmc.mil/uploads/files/MOC%20July%2013%20update%202010_Final.pdf.

[22] *Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 - Public Law 110-417*, Sections 332 and 902, 14 Oct 2008; http://www.dod.gov/dodgc/olc/docs/2009NDAA_PL110-417.pdf.

[23] Defense Science Board, *More Capable Warfighting Through Reduced Fuel Burden*, May 2001; http://www.acq.osd.mil/dsb/reports/ADA392666.pdf.

future capabilities certainly should benefit from a more realistic and deliberate consideration of the benefits of improved energy performance and risks of energy associated logistics.

Looking Ahead

Across a range of capability enhancement, risk mitigation, and requirements and acquisition efforts, the Department of Defense is taking recognizable steps to better understand and adapt its energy footprint to reflect a new operational environment. Moving beyond the multi-decade period of relatively cheap and plentiful energy provided through relatively secure means of transportation, DoD is making changes needed to fight and win in conflicts with increasing energy costs and proliferating threats to the assured delivery of energy.

While current operations are an appropriate and critical avenue for achieving immediate effects, DoD also is changing how the opportunity costs of energy consumption and logistics are integrated into large acquisition programs. At the foundation of this shift will be improvements in the way we use analytical tools to integrate the logistics and force structure consequences of energy needs across the entire force planning, requirements, and acquisition process. By valuing the opportunities and risks of operational energy, the Department will be better postured to deter adversaries during peacetime and, if needed, prevail more quickly in a time of war.

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Space: The Environmental Frontier

By Trevor Brown

The medium of space is set to become a major component of global power in the 21st century. It is already a vital theater of national security operations, as space-based assets such as the Global Positioning System are crucial for an information oriented military and for the national life of a digital society. However, in addition to traditional security issues, the medium of space is becoming increasingly important for its relevance to environmental security issues. There are many untapped natural resources in space that could theoretically contribute to clean energy production, which could protect the environment and in turn enhance U.S. power. Environmental technology and national security are thus closely linked, and if the United States is to thrive in the 21st century it is worth exploring creative options for energy production. One of the most interesting options is in space.

The United States' reliance on oil makes its ability to respond to global hot spots difficult, as protecting petroleum supplies is strategically perilous and enormously costly.[1] At the same time, global warming could lead to resource wars, environmental refugees, and failed states in already vulnerable regions such as Asia, Africa, and the Middle East. As global warming intensifies there will be heightened energy insecurity, water and food shortages, and climate-driven social instability around the world. What is more, by burning ever-increasing amounts of oil, the United States is not only adding greenhouse gases to the atmosphere but also providing financial gain for antagonistic states such as Iran.[2] These strategic realities suggest that the United States should be creative in considering alternatives to a hydrocarbon based economy. Fortunately, the medium of space offers a wealth of resources which could ameliorate the impending energy and environmental crises.

Despite this, the Obama administration is steadily reducing the scope of both NASA and the Pentagon's missions in space, and relying increasingly on the private sector for its national space effort. Examples include the administration's preference for private sector transportation to the International Space Station, as opposed to undertaking the development of a NASA crew vehicle, and its belief that private sector actors should lead the way in removing orbital debris.[3] The administration is also considering outsourcing Earth monitoring applications and crucial sensory capabilities for critical satellite systems. Adequate plans have not been forthcoming to replace important systems cut during the Bush administration.[4]

Encouraging the private sector to play a greater role in space is a prudent policy, as true space power must be more than a mere institution, it must be based upon the character and pursuits of a people and run to the core of their national life. Nevertheless, a centralized space effort, including both NASA and the Pentagon, is necessary in order to develop the capabilities to support future generations of space platforms—including environmental applications. However, for the Obama administration, stewardship of the national space program may be less a question of political philosophy than it is a question of resources. Given the severe economic challenges facing the United States, other national economic programs have a higher priority than the space program.

It is crucial that the United States seize the initiative in securing the environment and finding alternatives to rapidly depleting and polluting fossil fuels. Space power is a means to recover the dynamism with which to power the economy and further technological development. At the outset of the 21st century, environmental technology is one of the most promising fields of

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1 Bryan Walsh. "Does Global Warming Compromise National Security?," *Time*, 17 April 2008, http://www.time.com/time/specials/2007/article/0,28804,1730759_1731383_1731632,00.html (accessed 24 September 2010).

2 Ibid.

3 Irene Klotz. "Obama Plans Boost Foreign, Private Space Projects," *Reuters*, 28 June 2010, http://www.reuters.com/article/idUSTRE65R64920100628 (accessed 20 September 2010).

4 Alexis Madrigal. "U.S. Climate Satellite Capabilities in Jeopardy," *Wired*, 2 June 2010, http://www.wired.com/wiredscience/2010/06/us-climate-sats/ (accessed 8 October 2010).

scientific development, and linkages are increasingly apparent among the environment, national security, and the economy. The United States must consider creative options for energy production if it is to secure its energy supplies and reduce carbon emissions.

As it happens, carbon neutral energy is found in great abundance in Earth orbit , where the solar flux of the Sun is massive outside the Earth's atmosphere. Space solar power (SSP)—the process of collecting solar energy on orbit and transmitting it to the Earth—has great potential as an environmental concept at the intersection of the United States' most pressing national security and economic needs. The SSP concept has been around for decades, but the technology to create large surface areas in space for the requisite energy collection has been unavailable for both technical and financial reasons. A critically sought after breakthrough may not be in space construction techniques or in photovoltaic performance, but rather in the nature of the physical composition of photovoltaic cells. If photovoltaic cells were produced with elastic properties that permit them to expand, a significant opportunity would arise for a novel new architecture for SSP: an inflatable sphere.[5]

Once in a geosynchronous Earth orbit (GEO), a photovoltaic sphere 10 miles in diameter could theoretically transmit in excess of 5 gigawatts of carbon neutral energy to the Earth via microwaves or other means such as infrared lasers. This amount would be significantly more than the output of most nuclear power plants. Furthermore, it would be far easier to establish these inflatable structures in space than it would be to construct an equivalent number of nuclear power plants and manage the resulting nuclear waste. In any event, a dozen or so of these solar power satellites could alleviate much of the energy needs of the American Midwest in an environmentally friendly fashion.

If this is successful, there could be a vast increase in the scale of such satellites. Extraordinarily large photovoltaic spheres could theoretically deliver the optimum energy output for the entire American economy. For instance, a photovoltaic sphere 200 miles in diameter in medium Earth orbit (MEO) could generate in excess of 25 terawatts in space. There are, of course, many issues to be thought through. These include the method of safe transmission of power to the surface and the environmental/visual impact of such large satellites. Significant opposition to these should be expected, as is currently the case with respect to wind farms.

The cost of these giant photovoltaic balloons would be very high. Once in orbit, however, the cost would be significantly less. Who would operate the satellites (the Air Force comes to mind) and what the charge for the energy they produce would be are details yet to be worked out. Still, the technology is sufficiently promising that it should be explored.

Both the economic and military implications of relatively inexpensive and carbon neutral energy availability would be profound. These include a smaller carbon footprint for all users of energy. The transition from fossil fuels will not be without trauma and dislocation however. It is arguable that the resulting economic transformation would create a multitude of cutting edge

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5 Trevor Brown. "SSP: A Spherical Architecture," *The Space Review*, 1 June 2009, http://www.thespacereview.com/article/1383/1 (accessed 21 July 2010).

green technologies and have a positive effect on employment. It might also unleash a wave of innovation to complement the new energy technology.

The linkage between space and the environment is thus critically important and is emerging as a vital issue of national security. Innovative space-based technology such as *photovoltaic moons* would allow the United States to secure its energy supplies and possibly generate a significant economic expansion. It is time to consider creative alternatives as we develop our environmental and national security policies.

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Water and Environmental National Security

By Richard E. Friedman

Water availability and accessibility are, arguably, the most important components of environmental concerns. This article focuses on the broadly defined national security dimension of water.

Environment is the interdependent natural and societal components that sustain a society. It is international and national in scope and is comprised of water, oil, economics, trade, diplomacy, religion, politics, and military conflict.

Water Haves and Have-nots are involved in conflict over the availability of water. Regional conflict occurs at the fault line between water Haves and Have-nots.

