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The Fall 2009 issue of *Defence Against Terrorism Review* (DATR) places a special emphasis on discussing one of the most frequently asked questions in the field, particularly since the September 11 attacks: Is the prospect of terrorism with weapons of mass destruction (WMD) mere hype, or could it become reality? There are innumerable books, journal articles, op-eds, and blogs where people elaborate on the probability and possibility of such an incident and put forth divergent views. While some argue that the prospect of WMD terrorism is little more than speculation and that the chances of terrorist groups acquiring or building such weapons are slim, stressing the technical, scientific and institutional hurdles they would have to overcome, others forcefully contend that this issue must be given priority by governments and relevant institutions around the world due to the credibility of the threat, which should by no means be underrated.

Hence, the Academic Board of the Centre of Excellence - Defence Against Terrorism (COE-DAT) thought it would be appropriate to give the floor to leading world experts and scholars whose writings set the stage for all those involved in the debate. Prof. Dr. Peter Zimmerman, Professor Emeritus of Science and Security at King's College London, who has also served in US government agencies, is inarguably one such scholar, and his article "Do We Really Need to Worry?" provides a very lucid explanation as to why we should definitely worry about the threat of WMD terrorism, and particularly the possibility of the detonation of an improvised nuclear device or stolen nuclear weapon by terrorists. Prof. Zimmerman's article not only gives a detailed account of the scientific and technical dimensions of the threat, and in a very reader-friendly manner, but also refutes the arguments that the threat assessments are exaggerated, and substantiates his counter-arguments with facts and figures.

In the same vein, another renowned international expert, Charles D. Ferguson, set to assume the presidency of the Federation of American Scientists on January 1, 2010, and his colleague Michelle M. Smith, in their co-authored piece titled "Assessing Radiological Weapons: Attack Methods and Estimated Effects", shed light on problems associated with commercially available radioactive sources, as well as dispersal methods and exposure pathways that could be deployed in a radiological attack by terrorists. Ferguson and Smith argue that radiological terrorism is appealing due to its potential economic, social and psychological impact as a result of the high costs of decontaminating radioactive areas, the high economic losses in a large commercial area due to business closures, as well as subsequent job losses and stoppage of life in general in affected areas. The article draws on several case studies to assess the estimated effects of terrorist attacks with radiological dispersal devices. The authors conclude that it is necessary to limit or further regulate access to commercial radioactive sources of security concern, tighten security on existing sources, and alter the physical qualities of such sources in order to render them less able to be dispersed.

It is generally agreed among terrorism experts that the threat of nuclear or radiological terrorism would emanate mainly from political-religious, apocalyptic, right-wing, and national-separatist groups. As noted in Ferguson and Smith's article, some terrorist groups have expressed interest in radiological attacks, most notably Al-Qaeda. With numerous statements on the issue, Osama bin Laden has made no secret of his desire to acquire nuclear and radiological materials. Hence, Noam Rahamim, a doctoral student at the Herzliya Interdisciplinary Center's Institute for Counter-Terrorism, in his article "Doomsday Weapon for Doomsday Ideology: Al-Qaeda and Nuclear Weapons" deals with the probability of the use of WMD by terrorist organizations, especially Al-Qaeda. Noam's article shows that the capability to execute an attack including the use of WMD exists and is accessible to terrorist organizations, and that the players most likely to

use WMD, among their international counterparts, would be religious fundamentalist groups. Moreover, the author elaborates on the powerful motivational factors that make such attacks more probable "which lead to the death of more Muslims than foreign forces and personnel", and concludes that as part of a defensive strategy, countries should include mechanisms of conflict resolution and tension reduction when interacting with local minorities and immigrant populations.

It is small wonder that the scale of terrorist attacks may go far beyond the capabilities of individual states to both prevent them and, if they take place, respond to their effects. The need for cooperation and collaboration among states to counter the threats posed by trans-national terrorism is a recurring theme in the articles published in this journal and elsewhere. The urgency of the matter is more explicit in the face of the dangers emanating from the threat of WMD terrorism. Hence, Charles Streeper, a nonproliferation expert from Los Alamos National Laboratories in New Mexico, in his article "Atoms for Peace and the Nonproliferation Treaty: An Unintended Consequence", discusses the political and technical measures that must be taken in order to keep nuclear and radiological materials safe and secure so that they do not fall into the hands of terrorists. In this regard, Streeper suggests that the IAEA should continue to help states improve regulatory infrastructure, and that a methodology for the repatriation, disposal, and/or secure storage of all sources should be a priority.

While it is necessary to take non-military technical measures to keep nuclear and radiological materials safe and secure in their proper places, it is equally important to have military measures in place to fight terrorist groups and frustrate their plans to stage attacks. Dr. Haldun Yalçınkaya from the Turkish Military Academy and Dr. Dilaver Arıkan Açar, in their article "NATO Peacekeeping in Afghanistan: Expanding the Role of Counterinsurgency or Limiting it to Security Assistance", discuss the scope and purpose of NATO operations in Afghanistan, meant to bring security and stability to the country. Citing how Afghanistan has long been the stronghold of both the members and leadership of Al-Qaeda, the authors focus on changes in methods of managing conflicts, in particular the evolution of peacekeeping, and how the international community and some states have toughened their stances and moved their approaches closer to counterinsurgency. They conclude that the presence of two military structures, namely the US-led Coalition Forces and the NATO-led ISAF, have made international efforts more complicated and not necessarily more effective.

Terrorism has become a global issue, especially since the 9/11 attacks, yet regional characteristics of the problem still rightly command a large share of the attention. Xiaohui (Anne) Wu, Special Political Advisor to the United Nations Counter-Terrorism Implementation Task Force, analyzes the regional implications of the UN Global Counter-terrorism Strategy by detailing regional actions to support and implement it. The author stresses that while recognizing that the levels of commitment and resources, priorities accorded, and capacities available to implementation vary from region to region, it is necessary to establish systematic and comprehensive cooperation between the United Nations and regional organizations in the fight against global terrorism.

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Do We Really Need to Worry? Some Reflections on the Threat of Nuclear Terrorism

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Abstract: *This paper considers the case for and against there being a substantial risk that a sub-state adversary might be able to carry the construction of a nuclear device to completion and delivery. It discusses works both for and against the proposition that the detonation of an improvised nuclear device (IND) or a stolen nuclear weapon is sufficiently probable that strong measures to prevent the act must be considered. Contrarian articles and books have appeared suggesting that the possibility of nuclear terrorism has been greatly exaggerated. They argue that building an IND is too difficult for even well-financed terrorists, that obtaining sufficient fissile materials is nearly impossible, and that no intact weapons will be stolen. But an examination of these works finds some to be simplistic and ridden with basic mistakes in risk analysis or misconceptions, while others are better informed but still flawed. The principal barrier to entry for either a new nuclear weapons possessor state or a sub-state group, namely acquiring fissile material, plutonium or highly enriched uranium (HEU), became less imposing with the collapse of the Soviet Union. There is a gap in our knowledge of Russian fissile inventories, which have not always been well guarded, and in this circumstance one cannot reassure the world that there has been no theft of fissile material, or that any attempt will be detected quickly enough to prevent its being made into a nuclear device. The probability of a nuclear terrorist attack in any given year remains significant. Significant investment to deter, prevent, detect, and destroy a nuclear terror plot is required.*

Keywords: *improvised nuclear device, sub-national group, highly enriched uranium, nuclear terrorist, probability.*

Introduction

Despite there being any number of skeptics, there is no theoretical reason why terrorists should not succeed in setting off a nuclear explosion, killing thousands of people in one of the great cities of

the world. The picture has become familiar: A group of – usually – young men at a remote site, some swarthy and bearded, others with fair complexions and blue eyes, hoist a heavy coffin-like box into the back of an inconspicuous unmarked white van. The van's rear doors close, and two clean-cut drivers head down the road. A day or so later the van is parked in a crowded downtown location; the driver inserts a key in a switch, sets an arming device; and both crewmembers hop out and walk to the nearest subway station.

Sometime later, after emerging from the subway many miles away, the driver dials a cell phone connected to the arming switch in the van; and then van and downtown vanish in a nuclear fireball. Many thousands of people die within seconds from blast, heat, and even prompt radiation. The first homemade nuclear explosion has been set off successfully.

There is no theoretical reason why nuclear terrorists should not succeed. The design principles for the Hiroshima weapon[1] have been published in many places, starting with the "Smyth Report"[2] officially issued shortly after the August 1945 strikes on Hiroshima and Nagasaki, and continuing in greater (though not necessarily correct) detail on the World Wide Web and in various books.[3,4]

Several contrarian articles and books have appeared suggesting that the possibility of nuclear terrorism has been greatly exaggerated, by people including Graham Allison of Harvard University, Matthew Bunn and Anthony Wier, also of Harvard, and others, including Anna Pluta, Jeffrey Lewis and myself. John Mueller of Ohio State University calls all those who believe the threat is real "alarmists".[5] Christoph Wirz and Emmanuel Egger of the Swiss government's Spiez Laboratory also question the possibility that terrorists might use nuclear and radiological weapons.[6] Perhaps the leading nuclear sceptic is Robin Frost of Simon Fraser University, who wrote an Adelphi Paper discounting the threat of nuclear terror and describing the extremely high barriers that a terrorist must overcome.[7]

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[1]   Gun-assembled, highly enriched uranium, construction.

[2]   Henry DeWolf Smyth, *Atomic Energy for Military Purposes: The official report on the development of the atomic bomb under the auspices of the United States Government, 1940-1945.* Released 12 August 1945. Princeton University Press, Princeton, NJ, 1945. Various editions and publishers are to be found. For online text see: (http://www.atomicarchive.com/Docs/SmythReport/index.shtml), accessed 1 January 2010

[3]   Robert Serber, *The Los Alamos Primer (Los Alamos report LA-1)*, published in hardcover with the author's corrections and comments by the University of California Press, Berkeley, CA, 1992.

[4]   Richard Rhodes, *The Making of the Atomic Bomb*, Simon and Schuster, New York, 1995.

[5]   John Mueller, *The Atomic Terrorist: Assessing the Likelihood*, prepared for presentation at the APSA Program on International Security Policy, University of Chicago, 15 January 2008. (http://polisci.osu.edu/faculty/jmueller/APSACHGO).pdf, retrieved 10 December 2009. See also Mueller's book *Atomic Obsession*, Oxford University Press USA, New York, 2009.