Oil was the pivotal political and natural resource of the twentieth century. It is possible that water, particularly fresh water, will have parity with oil in this century. Water is indispensable for both food and societal health. Fresh water abundance is being displaced by acute water shortage where it is most needed—in increasingly heavily populated urban areas and in most parts of the world. It could be argued that in these areas water is more critical than oil. Oil can be partially replaced by alternate energy sources; water cannot.

Water is a flexible and mobile resource. It is self-sustainable; it evaporates, de-salinizes, clears itself, and falls to earth. There is a great amount of water in areas that are not human-accessible. A large amount of rain falls over oceans; there are underground aquifers, many of which have been depleted, and some are either unknown or inaccessible. Underground aquifers, once they are tapped, are non-renewable.

The net effect is that less than three-tenths of one percent of the earth's water is accessible. The phenomenon of the twentieth and, more particularly the twenty-first centuries, is that accessible water and population centers are located in the wrong place. Less than one percent of the world's freshwater supply is available for human consumption. Twenty percent of the world's

population lacks freshwater for domestic needs; forty percent of the world's population lacks water for basic sanitation purposes.

Water is the most important natural resource. It is life-sustaining: health, agriculture, demographics, and the economy. It governs how people live their daily lives. Because of this, water has important political and national security dimensions. This fact is frequently overlooked as a major national and international strategy issue.

The Green Crop Revolution of the 1960s delayed urgent analysis of the net severe water scarcity. But the crop gains resulting from the Green Crop Revolution have been canceled by population growth and increased per capita consumption. The era of cheap water and cheap food is ending. The point of disequilibrium has been reached and no remediation policy is on the horizon. Decreasing water availability and failure of water harvesting and distribution structures will directly affect productivity, and the health of water Have-not states, resulting in decline, failure, and ultimate collapse.

The subject of global warming and climate change is debatable. However, it is suggested that, in order to craft a comprehensive water strategy, a 50- to 100-year time frame is required. The outer limits of national security projections are less than 10 years for planning purposes. However, there are foreseeable short-term events involving prolonged drought and intermittent flooding, and periods of hot and cold weather arising within a 3- to 5-year time frame. In this context, abrupt climate changes, apart from gradual climate change, could occur more rapidly than states can adapt to them. For example, abrupt climate change could continue the apparent glacier melt acceleration experienced in Antarctica and Greenland. The projection is that sea levels could rise in the intermediate future affecting ocean littorals—the habitat of one-third of the world population.

Water scarcity, sea level rise, and other related great magnitude problems require adaptations by states and individuals.

By the year 2025, an estimated fifty percent of the Asian population will live in urban areas, compared to 1990, when approximately ten percent of Asians lived in cities. As populations increase, and move to urban centers, with accompanying increased consumption, demand, and waste, coupled with decreasing water availability, the mobility trend will increase precipitately. Population growth, particularly centered in urban areas, increases society's need for water for daily personal use and food production. Rapid urbanization is accompanied by industrial concentration. People and industries located in urban areas require more water per person for daily personal use than people in rural areas.

Water scarcity triggers competition and conflict. Target areas for water conflict are North Africa, the Mideast, and South Asia, where the demand for water is increasing rapidly and the supply is diminishing. Rainfall in these areas is either scant or occasionally huge and the population in these troubled areas gamble that there will be sufficient rainfall to normalize the flows of major rivers without extreme rainfall that would cause flooding.

There will be growing, intense competition between water Haves and Have-not states, and intra-state competition between the rich and poor. Water will become an expensive economic commodity, with some who are able to pay, and some who cannot. A privileged majority will emerge, and there will be competition between rich and poor states. The minority of states which are located in temperate, well watered zones, and the majority of states, which are located on fragile, arid lands or seasonably over-saturated lands, will be positioned for competition and conflict.

The U.S., with the exception of the arid lands west of the hundredth meridian, and Canada, are water Haves. The U.S. west is arid, but basically water sufficient at the present time. Canada is in the very top echelon of water Haves. Thus, there is no water competition. There is water competition between the U.S. west and Mexico, which may be an irritant in addition to immigration and drug-related conflict between the two countries. However, this is mild when compared to conflict among water Haves and Have-nots among adjacent states.

Mideast Islamic countries lack large water resources. And there is marginal use of technology for water accessibility. Yemen is a black hole for terrorism and is the first country to have a water deficit so great that the country has become paralyzed. Its wells will run dry within 10 years, accompanied by a rapid increase in their population. The result will be famine and civil unrest because eighty percent of the population will experience water poverty. For example, there is water profligacy in Yemen where qat, the local drug of choice, consumes forty percent of available water.

Agricultural crop growing is water-intensive and inefficient. Food is composed mainly of water, and an enormous amount of water is required to grow crops, especially by irrigation. An average bread loaf is composed of one pound of wheat, which requires a cumulative total of 250 gallons of water. Eight hundred gallons of water are required to produce one hamburger patty – mostly to grow cattle feed.

Water scarcity is of the same negative magnitude as oil shortage. However water more profoundly affects health and morbidity and could be the next plague-like event. Water is an underpriced commodity. Pricing a toilet flush at $1 or charging $1,000 for a round of golf represents the true economic value of water. These facts should capture the attention of consumers and policymakers alike.

Water is heavy and large quantities are required for water-related enterprises. Transportation of water, other than by gravity flow, and pumping through pipes, is economically prohibitive. There is no one-size-fits-all solution to local or regional water scarcity. Each watershed is unique. The good news is that water is misallocated, misgoverned, and misused. Thus, even minimal improvements could achieve marginal gains that would encourage more sophisticated technology applications to be used and might result in public and policy awareness resulting in incremental gains.

The equation for solving water scarcity has two factors: voluntary and involuntary water savings, and large scale new technologies. At present, neither factor is socially, media, or politically cognizable. Society has been coasting on the availability of watersheds, aquifers, and

ecosystems. Depletion of natural resources is near and there is no prudent preparation for the transition to the new era of water shortage. There are water-sharing opportunities such as the International Center for Integrated Mountain Development in the Himalayan region; the Nile Basin Consortium, composed of ten regional states; and the Mekong River Consortium (six states).

The U.S. should encourage regional water cooperation and support international climate analysis affecting water availability and accessibility. A UN Climate Change conference is scheduled to meet in Cancun, Mexico, in November. The U.S. government administration supports the objective of the conference in principle; however, the U.S. Senate may not be so inclined.

However, modern societies respond well to crises. Parched earth and associated threats grab public and political attention. Hopefully, the solutions will develop in phases. First, the Have-water states must recognize that water scarcity conditions will degenerate soon and many marginal states will become Have-not water states. Second, the alarm must be sounded to awaken states and their societies that an occasional water shortage is more than an annoyance and will become a major threat. Third, when this message is internalized by citizens and the media, the political process could begin, leading to amelioration and possible solution. Fourth, a water efficiency use project could emerge, based on economic and political leadership addressing the objective of efficient use of existing water supplies.

The first step in this process is recognition of the magnitude of the water scarcity issue. Assuming water-related tensions and conflict can be controlled during the next decade, there is a window of opportunity to institute modest gains such as hydroponic agriculture, repair of leaking lead pipes, and other watershed specific management efficiencies, and repricing water consumption in Have countries that could result in water technology fixes motivated by international cash awards. Imagination, ideas, and innovations are the hallmarks of modern society. This is the challenge for the young generation.

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Section 2: Special Reports

Mapping Global Insecurity

By Bartosz Hieronim Stanisławski

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Watching… and Seeing

Consider the following scenarios:

> On March 17, 1992, and July 18, 1994, a non-state actor (Hezbollah) executed sophisticated, pre-planned attacks. Targets: the Israeli Embassy and Argentine-Israelite Mutual Association building, located in Buenos Aires, Argentina. Predominant planning and staging location: Ciudad del Este, a border city located at the epicenter of the so-called tri-border area of Paraguay, Brazil, and Argentina.
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> On September 11, 2001, a non-state actor (Al Qaeda) executed a sophisticated, pre-planned, and highly coordinated series of attacks. Targets: symbolic locations within the U.S. mainland. Predominant planning and staging location: Afghanistan, with significant back-up and support centers in the Federally Administered Tribal Areas (FATA) of Pakistan. Until the present day, the FATA remains a jurisdictional nightmare and a hub of insurgent and terrorist activities.
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> On November 8, 2002, a non-state actor (a Somali group linked to Al Qaeda), executed sophisticated, pre-planned attacks. Targets: a Boeing 757 of the Arkia Israel Airlines during its takeoff from Mombasa's Moi International Airport was fired upon using surface-to-air missiles (SAM)) and, 20 minutes later, an Israeli-owned Paradise Hotel in Mombasa was hit by an SUV loaded with explosives. Predominant planning and staging locations: the Somali fishing village of Baraawe, which today has become one of "pirate capitals."