[6]   Christoph Wirz and Emmanuel Egger, *International Review of the Red Cross,* 87, No. 859, September 2005, pp. 497-510.

[7]   Robin M. Frost, *Nuclear Terrorism After 9/11*, Adelphi Paper No. 378, International Institute of Strategic Studies,, London, 2005.

The purpose of this paper is to consider the case for and against there being a substantial risk that a sub-state adversary might be able to carry the construction of a nuclear device to completion and delivery. I will discuss works both for and against the proposition that the detonation of an improvised nuclear device (IND) or a stolen nuclear weapon is sufficiently probable that strong measures to prevent the act must be considered.

John Mueller: Pollyanna?

Acquiring fissile material, plutonium or highly enriched uranium (HEU) to fuel the bomb is the principal barrier to entry for either a new nuclear weapons possessor state or a sub-state group. Plutonium production requires a supply of spent reactor fuel, the capacity to handle extremely radioactive fuel elements, and a chemical reprocessing plant. While the chemistry of plutonium is fairly well known in the unclassified literature, extraction of the element from the spent fuel would remain a difficult task, even if the source materials were not terribly radioactive, in order to achieve the necessary purity. While "plans" for a small reprocessing plant designed by the Oak Ridge National Laboratory surfaced many years back and remain available on the Internet, the construction of the facility would likely be beyond the capability of the average sub-national group, particularly if the safety of the operators were a concern. It is also likely that the operation of a crude reprocessing plant would be readily detected because of the leakage of radioactive argon, a fission product, during its operation.

The enrichment of uranium, as evidenced by the Iranian project[8], is an industrial-scale operation, fraught with technical difficulties. It seems highly unlikely that a sub-national group would be able to construct and operate an enrichment plant, particularly without detection.

This leaves a third route: obtain fissile material directly from a possessor state either by theft, by suborning an official, or as a gift. The situation is not without precedent: A. Q. Khan[9], the father of the Pakistani nuclear weapon program, claims that China supplied Pakistan with a design for a nuclear weapon, as well as with enough HEU to make two devices. Originally, according to Khan, the HEU was meant to be a loan, to be repaid after Pakistan's centrifuges were operational; in the end, also according to Khan, the Chinese forgave the debt.

Whether or not a sub-national group can successfully detonate a self-built nuclear weapon is likely to be decided by the answers to a set of questions:

- What is the motivation for a nuclear strike? Is it high enough to sustain what is likely to be a long process, perhaps covering two or more years, and costing very many millions of dollars?

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[8] "Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions 1737 (2006), 1747 (2007), 1803 (2008) and 1835 (2008) in the Islamic Republic of Iran," IAEA Board of Governors report GOV/2010/10, 18 February 2010. Available on the Internet at (http://isis-online.org/uploads/isis-reports/documents/IAEA_Report_Iran_18Feb2010.pdf.) Accessed 22 March 2010. Also see earlier reports by the IAEA in the same series.

[9] "Pakistani Government Seeks to Investigate A.Q. Khan's Activities," (http://isis-online.org/peddlingperil/ch4/khan_investigation/), accessed 22 March 2010. See also (http://isis-online.org/peddlingperil) and the book described on the site. Accessed 22 March 2010.

- Is there a government somewhere, not necessarily a nuclear weapons possessor state, which will treat the group as a surrogate or proxy? Is there a government or large industrial concern that can and will deliver fissile material without problems?

- What technical talent can the group recruit? Does the group have access to scientists and engineers who are capable of doing the complex calculations to generate a real design, and not just a sketch?

- Does the group have adequate financial resources?

- Can the appropriate equipment needed to construct a device be obtained on the white or grey market? The black market?[10]

Mueller chooses another set of criteria by which to judge the plausibility of improvised nuclear devices. He writes down twenty "tasks" in what he calls "the most likely scenario"[11] He then posits that there is a 50-50 chance of success for each of these "tasks" and that taken together, this means that the odds of success are 1 in 1,048,576. This is truly a small number, and if taken seriously would probably mean that no further significant attention need be paid to nuclear terror scenarios.

However, this is far too simplistic.

It is true that if one raises 0.5 to the 20th power, the resulting value is quite small, less than one in a million as desired. The question, however, is not if the value for 0.5^{20} is small; of course it is. But does it bear any relationship to the problem at hand?

How did Mueller come to the number twenty for his list of tasks? Some of the items are even compound tasks, one following another, so there could be more than twenty, and by Mueller's reasoning a still smaller chance of success. Some of them are not tasks proper, but conditions to satisfy ("There must be no inadvertent leaks". "No locals must sense that something out of the ordinary is going on".) Still others seem like padding to reach the number 20 ("A detonation team must transport the IND to the target place and set it off… and the untested and much-traveled IND must not prove to be a dud".). Since Mueller asserts that the probability of a nuclear terrorist starting a project and succeeding is less than one in a million, it is worth noting that 2^{20} is almost exactly 1,000,000 and that 0.5^{20} is, therefore, one in a million. That seems to be the totality of the logic behind the "twenty hurdles" of the Mueller papers and book. There seems to be no analysis to show that 50-50 are appropriate odds for the success of each step, and it is manifestly clear that the twenty hurdles are not statistically independent. Nevertheless, it would seem that twenty hurdles is the smallest plausible number that can provide the one chance in a million which allows

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[10] Matthew Bunn chooses a different set of criteria in his article *A Mathematical Model of the Risk of Nuclear Terrorism*, Annals of the American Academy of Arts and Sciences, 607, September 2006, pp. 103-120. Bunn's criteria are aimed at computing the probability of a terrorist nuclear attack.