What do these three scenarios have in common? First, lethal attacks were executed effectively by non-state actors. Second, these actors took advantage of locations that de facto enabled them to prepare and execute their attacks without discovery; it is locations like these that facilitate today's non-state actors committing acts of crime. Without such places, their operational capacity[1] would be severely limited. Third, it is important to note the differences between the three locales: each is different in terms of size—from fishing village to city to tribal area—and

[1] J. Bowyer Bell. "Conditions Making for Success and Failure: Non-state and Illicit Actors." *Trends in Organized Crime*. Fall 2000, Vol. 6, Number 1.

each is located in a different part of the world—Latin America, Central Asia, and Africa. And, fourth and perhaps most important, none of them is a state or even what we might term a "failed state."

Knowing the locations of such places and understanding their internal and external dynamics provide us with information that is useful for at least three types of activities critical to national security: (1) identifying environments conducive to criminal and/or terrorist operations; (2) tracking and, as necessary, intercepting insecurity flows between such places (e.g., illicit assets, weapons, money, people); and (3) gathering actionable intelligence about emerging and impending security threats.

The places noted above in the scenarios are not accidental; indeed, according to our research, there are probably hundreds of them worldwide. Mapping them allows us to be one step ahead of the so-called "global bads"[2] involved in crime and terrorism—one of the key purposes of the Mapping Global Insecurity (MGI) Project[3] located in the Moynihan Institute of Global Affairs and the Institute for National Security and Counterterrorism of Syracuse University's Maxwell School. These "islands of insecurity" are not represented on geopolitical maps; such maps focus, instead, on nation-states. Because these places represent the geographical equivalent of astronomical "black holes," we have called them "black spots." Identifying and placing black spots on maps allows us to see the world through the eyes of criminals and terrorists—a very different map from the "state-to-state" view that we have been taught.

Definition

Black Spots are parts of the world that are (1) outside of effective governmental control; (2) controlled, instead, by alternative, mostly illicit, social structures; and (3) capable of the breeding and exportation of insecurity (e.g., illicit drugs, conventional weapons, terrorist operatives, illicit financial flows, strategic/sensitive know-how) to faraway locations. Similar to the notion of "black holes" in astronomy which are located mainly by analyzing anomalous gravity fields, black spots are also difficult to "see," as they usually, or for extended periods of time, operate with a high degree of "international invisibility." Some remain relatively invisible throughout their existence (for instance, the so-called "Leticia-Tabatinga Corridor" on the border of Colombia, Brazil, and Peru), while others' visibility may be described as pulsing (for instance, the Chu Valley on the border of Kazakhstan and Kirgizstan, the Peruvian city of Encarnación, or the "Little Wahhabi Republic" in Russia's Dagestan)—that is, becoming visible and then invisible across time. Such diversity in the permanence of black spots is one aspect used to classify them.

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[2] Bartosz Stanislawski. "Transnational 'Bads' in the Globalized World – The Case of Transnational Organized Crime." *Public Integrity*, Spring 2004, Vol. 6, Number 2.

[3] http://www.maxwell.syr.edu/moynihan/gbs/Welcome/

Criminals and traffickers themselves have been known to use the term "black holes"[4] for areas like the Akwesasne Mohawk Reservation,[5] located on the border of New York State and Canada, or the Tohono O'Odham Reservation on the U.S.-Mexico border in Arizona, since people and assets entering them on one side of the border are virtually lost from law enforcement's radar when they emerge on the other. "Information black holes," as Charles King calls them,[6] such as Abkhazia, South Ossetia, or Transniestria, may be out of sight, but they are certainly not out of the minds of Georgian and Russian officials. Although they remain in the shadows of the international system, these places are "conduits for trafficking in drugs, arms, and even people," as Fred Kaplan has claimed for a long time.[7]

Contrary to state-level approaches, the MGI Project looks at sub-state and trans-border realities and emphasizes the importance of nuance in the analysis of potential or confirmed locations. The reasons for this approach are three-fold. First, by examining specific cultural, ethnographic, political, economic, geopolitical, and historical factors, it is possible to look under the surface of what is seemingly a benign environment. Second, the MGI Project is interested in avoiding the "one-size-fits-all" approach that has led to such generic terms as "ungoverned territories" or "failing states." Such approaches can be dangerously misleading if taken at face-value because no place is completely ungoverned and no place has a power vacuum for long. Third, considering the black spot as a base or transit point, analysis allows us to detect and pinpoint potential insecurity flows, including people of interest (criminals or terrorists). Mapping and tracking such flows offers the possibility for forecasting where a specific insecurity flow may be heading and with what objective, providing us with the basis for early warning.

Black Spots as Islands and Transit Points for International Insecurity

The fact that territories not controlled by legitimate, recognized authorities can become hotbeds of transnational terrorism and crime is not a new observation, in spite of extensive debate on this issue in recent years.[8] Historical examples are abundant, including the piracy that blossomed along vulnerable merchant shipping lanes and islands located away from effective law

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[4] Sarah Kershaw. "Drug Traffickers Find Haven in Shadows of Indian Country." *New York Times*, February 19, 2006.

[5] Ruth Jamieson. "Contested Jurisdiction Border Communities and Cross-Border Crime: The Case of the Akwesasne." In *Global Organized Crime and International Security*, edited by Emilio C. Viano. Athenaeum Press: 1999.

[6] King, Charles. (2001) "The Benefits of Ethnic War: Understanding Eurasia's Unrecognized States." *World Politics* 53(4):524–552.

[7] Fred Kaplan. *The Wizards of Armageddon*. Stanford University Press, 1999. Page 11.

[8] For some of the discussions on the topic see: Wyler, Liana Sun. (2008) "Failing States: Evolving Security Threats and U.S. Policy." CRS Report for Congress.; Patrick, Stewart. (2006) "Weak States and Global Threats: Fact or Fiction." *The Washington Quarterly*. 29(2): 27-53.; Dempsey, Thomas. (2006) "Counterterrorism in African Failed States: Challenges and Potential Solutions." Strategic Studies Institute, U.S. Army War College.; Eizenstat, Porter, and Weinstein. (2005) "Rebuilding Weak States." *Foreign Affairs*. Jan/Feb., Vol. 84, Issue 1; pg.; 134.; Takeyh and Gvosdev. (2002) "Do Terrorist Networks Need a Home?" *The Washington Quarterly*. 25(3):. 97–108.

enforcement. Such islands also exist today; some of them are islands on the seas, while others are more metaphorical. Although located on land, the latter are characterized by remoteness from effective, recognized, and democratic rule. For example, Somali waters are often mentioned in the context of modern piracy and it has become a cliché that Somalia is a "failed state." If it is a failed state, then, logically, such piracy is no longer a "Somali" problem, but more localized and requiring an in-depth understanding of reality at the village level. We, therefore, are interested in analyzing the nuanced micro-realities of specific regions, cities, and, when possible, even districts of cities.

Consider, for instance, two districts in Naples, Italy — called Scampia and Secondigliano — that have been on the international criminal radar for a while now, but are less well-known to the general international security community. Yet, it is the Naples-based organized crime syndicate, known as Camorra, located in these districts that sold weapons to ETA[9] and opened its safe houses to as many as one thousand Al Qaeda operatives en route between North Africa and northern Europe.[10] As this example demonstrates, a state-level analysis of Italy would not have been helpful in understanding the reality, dynamics, and informal governance of these two districts in Naples.

Similarly, it is one thing to be aware of the so-called "Balkan route" in general (used to smuggle and traffic drugs, weapons, and people), but it is another to be able to pinpoint, zoom-in, analyze in-depth, and regularly monitor some of its specific nodes (for instance, Sandzak in Kosovo, Novi Pazar in Serbia, or sections of the Van and Hakkari provinces of eastern Turkey). Knowing what is happening within and between such locations enables us to monitor and track exchanges of goods and services that may constitute the basis of international insecurity.