[11] Mueller, p. 24

Mueller to suggest that those who believe in nuclear terrorism might, with equal logic, believe "in the tooth fairy".[12]

In any event, the odds of success for some tasks are nearly 100 percent. For example, it is not difficult to put an IND in a white van and drive it from Montana to Minneapolis, or from outside Boise to inside Boston, so long as the drivers break no traffic laws. I give that task a 90-plus percent probability.

Assembling a team of scientists and technicians is likely to be far easier than Mueller supposes. The Manhattan Project was the most exciting, and indeed glamorous, scientific project of the first half of the twentieth century, led by a constellation of great scientists. Many physicists, even today, fantasize about following in their footsteps.[13] I give this one an 85-95 percent chance, at least.

In any event, Mueller makes elementary mistakes in risk analysis at the conceptual level: He decides on a path to the goal of a nuclear device, and then decides that it is either the only, or the easiest, or the most favorable route. Along the way his analysis is flawed. Mueller suggests that smugglers would be more likely than not to turn in the nuclear gang to the authorities. But as Matt Bunn of Harvard has pointed out[14], Al Qaeda and Mexican drug lords routinely manage to move sensitive materials and people across borders, even those of highly developed countries such as the United States. Successful smugglers-for-hire generally do not betray their customers; the penalties for betrayal probably range from a severe beating to barbaric torture followed by a gruesome death.

In his articles and presentations on the probability of terrorist use of nuclear weapons, Prof. Mueller frequently lashes out at those who refuse to set the likelihood of such acts at 1 in a million, or less. We are "alarmists". And we are "imaginative".[15]

According to Mueller, my colleague, Jeffrey Lewis, and I indulge in "worst case fantasies".[16] Mueller seems never to have talked with anybody who actually built a nuclear weapon, for his understanding of the components of a simple device makes it seem far more complex than it is. Nor can I share the results of my conversations with weaponeers except to say that they do not

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[12] One in a million is a familiar number in American nuclear doctrine. The odds of a deployed nuclear weapon detonating with a yield of four pounds of TNT equivalent if the explosives are detonated at the worst possible point must be less than one in a million. This requirement is validated with engineering judgment, some testing, and a great deal of computer simulation.

[13] This claim is based on the author's own experiences inside the nuclear physics community and discussions over many years with dozens of his colleagues on the question of the production of an IND. In addition, one thing that is not conveyed by any of the academic histories is that the physics of a nuclear weapon is particularly challenging because the problem involves time scales from nanoseconds to hours, and size scales from meters to nanometers. Indeed, most weapons designers found the work to be fun.

[14] Matthew Bunn, private communication, 14 December 2008.

[15] In one short paragraph (p. 3), Mueller uses the adjective "imaginative" five times pejoratively, lumping Albert Einstein and Joseph Stalin into the category. Mueller is the only author I know of who considers imagination a defect in a scientist, or even in a political leader.

[16] Mueller, p. 3.

consider the construction of certain kinds of nuclear weapons to be beyond the skills of the kind of 20-person group Lewis and I envisioned. Lewis and I carefully assessed the budget for a nuclear terrorist, and arrived at a figure of $10 million. Mueller waves our extensive effort away with the comment that $10 million isn't enough to corrupt three people.

He must live in an expensive district for political bribery. Lewis and I estimated a budget more like a couple of million for actually building the device, including salaries and the procurement of all necessary non-nuclear components and equipment. We do not believe that recruiting the technical staff will require any bribery or corruption.

Mueller assumed that he has found the shortest critical path to an improvised nuclear device. He also seems to assume that his list of tasks is so general that it includes all possible critical paths. He's clearly wrong on the first count, but even if he is right on the second – and I think he is wildly wrong – his compilation is so general that it offers no guidance to law enforcement or the terrorists except to hope for or to guard against betrayals.

Wirz and Egger: Swiss precision

Mueller then commends the work of Christoph Wirz and Emmanuel Egger.[17] Their paper must be considered in a different category than that of Mueller because both men are respected scientists, even if they are not professionally involved with nuclear weapon design and defense. Consider their fundamental argument (in what follows, their arguments are under black bullets and my replies under white bullets):

- The nuclear device designed as part of Livermore's "n[th] Country" experiment was not built or tested, so one has no idea of the performance of hypothetical independent nuclear designs.

   - It is true that the nth Country device was not actually built. Nevertheless, the design was simulated on computers with the result that if it had been built, it would have worked. Given the era in which the experiment was conducted – in which the "nominal" yield of an atomic bomb was 20 kt – one may reasonably speculate that Robert Selden and his colleagues were aiming for about that yield. Even then the ability to simulate World War II atomic bombs was fairly well developed; we may assume that the performance of the device was calculated as accurately as possible in that era, and it is widely accepted that the nth Country design would have exploded with significant nuclear yield.[18]

   - Selden also commented recently that "the design was 'rudimentary' in the same way that the Trinity device was 'rudimentary', when compared to modern nuclear weapons technology. The Livermore Laboratory management decided that their nuclear weapons codes were very adequate for calculating the

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[17] Wirz, Christoph, and Emmanuel Egger, "Use of nuclear and radiological weapons by terrorists?" *International Review of the Red Cross* 87(859) September 2005, pp. 497-510. (www.icrc.org/Web/eng/siteeng0.nsf/htmlall/review-859-p497/$File/i rrc_859_Egger_Wirz.pdf)

[18] Robert Selden, private communication.

performance of the nth Country device, and that it was not necessary to build it or conduct a nuclear test. (And in hindsight, I agree completely.) The calculated yield of the device was in the multiple kiloton range, certainly meeting the goal of a 'militarily significant yield' which was laid out at the beginning of the experiment".