Based on notions coming out of political anthropology as proposed in the writings of David Kilcullen[11] and his observations and suggestions on "conflict ethnography,"[12] the U.S. military has become increasingly interested in knowledge about the situational environment (culture; languages; customs) in which they find themselves. As useful and necessary as these approaches are, to date they have been geared for the military once operations have begun. The MGI Project, instead, is geared toward providing data on the fertile conditions that may lead to or fuel a conflict before it becomes operational. After all, there is no military operation without logistical support, weapons, intelligence, or people participating in it. Similarly, there is no

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[9] See, for instance, the Congressional Research Service's 2002 report "The Nexus Among Terrorists, Narcotics Traffickers, Weapons Proliferation, and Organized Crime Networks in Western Europe"; Available at: http://www.loc.gov/rr/frd/pdf-files/WestEurope_NEXUS.pdf

[10] Ron Chepesiuk. "Dangerous alliance: Terrorism and organized crime." September 11, 2007. Globalpolitical.com. Retrieved from http://www.globalpolitician.com/23435-crime. See also: BBC News "Pakistani Al Qaeda Suspects Held in Italy." January 31, 2003. Available at: http://news.bbc.co.uk/2/hi/europe/2712607.stm

[11] David Kilcullen. *The Accidental Guerrilla: Fighting Small Wars in the Midst of a Big One*. Oxford University Press, 2009.

[12] David Kilcullen. (2007) "Religion and Insurgency." *Small Wars Journal*; blog: http://smallwarsjournal.com/blog/2007/05/print/religion-and-insurgency/

organized crime without organization, preparation, and disciplined execution of a particular scheme. For terrorists, insurgents, and criminals to have such capabilities, they need niches in which particular social, economic, political, and cultural factors coincide in time and space and allow for the emergence of a crime-friendly environment. The places that are selected are those locations that shield these non-state actors and provide them with a cloak of invisibility.[13] Knowing the locations of such environments and understanding them may help law enforcement and intelligence organizations make these areas more visible and enable them to react to these non-state actors in a subtle, smart, and discreet manner before a military operation becomes necessary.

The MGI Project is engaged in regular and focused scanning of areas that are potential breeding grounds for insecurity. Intelligence and law enforcement organizations are often limited by financial and human resources with regard to how much of the globe they can scan at a given moment in time. With two combat theaters (Iraq and Afghanistan) that presently absorb a majority of U.S. intelligence assets, there are few national intelligence capabilities left over for the rest of the world. Projects like the MGI can serve as an intelligence support activity by monitoring and analyzing those areas that may not yet be the focus of attention. Let us not forget that a smart enemy will want to attack us at a location and from a direction that we least expect and black spots are found on every continent.[14]

In Conclusion

It is not easy to pinpoint all locations through which criminals and terrorists may transit or from which they may operate. But it is possible to pinpoint those spaces that the so-called "global bads" may see as favorable operational environments. Such locations need to be catalogued and monitored on an ongoing basis instead of being studied only after a major security failure (e.g., as in the case of the FATA). The MGI Project has so far identified over 120 potential black spot locations, has completed analysis of 70 of them, and is expanding the number of such locations under regular monitoring (for more information, see http://www.maxwell.syr.edu/moynihan/gbs/Welcome/). The U.S. government should be encouraged to reach out to and to support university projects like MGI that are ongoing, systematic in their coverage of the world, and can serve to enhance intelligence. The question is not whether the United States is able to afford the inclusion of all of its potential resources into the national security effort, but, rather, can the United States in today's global insecurity climate afford not to do so?

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[13] J. Bowyer Bell. "Conditions Making for Success and Failure: Non-state and Illicit Actors." *Trends in Organized Crime*. Fall 2000, Vol. 6, Number 1.

[14] Bartosz H. Stanislawski, ed. "Para-States, Quasi-States, and Black Spots: Perhaps Not States, But Not 'Ungoverned Territories' Either." *International Studies Review*, 10(2) June 2008.

Blind Ambition: Lessons Learned While Rebuilding Baghdad

By Blake Stone

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"We're worse than the blind leading the blind because at least the blind know they are blind."[1]
-David Atteberry, USAID Representative, Rasheed ePRT, September 3, 2007

Provincial Reconstruction Teams ("PRTs") and their much smaller and operationally leaner dependencies, the Embedded Provincial Reconstruction Teams ("ePRTs") have made lasting and meaningful contributions to our national post-conflict reconstruction and stabilization efforts in Iraq since their inception in November, 2005.[2] This article represents the observations and experiences of one person on a single ePRT operating in the same expanse of Southern Baghdad Province over a period of eighteen months from the tail end of the "Baghdad Surge" in late 2008 through the post-March, 2010 Council of Representatives election and transfer of power. Towards that end, this article is mostly anecdotal in nature and does not necessarily reflect what surely were different experiences and operational realities on other PRTs and ePRTs in other parts of Iraq.

PRT Operations in Iraq – A Primer

PRTs were a concept introduced to Iraq during the tenure of Ambassador Zalmay Khalilzad which he borrowed from his experiences in Afghanistan.[3] The PRTs' mission was to "[A]ssist Iraq's provincial governments with developing a transparent and sustained capability to govern, promote increased security and rule of law, promote political and economic development, and provide the provincial administration necessary to meet the needs of the population."[4] PRTs focused on five thematic areas, including governance, economics, infrastructure, rule of law, and public diplomacy.[5] Our ePRT took on the additional areas of agricultural development, public health, and women's social equality issues.

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[1] United States Special Inspector General for Iraq Reconstruction. *Hard Lessons. The Iraq Reconstruction Experience*. Washington: GPO (2009), 303.

[2] *Ibid*. p. 241.

[3] *Hard Lessons*. p. 240.

[4] Unclassified Baghdad 4045, "Action Plan to Build Capacity and Sustainability within Iraq's Provincial Governments," From Embassy Baghdad to SECSTATE, 010330Z October 2005.

[5] U.S. Embassy – Baghdad, "PRT (Provincial Reconstruction Teams) Fact Sheet," March 20, 2008.

Embedded PRTs or "ePRTs" were typically smaller, leaner versions of the PRT and embedded with U.S. Brigade Combat Teams in Anbar, Baghdad and Babil Provinces.[6] At the program's zenith, there were a total of thirty-one American-led PRTs across Iraq, with thirteen being ePRTs.[7] The stated roles of the ePRTs were to support counterinsurgency operations by bolstering moderates whom rejected violence as a means of achieving their goals; promoting reconciliation and facilitating dialogue across Iraqi society; fostering economic development, largely through micro-finance initiatives and building governmental capacity, especially as it related to the delivery of essential services.[8] At its height, our ePRT had an interagency advisory staff of fourteen, comprised of mostly State Department employees, but also included personnel from the U.S. Agency for International Development, U.S. Department of Agriculture and the U.S. Public Health Service – Centers for Disease Control & Prevention.

Absence of Strategic Focus

During the latter part of 2008 and the bulk of 2009, the team's focus was building upon the post-Baghdad Surge's security gains in the hope of increasing the capacity of local governments to deliver essential services, especially clean drinking water, irrigation water, electricity, sanitary methods of sewage disposal, access to healthcare, access to primary and secondary education, and to a somewhat lesser extent, trash removal. This was done largely in the absence of operational-level guidance which would have served to link what we were doing on the ground with our broader national security and foreign policy objectives.

In the absence of being able to dovetail our operations into a larger, more comprehensive operational-level plan, the resulting effect was a high incidence of "feel good" projects – those which produced some tangible example of American good works (typically complete with an information operations event, such as a grand opening ceremony with a conspicuous number of attending dignitaries and robust media coverage). These projects (usually taking the form of brick and mortar construction) often lacked any sort of coordination with the Government of Iraq to insure they fit within their Capital Improvement Planning.

Additionally, we had little way of knowing if such projects furthered progress towards meeting the strategic end-state. There was little to no linkage between the strategic and tactical levels of the civilian-led aspects of our national reconstruction and stabilization efforts. We were left hoping that we were doing the right thing and advancing in the right direction. It was tantamount to the collection of "scouting merit badges" with each project representing another badge. The "merit badges" could be touted as tangible proof of reconstruction progress, but there was little connection (other than perhaps an accidental one) between the projects and other reconstruction efforts executed at the local level and the achievement of our strategic end state.

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[6] Office of the White House Press Secretary, "Fact Sheet: Expanded Provincial Reconstruction Teams Speed the Transition to Self-Reliance," July 13, 2007. (http://merln.ndu.edu/archivepdf/iraq/WH/20070713.pdf)

[7] PRT Fact Sheet, *Ibid*.

[8] White House Fact Sheet, *Ibid*.