- o It does not appear that Wirz's and Egger's complaint that the device was not tested in any way indicates that it would not have worked as designed. The weapons lab had full confidence in its simulation.

- Uranium is toxic and radioactive. Uranium is hard to machine, and many of the machine tools needed for complex mechanical processes such as making neutron reflectors are subject to export controls.

  - o The toxicity of uranium is vastly exaggerated in much of the open literature, particularly in articles by groups which oppose the use of depleted uranium in non-nuclear battlefield weapons and in armor. Far more dangerous substances (e.g. beryllium) are routinely handled in laboratories and factories. Similarly, even fissile uranium-235 is not particularly radioactive, and emits rather little radiation. Most of its emissions are alpha particles which can be stopped in a sheet of paper. Highly enriched uranium is, of course, very valuable, as macroscopic samples need to be assembled molecule by molecule, with the end product being used mostly in atomic weapons. It is true that uranium work hardens quickly, but so do many materials. Most of the difficulties of working with uranium metal are well known, and the procedures for such work are not especially onerous, particularly if the machinists are willing to accept the risk of martyrdom.

  - o Uranium is actually not a particularly difficult metal to machine. T. O. Morris of Oak Ridge National Laboratory says that uranium is comparable to the stainless steels in machining properties.[19] It is true that uranium is pyrophoric, meaning that fine dust can spontaneously ignite. This is a complication, but not a major one.

- If terrorists had the complete set of working drawings for a nuclear device built by a nuclear weapon state (NWS), they could not build it because they would surely need to make some design changes to accommodate different fissile material and as work-arounds for impossible to acquire technology. But to do that they would have to be fully capable of coming up with an indigenous design. And this they could not do.

  - o Much technical information about the components of a fission weapon has either been officially declassified or has leaked out into the public domain – even if it

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[19] T. O. Morris, "Machining of Uranium and Uranium Alloys", Y-12 Plant, Oak Ridge, TN, 14 December 1981. (http://www.osti.gov/bridge/purl.cover.jsp?purl=/6580353-AVLjBU/) Accessed on 29 December 2009.

technically remains classified, and sometimes whether it is right or wrong.[20] One can conveniently divide the areas of required knowledge into "fundamental physics" and "practical engineering". The fundamental physics is not dissimilar from the physics of a "fast" nuclear reactor; the practical engineering of a deliverable, safe and reliable nuclear weapon is a different matter entirely. To the extent that modifications are required to accommodate highly enriched uranium that differs slightly from the design enrichment, they can almost be ignored so long as the fully assembled core of the device is super critical and so long as the designer is not wedded to a particular yield.

o   Changing the engineering details of even a World War II "Fat Man"-style weapon will be more difficult, but then again, making any kind of implosion-assembled IND is apt to be harder than building a gun-assembled system. One can ask what events might dictate changes. A leading possibility is the unavailability of the explosives needed to form lens charges, but this is unlikely, as the explosives said in public to have been used for Fat Man's lens charges are neither exotic nor uncommon. Lack of sufficient material for a neutron generator might also require some changes.

o   Despite these difficulties, the best argument on this point that Wirz and Egger make is this: *some* terrorists probably could not make *some* changes potentially dictated by *some* engineering problems uncovered when trying to build an implosion-assembled nuclear weapon from a blueprint. Conversely, *some* terrorist technical teams could make *some* potentially needed revisions.

- One could not check whether the projectile and target of a gun-assembled device actually fitted together.

o   It is hard to know how to deal with such a narrow comment. Is it intended to be taken seriously? Then it can be disproved quickly. Is it, instead, intended to emphasize the need for testing? In which case it is partially correct, but Jeffrey Lewis and I stressed that our bomb factory needed to be located in a remote area without curious neighbors precisely so that a few "bangs" could be allowed to happen if needed.

o   Consider Wirz and Eggers' comment at face value. If the gun-assembled device looks like the picture in Richard Rhodes' book, *The Making of the Atomic Bomb,* in which a bullet is launched by a cannon into a hollow cylinder made up of rings of enriched uranium, neither ring assembly nor bullet will be even close to criticality under most circumstances. The solid projectile would have to be fired into the center of the ring assembly But, of course, the rings and plug would not be critical when assembled *unless* they were surrounded by a thick neutron reflector, possibly made of tungsten or some other heavy material. So long as the reflector were absent, the plug could be inserted into the center of the target

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[20]   See for example the Nuclear Weapon Archive website maintained by Carey Sublette: (http://nuclearweaponarchive.org/), accessed 28 December 2009.

without exceeding one critical mass, and so without initiating a chain reaction. If the target cylinder is made of rings, they can easily be spaced so that the projectile can be checked in each ring without danger of a criticality accident. One wonders how much thought Wirz and Eggers gave to this point in the first place.

The Swiss group raises other technical issues, but none rises to the level of difficulty of either the need to prevent a criticality accident, nor of making major alterations to a design previously specified by another power.

Frost bite

Canadian analyst Robin Frost attained prominence in the nuclear sceptic group with his MA thesis from Simon Fraser University.[21] His reputation rests on his Adelphi Paper,[22] *Nuclear Terrorism After 9/11.* My colleague, Anna Pluta, and I have thoroughly analyzed the flaws in that paper in our article *Nuclear terrorism: A disheartening dissent[23]*. As with Mueller, Frost begins by setting up technical straw men, requirements appropriate to national nuclear weapons programs seeking safe, reliable, rugged and predictable nuclear weapons for use by a nation. For example, Frost posits requirements for precision far in excess of those attainable in 1944-45 when the first nuclear weapons were designed and built. I provide a single example here to illustrate the magnitude of the misconception: Frost suggests that the uranium core would have to be fabricated using "computer-guided machine tools with laser interferometer(s)" and require complex shapes machined to a tolerance of about 10^{-10} meters. This is much smaller than a wavelength of light, and it's clear that no such machine tools were available in the years 1943-45 when the first nuclear weapons were built at Los Alamos.

Frost's arguments discounting nuclear terror as a significant risk do not stand up to analysis.

An evaluation of today's situation

Nuclear terrorism began to be of concern in the specialist community in the 1970s with the publication of John McPhee's book *The Curve of Binding Energy*, a book-length series of interviews with American fission weapon designer Theodore B. Taylor.[24] Taylor, along with Mason Willrich, elaborated on the risks in their book *Nuclear Theft: Risks and Safeguards*[25]. At roughly the same period a number of fictional accounts appeared in novels, the most technically

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[21] Robin Mark Frost, *Would Terrorists Go Nuclear? Motivation and Strategy,* Thesis submitted in partial fulfilment of the requirements for the degree of Master of Arts, Simon Fraser University, 2005

[22] Robin M. Frost, *Nuclear Terrorism after 9/11*, Adelphi Paper 378, International Institute of Strategic Studies, London, 2006.

[23] *Survival*, 48, June 2006, pp. 55-69.

[24] John McPhee, *The Curve of Binding Energy*, Farrar, Straus and Giroux, New York, 1974 (Note: various editions available).

[25] Mason Willrich and Theodore B. Taylor, *Nuclear Theft: Risks and Safeguards*, Ballinger Publishing Company, Cambridge, MA, 1974.

sophisticated of which was *Gadget* by Nicolas Freeling (written with my technical assistance)[26]. Best-selling author Tom Clancy followed up with the less-convincing *The Sum of All Fears*[27] in which terrorists steal a complete weapon. There have been other fictional treatments as well.[28]

When I collaborated on *Gadget* and gave Congressional testimony on nuclear terror back in the 1970s, I hardly dreamed that in 2010 I would still be writing on the same topic; neither did I think that no nuclear attack would come in the intervening 35 years.

But no improvised nuclear device has yet exploded, and there have been no credible reports of an advanced plot to build such a device under way. This is not to say that there have been no credible reports of terrorist groups seeking a nuclear capability. Given this record, why have competent analysts continued to raise the possibility that somewhere there is or could be a nuclear plot brewing?

Serious attention was revised with the collapse of the Soviet Union and the perception that Soviet nuclear weapons and fissile materials were not well guarded. Given a collapsed state with tens of thousands of nuclear devices protected in some cases by not much more than a padlock on a wooden shed, fissile material guarded not much better than potatoes, and senior officers going unpaid for extended periods, it seemed perfectly reasonable to assume that truly modest amounts of money might serve to corrupt the few people needed to extract either fissile material or a complete weapon.

Harvard professor Graham Allison's study *Nuclear Terrorism: The Ultimate Preventable Catastrophe*[29] raised the perceived threat level, and provided one solution: lock up all fissile materials, plutonium and highly enriched uranium, under conditions such as those used to protect the American gold reserves in the vault at Ft. Knox, Kentucky.

The problem with this "Harvard solution" is that we do not know how much fissile material exists[30], so even if all of it were locked up, we could not prove it, nor confidently rely on the notion that all of it were under control. Indeed, the stock of separated plutonium in the former Soviet Union is estimated by David Albright and his co-authors at from 106 metric tonnes to 156 metric tonnes, an enormous range.[31] The same authors suggest that the FSU may have a stockpile ranging from 735 to 1,365 metric tonnes. This includes the 500 tonnes sold to the US to be down-blended to make reactor fuel.

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[26] Nicolas Freeling, *Gadget*, Coward, McCann & Geoghegan, New York, 1977. Also UK edition and several paperback editions.

[27] Tom Clancy, *The Sum of All Fears*, Putnam, New York, 1991 (many editions and publishers).

[28] For example, the disappointing James Mills' *The Seventh Power*, EP Dutton, 1976, ISBN-13: 9780525200505.

[29] Graham Allison, *Nuclear Terrorism: The Ultimate Preventable Catastrophe*, Times Books, New York, 2004.