Initially, we unwittingly did more to destabilize this fragile region than we did to stabilize it. The absence of competent Government of Iraq (GOI) officials to work through at the local level resulted in our local project work (agriculture, economic development and some of the USAID's general development projects) being implemented by either local sheikhs or NGOs. The NGO's themselves were created in response to DoS funding regulations and designed to benefit the same group of sheikhs. This included projects funded by both the State Department's Quick Response Funds ("QRF") program and the Military's Commander's Emergency Response Program ("CERP").

Neither the civilian nor military reconstruction efforts fully understood the effects of project funding on the balance of tribal power in this mostly rural area, or that their attendant funding increased the power, prestige, influence or "wasta" of a particular sheikh or tribe in one area while simultaneously decreasing the influence of another shiekh or tribe. Creating the conditions for stability in one area often destabilized another area.

This truism played-out across the entire Mahmudiyah Qada in the military's desire to assist local stability and tribal reconciliation efforts in Al Rashid Nahiya, which lies upon a notorious Sunni-Shia fault line in the northern part of the qada in the vicinity of the intersection of MSRs Jackson and Tampa. The military purchased over $300,000-worth of tractors to benefit local agricultural associations through the nahiya council. The game plan entailed the council delivering these tractors prior to the January, 2009, Provincial Elections with a goal of improving the popular perception of local government within the area.

Delivery was delayed until months after the Provincial Council election due to factors beyond the military's control, but the ability to achieve non-kinetic effects on election security had certainly lapsed. The tractors, in the final analysis, benefited only a select number of sheikhs in a relatively small area of our operational environment whom had allied themselves with a well-known local sheikh who ran the local governing council in an authoritarian manner which would have made Stalin proud. The anticipated second and third order effects of disenfranchising numerous tribes/shieks within the qada were known to the brigade's senior leadership at the time of the decision but were disregarded.

Word of mouth on the Iraqi street moves at an amazingly quick pace. Within days of the "big tractor give-away," sheikhs from other parts of the qada were contacting our civil-military operations center, asking when they would be supplied with tractors or complaining that the Americans somehow "owed" them similar treatment because of the support they delivered in the form of security gains during the Baghdad Surge. Every other local nahia council soon demanded its own tractors. The qada-wide agricultural cooperative association, with member organizations across the qada, outright refused to work with "the Americans" until they were provided with equivalent support. The decision proved disastrous and its negative repercussions were felt for a full year afterward.

With good intentions, we championed projects designed to improve local agriculture which looked good on paper, however, the net effects served to only increase the wealth and prestige of a few select sheikhs to the detriment of other sheiks in different areas of the qada. Those areas

not receiving direct U.S. assistance invariably felt slighted and often became publicly critical of, if not overtly hostile towards, what they perceived to be American intervention in Iraqi affairs.

Lack of Unity of Effort between Military and Civilian Reconstruction Efforts

The military brought numerous assets to the table – a significant number of personnel for the task; a very significant budget; and the logistical and mobility assets which allowed it to be nearly everywhere in our area of operations at once. The downside to this huge, well-intentioned Leviathan was organizational inertia on a grand scale which had no outlet (save reconstruction operations) in the post-June 30th Security Framework Agreement Iraq. Precluded from conducting combat operations, the military focused on "non-kinetic effects" – its shorthand for reconstruction operations.

While the State Department was the lead federal agency for reconstruction and stabilization operations,[9] the brigade combat teams we were embedded with had their own, separate agendas. The first brigade we worked with viewed the ePRT simply as a "brigade enabler" and expected the civilian efforts of the ePRT to be subordinate to the overarching brigade concept of the operation. This caused friction on numerous levels. First, the brigade largely ran its own set of engagements with numerous civilian Iraqi governmental officials, often without any coordination with the ePRT whose role it was to engage with, train, and mentor the same set of officials. This often led to the embarrassing situation of unwittingly meeting with the same official the day after the military met with them, sometimes regarding the exact issue.

Programmatically, the ePRT and the military's differences stemmed primarily from two sources – first, a difference of opinion regarding where we sat on the operational continuum; and secondly, different timelines. The net effect was an almost complete lack of unity of effort and the military and State Department working from two completely different playbooks.

The Operational Continuum

The military justified many of its reconstruction/"non-lethal" decisions by framing them in the context of security measures necessary to further its counterinsurgency objectives. Many of us on the ePRT looked at the same local political reconciliation/security situation and felt it had matured beyond "straight-up" counterinsurgency operations ("COIN") and was ripe for post-conflict governmental capacity building efforts. Capacity building involves the concept of "sustainability" – for which the military seemed to have little understanding.

The military tended to move into an area and immediately start a myriad of reconstruction projects, most of which did serve to improve Iraqi quality of life in this otherwise decimated area. The problem was that funding projects for the Iraqi Government replaced capacity rather than developing it. During COIN operations, using "money as a weapons system"[10] in order to

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[9] National Security Presidential Directive 44. December 7, 2005.

[10] "Money as a Weapons System (MAAWS)." Multi-National Corps-Iraq CJ8 SOP, Appendix H, dated: 15 June 2008.

produce (or perhaps purchase) desirable non-kinetic effects makes perfect sense. When transitioning to more traditional post-conflict stability and reconstruction operations, however, this long-standing practice actually served to retard Iraqi governmental capacity rather than build it. The United States was universally viewed by local Iraqi governmental entities as the funding source of first resort. Due to long standing spending habits, our ability to influence eventually became directly proportional to the amount of money we brought to the table.

Some local nahiya councils (the Iraqi equivalent to city or township councils in rural areas) we worked with completely stopped preparing council budgets for review and funding by the Government of Iraq preferring U.S. military funding for their developmental needs. American money was simply too plentiful and too easily obtained. Part and parcel of our attempt at teaching local councils to become more self-sufficient (an inherently difficult task, in that local councils had no stand-alone budget or income source) was teaching them how to prioritize their developmental needs across the various GOI funding streams and establish the necessary intergovernmental relationships in order to obtain funding commitments. Our prodding fell largely on deaf ears, as the Iraqis simply approached American commanders who were all too willing to open the CERP checkbook in the name of "building relationships" with local power brokers and the achievement of "non-kinetic effects."

Reconstruction Timelines

Another inherent disconnect between the military's operations and those of the ePRT's were different timelines. The ePRT, through its USAID representative, tended to look at longer-term, often multi-year projects. The Military, on the other hand, had a time horizon of a year or less, usually benchmarked to the length of the unit's tour in Iraq. Military projects tended to focus on the "quick win" with visible indices of "progress," such as schools, health clinics and road improvements. The military focused its efforts on "bright and shiny objects" and things that lent themselves to media coverage and "IO effects."

This practice made good sense during COIN operations, when influencing the populace is of primary importance, but did little to assist with institutional capacity building. These short-game wins tended to replace capacity rather than build it. The military tended to do projects "for" the Iraqi government rather than forcing them to step-up to do things themselves. The Iraqis were more than content to sit back and let the United States do the work they should have done themselves. This practice was the antithesis of capacity building.

Lessons Learned

There are numerous things we need to do better in future stability operations. While this list is not exhaustive, it is representative of the problems faced during our ePRT's operation over eighteen months and three different brigade combat teams.

- **Military leaders need more training in interagency reconstruction and capacity building operations**. Most of the military leaders at the brigade combat team level lacked a fundamental understanding of what "the interagency" brought to the warfight, how to harness its vast capabilities and even more basic concepts such as "who was in

charge" (i.e., lead federal agency). Lacking this understanding, what should have been a symbiotic relationship was fraught with friction. Most military leaders viewed the ePRT as merely a "brigade enabler" rather than at least a partner in its operations or, more realistically, the lead agency within the unit's area of operations for post-conflict reconstruction and capacity building. This turf battle was a constant driver of inefficiency. The military needs to make the mandate of DoD Instruction 3000.05, that it be as proficient in stability operations as in combat operations, a reality.[11]

- **"Lead Federal Agencies" need to actually "lead**." There is little question that the Department of State is inadequately funded and resourced to accomplish its reconstruction and stabilization responsibilities. This being said, however, we received precious little by way of operational guidance from PRT Baghdad, the Embassy's Office of Provincial Affairs or the two Ambassadors whom I served under. To the extent there was "front office" involvement in PRT/ePRT issues, it was primarily focused upon the PRT drawdown plan. While much time and energy was expended in determining the size and composition of the sub-national civilian footprint, what seemed to be absent from the calculus was the fact that civilian assets were drawing-down at a quicker and more significant pace than the military component. This seemed rather counterintuitive, in that most reconstruction models call for a corresponding increase in civilian capacity (i.e., a "civilian surge" of sorts) as the military presence draws-down. This left gaping holes in our overall ability to continue reconstruction operations as we approached the post-COR election transition of power.
- **Reduce the rate of military AO turnover (aka "my school needs to be rebuilt… again").** The rate of battlespace turnover between military units (aka, "transfer of authority" or "TOA") was probably too frequent to build good civil-military relationships with our Iraqi interlocutors. Every nine months or so, the Iraqi governmental officials, tribal, and business leaders with whom we would regularly engage would have to learn a whole new panoply of Americans. This also gave the Iraqi governmental and tribal leaders, who were astute opportunists, the ability to pitch their wish-list to successive commanders on at least a yearly basis. This led to numerous, otherwise unnecessary, projects being started or funded in the name of "building relationships."
- **The zenith of "Money as a Weapons System ("MAAWS")."** Money is probably the preeminent tool in a counterinsurgency. It has the ability to independently influence, provide access to decision makers and other "levers of influence" and turn enemies into allies (as exemplified by the Sawa or "Sons of Iraq" movement). Efforts to build governmental capacity, on the other hand, often benefit from not leading with money. The Government of Iraq became conditioned to look to the U.S. military particularly and the U.S. Government, more generally, as the bill payer of first resort. We were often unable to get the Government of Iraq to move forward on their own until we were able to convince them that we lacked or were otherwise unable to provide money to apply against whatever the problem of the day happened to be. Once the Government of Iraq was forced into that position, they would actually start coordinating and breaking bureaucratic stovepipes.
    - Our efforts were often derailed by the military loosing millions of dollars of CERP funding in the name of "If we don't spend it, we will lose the money to the

[11] United States Department of Defense Instruction 3000.05, Subject: Stability Operations. September 16, 2009.

Afghanistan effort." This resulted in numerous unnecessary projects being funded, as well as numerous CERP microgrants being made in less than well thought out ways. This problem was exacerbated by the military's flawed metrics which evaluated relative "success" by the amount of CERP money obligated, projects funded and microgrants made, without regard to effects. Microgrants, for example, were given primarily to business owners, which created the perception within the community that our only interest was "making the rich richer."

- Taken with our affinity for assisting tribal sheikhs under the guise of "security," this perception seemed well-founded. The net effect was that our ability to influence, or even get a seat at the table, was directly proportional to the amount of money we brought. When the money dried-up, so did our influence.

Conclusion

The use of ePRTs and PRTs as civilian adjuncts to the military's counterinsurgency operations has proven their worth during our military and diplomatic involvement thus far in Iraq. Unfortunately, we seemed to traipse blindly down what turned-out to be a very uncertain path towards our national strategic end-state. While part of this was certainly due to the relative novelty of such operations (save the CORDS program utilized with success during our involvement in South Vietnam),[12] we could have been more effective had the civilian effort been less *ad hoc*. Secondly, had the military possessed a more complete understanding of the civilian/interagency capabilities, what they "bring to the warfight" and how to better harness their capabilities, the overall United States Government effort would have been more effective.

In future conflicts, the civilian/interagency contribution will undoubtedly be critical to achieving the strategic end state. It should be better utilized. In order to do this, it will need to be more effectively led and better understood by its military counterparts. To "win the peace" we must be just as effective in stabilization and transfer to civil authority phases as we are in decisive combat operations. Until we make such successes a priority in our doctrine, training, resourcing—to include requiring proven competency in the skill sets required for such operations—we will simply remain the "blind leading the blind" down an uncertain path.

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The opinions expressed herein are the author's alone and do not represent the official positions or policies of either the Department of Defense, Department of the Military, Department of State, the United States Mission – Iraq, or the United States Naval War College.

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[12] The CORDS (Civil Operations and Revolutionary Development Support) pacification program in rural Vietnam is an interesting precursor to Provincial Reconstruction Teams used in Afghanistan and Iraq.

Section 3: NSF Insider Views

An Israeli Airstrike on Iran: Calculus and Consequences

Introduction

One of the most difficult strategic issues facing the U.S. and Israel is the threat of a nuclear armed Iran. Despite years of diplomacy, three rounds of economic sanctions, and plenty of grandstanding rhetoric, the Iranians appear to be progressing in their pursuit of building a nuclear weapon.[1] This presents American and Israeli strategists with a daunting task: how to deter this development. Among the alternatives discussed is a preemptive strike by the U.S. or Israel on Iranian nuclear facilities.

In view of the importance of this issue, the National Strategy Forum (NSF) recently convened a group of national security experts to discuss the likelihood and probable consequences of an Israeli airstrike on Iran's nuclear facilities.

Method

The method of discussion used decision software currently employed by the U.S. Department of Defense and the business community called Risky Decision Technology (RDT).[2] The software aggregates group preferences for an array of outcomes according to discrete factors and issues. In particular, the RDT software highlights the most important issues of group agreement and disagreement.

In the Israeli strike scenario, the software compared eight experts' opinions on seventeen factors related to the primary research question, "Will Israel pursue a precision strike against Iran's nuclear facilities in an attempt to delay progress towards a nuclear weapon?" The simulation constrained the exercise with a number of assumptions, the most important of which include: the current economic sanctions and diplomatic initiatives are unlikely to change Iran's course; Iran could have enough fissile material by March 2011 to build a nuclear weapon; Saudi Arabia does not want an Iranian bomb; the U.S. has a commitment to non-proliferation; and the Israeli and U.S. militaries are capable of launching precision airstrikes over great distances with ground penetrating munitions.

The exercise asked seventeen strategic questions that related to whether Israel would or would not launch a preemptive airstrike. In addition to Israel's strategic calculation, the questions were also designed to determine the importance of U.S. preferences to Israel's strategic calculation on

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[1] The earliest point at which Iran would have enough fissile nuclear material to build a bomb is March 2011. However, it is unclear how advanced Iran's bomb-making technology is in reality, and we note the fissile material alone is not enough to build a weapon.

[2] For more information on the RDT software, please visit the website here: www.decision-command.com

whether or not to strike.[3] For example, the U.S. has national security interests in the Middle East, but a mix of domestic and foreign policy considerations may prevent the U.S. from becoming militarily involved against Iran or even in tacitly supporting an Israeli air strike. The goal of this exercise was to refine the most important strategic issues facing the U.S. and Israel as they craft their strategy and tactics.

The conclusions of our exercise should not be regarded as definitive, of course, but rather as suggestive of a possible course of events. Such an exercise is suggestive rather than conclusive, and is intended to facilitate critical thinking.

Results

There was consensus that—barring a diplomatic breakthrough—Israel would be likely to strike Iran's nuclear weapons development facilities to delay their nuclear program. However, the strategic scenario was nuanced and required discussion of a wide range of other related issues. These factors are discussed below.

Israel's Perceptions

The major factors driving Israel's strategic calculation are the perceived existential threat from an Iranian nuclear weapon and the uncertain prospect of mutually assured destruction (MAD) as a deterrent to Iran. The group agreed that while Israel may respond rationally to MAD, Iran has not conveyed rational deterrence behavior. On the contrary, Iran has indulged in vitriolic anti-Israeli rhetoric and promised to wipe Israel off of the map. In addition, the public statements of the ruling clerics indicate that the Iranian regime would be willing to trade Iranian lives for the annihilation of Israel. Even if the statements are merely rhetorical or based on other political considerations, Israel is especially vulnerable because of its small size and limited number of very high value targets and is likely to take such statements seriously.

Middle East Balance of Power

An Iranian nuclear weapon would fundamentally shift the balance of power in the Middle East. Moreover, a shift in the balance of power in the Middle East would incline the U.S. and (possibly) Saudi Arabia to support an Israeli attack, if not publicly then privately. Such tacit support would increase the likelihood on an Israeli attack.

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[3] The software permitted the impact of each question to be clearly exposed. Moreover, the influence of any individual question on the conclusion could be easily examined. For example, how important is an assumption, and what is the impact if that assumption is changed? Particularly in dynamic situations, the sensitivity of information can be valuable to decision-making. Exploring the importance of any particular factor or combination of factors was made considerably easier due to the RDT software. If the given factor changed or did not occur, one could immediately check the impact of that change on the result. Overall, the RDT software allowed a the compilation of a large groups' opinions to be easily assimilated into a cohesive decision framework, thereby making a group decision on the research question to be easily identified.