[30] Nuclear Threat Initiative on-line Research Library: Russia: Fissile Material Production and Disposition, (http://www.nti.org/db/nisprofs/russia/fissmat/overview.htm), accessed 2 January 2010.

[31] David Albright, Frans Berkhout,William Walker, *Plutonium and Highly Enriched Uranium 1996: World Inventories, Capabilities and Policies,* New York, Oxford University Press Inc., 1997, p. 58.

The enormous gap in our knowledge of Russian fissile inventories far exceeds the uncertainties in the inventories of other nuclear states, whether or not they have nuclear weapons programs. It is probable that the Russian government also does not have good enough records to assess how much fissile material it has produced. The uncertainty in Russia's fissile inventories dwarfs the IAEA significant quantities[32] for HEU and plutonium (25 kg and 5 kg, respectively). Many experts believe that these quantities are too high to provide adequate warning. Clearly the uncertainties in the FSU stockpiles leave a lot of wiggle room for the theft of one or more significant quantities without detection.[33]

In 1993, 4.5 kilograms of 20 percent enriched uranium used for naval reactor fuel were stolen from the Sevmorput ship yard in Murmansk, Russia. A Russian special investigator on the case suggested that in his country "potatoes are guarded better".[34]

Nevertheless, the vigorous actions by the United States to assist Russia and the other states of the FSU to round up and safeguard known stocks of weapons-usable material during the late 1990s and the 2000s have borne fruit. Highly enriched uranium in Kazakhstan was flown out to storage sites in the United States during the 1994 Operation Sapphire and to the US or Russia on subsequent occasions.[35,36] HEU from members of the former Warsaw Treaty Organization (Bulgaria, for example) has also been returned to its country of origin.[37] Access to weapons-grade uranium has been generally restricted since the dissolution of the Soviet Union, but much remains to be done.

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[32] (http://www.iaea.org/Publications/Booklets/Safeguards/pia3810.html.) Accessed 2 January 2010. "SIGNIFICANT QUANTITY – The approximate quantity of nuclear material in respect of which, taking into account any conversion process involved, the possibility of manufacturing a nuclear explosive device cannot be excluded".

[33] I am not making the mistake of believing that an uncertainty in the absolute quantity of material on hand translates directly into an inability to detect the extraction of a large fraction of a significant quantity; to a great extent, that depends on the safeguards and detection systems for catching a movement of fissile material. Nevertheless, the uncertainty in inventory does make an accurate physical inventory that demonstrates that all fissile material is properly secured next to impossible, since one does not now the total amount to be expected from a physical inventory.

[34] Global Security.Org (http://www.globalsecurity.org/military/world/russia/murmansk.htm), accessed 3 January 2010. Oleg Bukharin and William Potter, "Potatoes were guarded better", *Bulletin of the Atomic Scientists,* May/June 1995, pp. 46-50.
(http://books.google.com/books?id=PgwAAAAAMBAJ&pg=PA46&lpg=PA46&dq=highly+enriched+ur anium+murmansk+potatoes&source=bl&ots=2PAh06RYs4&sig=k3Xfixi0E8fmwpoZQ0-WBqCj8Y8&hl=en&ei=RdhAS
KICdGgnQfGsvX4CA&sa=X&oi=book_result&ct=result&resnum=1&ved=0CAgQ6AEwAA#v=onepag e&q=highly%20enriched%20uranium%20murmansk%20potatoes&f=false accessed 3 January 2010.)

[35] Nuclear Threat Initiative archived web page
(http://www.nti.org/db/nisprofs/kazakst/fissmat/sapphire.htm, accessed 2 January 2010.)

[36] World Nuclear News, 20 May 2009, (http://www.world-nuclear-news.org/ENF-Kazakh_HEU_returned_to_Russia-2005094.html, accessed 3 January 2010.)

[37] National Nuclear Security Administration, press release 17 July 2008, (http://nnsa.energy.gov/2075.htm, accessed 3 January 2010.)

For now it is safe to say that there is a lot of fissile material rattling around, and that we do not know how much a physical inventory should show, let alone what it would show. In this circumstance it is not possible to reassure the world that there has been no theft of fissile material, or that any attempt will be detected quickly enough to prevent its being made into a nuclear device. Safeguarded vaults for fissile material are necessary, but they are not sufficient.

While Al Qaeda has been at the top of the list, the Japanese group *Aum Shinrikyo*, now known as Aleph, has demonstrated both an interest in the acquisition of weapons of mass destruction and an ability to execute a limited and barely successful attack using Sarin gas. *Aum* also sought to develop a complete nuclear weapons program at an outback ranch in Australia.[38] The cult purchased half a million acres (approx. 200,000 hectares) of ranch land from which they proposed to mine uranium and where they planned to enrich it and produce weapons. This seems fantastic and impossible, but the group actually invested more than $600,000 of 1994 dollars in the project. It succeeded in extracting small amounts of uranium from the ore deposits on the site. Of course, it did not succeed in any of its grandiose aims, but it tried. Had the money been invested in the "downstream" activities, it seems likely to me that *Aum* could have produced a simple weapon design, obtained most of the necessary hardware to machine uranium, and at least built a mock-up of a gun-assembled nuclear weapon for the same investment. Finding a source for sufficient fissile material probably would have cost several times the initial investment, even in the looser environment of the early 1990s. Despite the fact that *Aum* was badly damaged in the wake of its attack on the Tokyo subway system, it remains in existence.