Hamas and Hezbollah

Hamas and Hezbollah are supportive of the Iranian government—from which they get a great deal of support—and might well launch attacks on Israel in the event of any Israeli attack on Iran. However, the physical threat from Hamas and Hezbollah rockets fired into Israel would not be sufficient to sway Israel's strategic calculus towards Iran. Moreover, because this threat is expected, Israel will view this issue as manageable, and would not be dissuaded from striking Iran.

The Strait of Hormuz

Any military action taken against Iran was assumed to cause a temporary disruption in the flow of oil from the Persian Gulf, resulting in a spike in the price of oil. The group noted that there would be considerable diplomatic and public backlash against the attacker. However, since an oil spike is an assumed and expected outcome, Israel is unlikely to feel constrained in its actions because the economic consequences are predictable and preparations can be made in advance to ameliorate long term damage. Any action resulting in the diminution of the flow of oil from the Persian Gulf would likely compel the U.S. to respond militarily to secure its national interests. Because the U.S. would be likely to respond to such a disruption, the group determined that this factor would not dissuade Israel from pursuing a strike on Iran. Although U.S. policy is to prevent Iran from acquiring a nuclear weapon, it is uncertain whether they would endorse or even tacitly approve an Israeli air strike.

Iranian Response to a Strike: Domestic and International Consequences

Iran has several ways in which to respond to an attack on their nuclear facilities. First, Iran would be expected to neutralize domestic opposition groups and solidify the clerical political base. There would be a public inclination to "rally around the flag." Second, Iran would attempt to inflame the broader Islamic community and condemn Israel. Third, Iran would activate proxy militias in Lebanon, Palestine, Kuwait, and Bahrain. Fourth, Iran would attempt to curtail the flow of oil through the Strait of Hormuz.

There was disagreement as to what affect a strike would have on the stability of Iran's regime. A key question was raised: what is the U.S. and Israel's objective for Iran's political status? Is the goal regime change, or a stable and rational Iranian government? Are these goals short term or long term? The Iranian public's predilection to "rally around the flag" would be a deterrent to regime change objectives. However, the group determined that regime change variables were not critical to the Israeli strike calculation—the existential threat would overrule regime change considerations in the short term.

The U.S. Role

An important unknown issue was the role that the U.S. would play in Israel's strategic calculation. The issue was whether Israel could act alone without U.S. support (tacit or public), and whether or not the U.S. would be willing to become involved (either preemptively or *post*

hoc) with a military operation to open the Strait of Hormuz. The discussion concluded several points about the likely U.S. role *vis a vis* an Israeli airstrike.

First, because of the existential threat perceived by Israel, the U.S. strategic calculation and potential military involvement is not the primary issue for Israel. Essentially, the U.S. strategic calculation is subordinate to the Israeli calculation.

Second, the U.S. has a vital national security interest in the Strait of Hormuz. A very likely Iranian response to an attack is to disrupt the flow of oil from the Persian Gulf. The U.S. cannot abide an oil disruption, and the pressure from the domestic and international community would compel the U.S. to respond with military action to restore the flow of oil. Consequently, the U.S. is likely to be drawn into a well-defined *post hoc* military operation. Given that Israel can anticipate some sort of U.S. military involvement after an attack, Israel will be emboldened to strike Iran.

Third, U.S. domestic politics are a major impediment to U.S. involvement in an Iranian military operation. With military resources already stretched and a weak economic recovery, convincing the American public will be very difficult. If, however, Iran threatens U.S. economic interests in the Persian Gulf, the domestic political calculation would change and the possibility of American involvement increases. Given American domestic impediments to action, Israel will feel the need to strike even if the American public opposes involvement (because Israel could not count on the U.S. striking Iran first). In addition, because the U.S. would likely be compelled to react militarily to an economic security threat, and Israel can plan on a military response to Iranian reprisals in the Persian Gulf, Israel would be emboldened to strike.

Conclusions and Implications

The likelihood of an Israeli attack, coupled with an Iranian reprisal against oil flow in the Persian Gulf, argues for the inclusion of several U.S. strategic objectives in this scenario.

First, regime change in Iran is both an Israeli and U.S. foreign policy priority, although it is clearly subordinate in Israeli minds to the imminent nuclear threat. There is also a possibility that an attack on Iran could solidify nationalism among the moderate Iranian public, in effect rallying them to the clerical leadership and setting back this objective. This is a plausible outcome, but it is unclear how much this potential setback will affect U.S. and Israeli strategic strike calculations.

U.S. public diplomacy should be re-invigorated. If an attack occurs, the Iranian public will look for a culprit to blame, whether it is the Iranian government or the U.S. and Israel. Thus, the public diplomacy message should argue to the Iranian public that their regime's policies may force the hand of the international community to strike back. The message should indicate that multilateral economic sanctions—which have hurt the pocketbooks of Iranian citizens—have not been enough to dissuade the regime from its inflammatory rhetoric aimed at Israel and the West and have not slowed Iranian nuclear progress. The message should clearly state that an attack on Iran's nuclear assets would inevitably lead to civilian collateral damage, which the U.S. and Israel want to avoid.

Second, Iran's nuclear proliferation is a security risk to the international community and should be a main priority of U.S. foreign policy efforts. The Obama administration has added the new Israel-Palestine peace talks to its already crowded foreign policy agenda. Some would argue that eliminating the Israel-Palestinian conflict from the Middle East will clear the way for greater multilateral efforts against Iran. This is certainly a worthy goal. Others would argue that the historical track record on these talks are abysmal, and that it is unclear if any real progress can be made before Iran crosses the threshold of nuclear weapons development. The U.S. should reconsider its focus on Middle East foreign policy priorities and ensure that its crowded agenda is not minimizing the effectiveness of its Iran strategy.

Third, the U.S. public may not support additional U.S. military engagement in the near-term. If, however, there is an Israeli airstrike, the likely consequence would be that Iran would attempt to close the Strait of Hormuz. This would require limited U.S. military action to secure U.S. interests, and it is likely that this intervention would be supported by the U.S. public. The communication to the American public should be immediate and clear. If the administration tacitly supports an Israeli air strike on Iran, the domestic explanation needs to be crafted to clarify the intent (protecting U.S. interests) and means (limited military operations).

Deterrence: Hiroshima Mon Amour

By Richard E. Friedman

A recent strategic war game exercise was conducted by the National Strategy Forum (NSF) concluding that Israel is highly likely to launch an airstrike mission against Iran's nuclear weapon development program. The exercise focused on the efficacy of a wide range of deterrents, which were determined not to have sufficient bite to cause Iran to halt its nuclear program. In so doing, the discussants assessed the spectre of the U.S. use of nuclear weapons against Hiroshima and Nagasaki. During World War II, the U.S. could not divulge the existence of its nuclear weapons. However, the Hiroshima/Nagasaki experience may be instructive—how to caution Iran, without either Iran or Israel actually using nuclear weapons?

The strategic issues for the U.S. and Israel are based on Iran's acquisition of a nuclear weapon and the consequence that this might have on the U.S. and Israel strategic calculus. In particular, an NSF war game concluded that there is a likelihood of an Israel airstrike on Iran's nuclear weapon development facilities in the immediate future. The objective of this mission would be to delay, but not to prevent Iran from ultimately acquiring a nuclear weapon.

The focus of this essay is that Israel has an unused deterrent vehicle—old fashioned, bloody, bludgeon propaganda. The incentive for Israel is that by exercising maximum deterrent force, it might reach its objectives without an airstrike, and Iran voluntarily halting its nuclear weapons program.

Israel's objective is to terminate, or at least retard, Iran's nuclear development program. The preferable option is voluntary cessation by Iran's ruling elites. This is unlikely because of the regime's current posture. The next best option is regime change, based upon the assumption that a new regime might determine that it would be in their best strategic interest to terminate Iran's nuclear weapon development program.

Mutually Assured Destruction (MAD) was effective in the prolonged U.S.-U.S.S.R. Cold War. However, the MAD option was examined in the airstrike exercise, and was rejected because traditional cost-benefit analysis may not apply to Iran's elite leadership – "We love death more than you love life." However, a variant of MAD could be applied to Iran.

The efficacy of deterrence theory is substantially diminished when one party does not play by traditional rules. However, the Iranian public as a whole may not endorse the regime's stated policy. A split between the Iranian elite leadership and Iranian population could be the pivotal focus of deterrence strategy.

To be effective, there must be a clear and well-defined declaration of intent made by a potential attacker. To date, Israel's declaration of intent (airstrike) is not compelling. The U.S. declaration of intent to prevent Iran from acquiring a nuclear weapon has been by three rounds of economic sanctions, the results of which are not well-defined.

Credibility is another dimension of deterrence. From Iran's perspective it is likely that Israel will launch a limited airstrike which, even if successful, will result only in delay. Iran's calculus might be that the U.S. will not launch a pre-emptive airstrike, but it will tacitly aid and abet Israel's attack. Thus, Iran may regard U.S. military assistance to an Israeli airstrike as inevitable. To this extent, only economic sanctions are regarded by Iran as credible. Iran's calculus involves an assessment of political, clearly defined intentions, and attacker capability. U.S. capability is, of course, present, but the U.S. political will is substantially degraded by U.S. citizen war-weariness (Afghanistan and Iraq) and the U.S. military opposition to opening a third theater of operations involving Iran.

Israel has a dramatic, unused deterrent. Before attacking Iran, Israel could communicate to the Iranian public that its response to an Iranian nuclear attack on Israel would be absolute, certain, severe, and instantaneous. In effect, this would be a unilateral variant of MAD. The counter-argument to this declaration of intent is that Israel has not confirmed that it has nuclear weapon capability, certainly of a substantially higher magnitude than that of Iran. A proposed independent television documentary deterrent could define Israel's nuclear capability and the magnitude of its retaliatory nuclear response to Iran's first strike. Israel would not produce the proposed nuclear television documentary, but it would cooperate with an independent producer.

Israel has two potential negotiating parties: one, Iran's elite leadership; and, two, Iran's general population. The downside of an Israeli airstrike, as noted above, even if successful, would cause Iran nuclear weapon delay. An airstrike runs the risk of causing the Iranian public to "rally 'round the flag" because the Iranian public would be only minimally harmed, and the result could retard regime change.

Assume that Iran would have no more than one or two low-kiloton nuclear bombs that would have a catastrophic effect on Israel. By comparison, Israel's nuclear weapon arsenal is massive. Consider the following graphic television documentary scenario. It would be made clear that every Iranian population center, its critical infrastructure, and military installations would be targeted for Israel nuclear attack.

A survivability calculus is composed of demographics, vulnerability, morbidity, economic consideration, including destruction of critical infrastructure. In gross terms, Iran's population is 66 million; Israel's population is 7 million. This is a 9:1 ratio. Although Israel's population morbidity resulting from an Iran nuclear weapon attack would be horrific, catastrophic, and an abomination to behold, the deterrent mathematics suggest that Iran would be totally destroyed as a country by an Israeli nuclear retaliatory strike. This is a brutal calculation, but it was used successfully during the Cold War.

Propaganda has fallen out of favor since WWII. It is regarded as being a bludgeon that might not be understood by an technology-savvy, sophisticated population. However, people are affected by an accurate, emotional appeal to their survival instincts. For example, the 1959 film *Hiroshima - Mon Amour* depicted the nuclear horror visited upon the population of Hiroshima. The Hiroshima and Nagasaki nuclear explosions were used by the U.S. to end the War in the Pacific. The U.S. could not and did not warn the Japanese in advance, because the weapon was highly secret, and there was great uncertainty regarding whether the nuclear device would explode. The film depicted the effects of the August 6, 1945 Hiroshima bomb, particularly the immediate loss of hair of the survivors, and the hundreds of acres of completely anonymous corpses of the victims. Upon its release, the film become iconic, motivating international discussion of the morality of possession and use of nuclear weapons.

Perhaps "bludgeon" propaganda could be used again. Neither Iran nor Israel would be compelled to use nuclear force if this television documentary deterrent could deter Iran from pursuing its nuclear weapon development program.

Richard E. Friedman is President of the National Strategy Forum, and Publisher of the National Strategy Forum Review.

Section 4: Book Review

Charles A. Kupchan's
How Enemies Become Friends –The Sources of Stable Peace

Reviewed by Arthur I. Cyr

Princeton University Press, 2010
ISBN 13: 978-0-691-14265-4

This book employs traditional balance of power approaches to world politics, to further understanding of making effective peace. Not surprisingly, therefore, Henry Kissinger is quoted at the top of the list of notables on the back jacket endorsing the book. He pithily describes the work as "…fascinating, thought provoking and consequential."

Kissinger's Harvard Ph.D. dissertation, later published as "A World Restored – Metternich, Castlereagh and the Problems of Peace, 1812-1822," dealt with forging the comprehensive peace settlement at the Congress of Vienna, after the final defeat of Napoleon at Waterloo. Charles Kupchan devotes extensive space to the Concert of Europe, including in particular the radical popular revolts of 1848. The contrast between social and political reforms in Britain and France, and the more reactionary sentiments holding sway in the rest of continental Europe, is rightly highlighted.

Kupchan places the Concert of Europe not directly in the longer flow of European history, but rather in his fresh analytic context. At the start of the book, he compares the Concert with the Iroquois Confederation of North America. Later in the text, he provides immediate comparison with the Association of Southeast Asian Nations, the European Community and the less successful Persian Gulf Cooperation Council.

Many historians, as well as more conventional political scientists, may complain that certain subtleties are glossed over or overlooked. For instance, Kupchan sees the Concert of Europe as ultimately a failure, given the extremely disruptive nature of the events of 1848. A contrary point of view is that the Concert, and the follow-on Congress of Europe, were fundamentally successful since general war was averted for a century after Waterloo. Regarding recent developments, more detailed discussion of the degree to which European and wider world history has influenced the European Union, the Association of Southeast Asian Nations and other organizations cited would have added a useful related dimension.

Integration of the extensive, and somewhat diffuse, historical examples and information assembled by the author is achieved by a consistent conceptual framework. He describes a four-phase process of basic elements necessary for achieving stable peaceful environments. First, a state breaks out of a conflicted diplomatic and security environment by taking an initiative toward peace, described as a unilateral accommodation. Second, the adversary so contacted reacts with indication of reciprocal restraint.

An important third process, if these initial steps are to bear long-term results, is for societal integration to develop between the states which have initiated accommodation. This involves interchange among ordinary citizens as well as relatively influential professionals and leaders in government and the private sector.

The fourth factor is the most general and comprehensive, encompassing "the generation of new narratives and identities." The author gives emphasis to such amorphous dimensions as popular culture as well as such political icons as "charters, flags, and anthems," leading to a "new domestic discourse." In fact, he is actually focusing on the transfer of nationalist and patriotic sentiments from one set of territorial arrangements to another.

Successful security communities for Kupchan include the Concert of Europe until 1853, the European Economic Community until 1963, and the Association of Southeast Asian Nations right up to the present. Just as he is too harsh in judging the Concert, the same applies to discussion of the European Community, given the challenged and troubled but still successful expansion into the more substantial European Union, which has a single currency as well as a truly common market.

As for achieving national union, Kupchan cites as success stories the unification of Germany and Italy as well as the United States. Less nationalistic examples provided are the Swiss Confederation from 1291 to 1848, the Iroquois Confederation cited above, which lasted from 1450 to 1777, and the United Arab Emirates from 1971.

The author is particularly impressed by Anglo-American rapprochement, though he mentions the very extensive examination of this relationship by historians may give this example too much weight. He might just as easily argue that his emphasis is confirmed by earlier students, over a very long period of time.

Given the significance of anti-British sentiment in American politics and popular discussion before the Second World War, his emphasis is further justified. The importance of Theodore Roosevelt in evolution of sentiment in the direction of support for British power and influence is highlighted, along with the closely related influence of Alfred Thayer Mahan and his maritime perspective on great power influence.

Kupchan's splendid thought-provoking analysis is implicitly congruent with a wider evolution of American political science toward greater emphasis on economics. The return to political economy, which British scholars never really abandoned, has been in part a reaction to the rise of the multinational corporation in the 1960s, as well as the end of U.S. international economic dominance seen in President Richard Nixon's termination of Bretton Woods fixed exchange rates in 1971.

Meanwhile, U.S. economists, if chastened since those years regarding predictable management of the economy, continue generally to ignore political scientists. Books such as this one may encourage wider dialogue, not least because of persuasive use of history, and a fine polished prose style.

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