Matthew Bunn of Harvard has developed a simple mathematical model to estimate the annual risk of a nuclear terror attack succeeding.[39] A major driver is the number of groups N_n which might attempt such a strike. We know that there have been at least two well-funded terror groups which gave serious consideration to the idea. This is two more than John Mueller believes would be interested. Setting the number of potential groups at two, Bunn estimates a "significant acquisition attempt roughly once every other year,[40] and a probability $P_{c(10 \text{ yr})}$ of 29 percent. Bunn also arrives at an annual probability of 5.6 percent for an incident.

Others, notably physicist Richard L. Garwin and former US Defense Secretary William Perry, have estimated the probability of a nuclear terror attack somewhere in the world as 90 percent over a decade.[41] That is 20 percent per year, a frighteningly high number, and one which would require immediate and vigorous action to reduce.

Using Bunn's methodology but different assumptions, one will obtain estimates of the annual probability of a nuclear terror attack ranging from about one percent to at least the Garwin-Perry

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[38] Kaplan, David E. and Andrew Marshall, *The Cult at the End of the World*, Arrow Books Limited, Random House UK Ltd (paperback edition), London, 1997, pp. 157-161.

[39] Matthew Bunn, "A Mathematical Model of the Risk of Nuclear Terrorism", *The ANNALS of the American Academy of Political and Social Science* 67, 1 (2006), pp. 103-120.

[40] *Ibid.,* p.106

[41] Hearing of the Energy and Water Subcommittee of the US House Appropriations Committee: Subject: Weapons Activities Oversight, 29 March 2007.

number. None of these results is encouraging, and none would lead one to the prescription of John Mueller, that one simply discount the nuclear threat and focus on other problems.

Doing something

Two of my young colleagues, Michael Levi and Simen P. Ellingsen, both formerly at King's College London, have independently produced remarkable and very different works on ways to prevent nuclear terrorism.

Ellingsen's often technical and mathematical Ph.D. thesis[42] focuses on rational choice theory and evaluates various courses of action available to the defense and to the terrorists themselves. His most surprising conclusions are that it may be possible to convince potential nuclear terrorists that "refraining from a certain course of action is in her own interest".[43] Ellingsen conceives deterrence as in the nature of a cost-benefit equation, and assumes that terrorists are capable of such rational action; he does not consider deterrence by retaliation since nuclear terror is apt to come without a well-defined return address, even if the group in question is known. In particular, despite my own earlier optimism, it will be difficult to identify the source of the fissile material with enough certainty to retaliate.

He also analyzes the benefits of investments in safeguarding highly enriched uranium and plutonium. Ellingsen found that uranium was so much to be preferred for an improvised nuclear device (because gun assembly is possible) as compared to plutonium (which requires implosion assembly, a more difficult technology) that the United States, and presumably other countries, have vastly over-invested in protecting plutonium as compared to the investment in protecting uranium.

Levi,[44] on the other hand, deals more with the details of detecting the diversion of special materials and other specific measures for obtaining and understanding strategic warning. His is a more policy-focused work, more accessible to non-specialists, and in parts an important contribution to mitigating the problem.

Both manuscripts are book length, and it is not possible to summarize either or both here.

Conclusion: Yes, be worried

Mueller discounts the consequences of an improvised nuclear device in odd ways. He suggests that a one kiloton ground burst in New York's Central Park would barely damage the buildings on the boundaries of the park. That is true, but the same bomb detonated a kilometer or two away could kill tens of thousands or even one hundred thousand people. If the explosion took place in the financial business district of London or New York – or Paris or Singapore – in the middle of the working day, there could be several hundred thousand dead or wounded from the immediate effects. And the fallout from any of these explosions, even the one in Central Park, would kill

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[42] Simen Andreas Ellingsen, *Nuclear Terrorism and Rational Choice*, thesis submitted for the Degree of Doctor of Philosophy, King's College London, University of London, Department of War Studies, 2009.

[43] *Ibid.* p. 171.

[44] Michael Levi, *On Nuclear Terrorism*, Harvard University Press, Cambridge, MA, 2007.

many tens of thousands more. And Mueller decries the statement that such a bomb could "destroy" a major city; he points out that only a small fraction of the city would be destroyed, just as only a fairly small part of Hiroshima died from a larger bomb.

I find myself horrified at the effects of even a very small nuclear explosion in a city. Perhaps that is because I have worked at the Nevada Test Site and walked the terrain where, fifty years ago, the United States tested atomic bombs against real buildings, homes such as those Americans live in and cars such as those we drove then.

The important fact to face is that – despite the nuclear Pollyannas who argue that the construction of an improvised nuclear device is too difficult for even a well-financed terrorist, that obtaining sufficient fissile materials is nearly impossible, that the theft of an intact weapon is not going to happen (any longer), and that we may safely relegate nuclear terrorists to the fantasies of nuclear alarmists and the subjects of bad television and movies – the probability of a nuclear terrorist attack in any given year remains significant. Whether the probability is 20 percent, 5 percent, or even as low as one percent, the consequences of an incident are enormous. Significant investment to deter, prevent, detect, and destroy a nuclear terror plot is required. So is investment and research into ways to mitigate the effects of an attack, should all of our defenses fail and a nuclear detonation occur in one of the great cities of the world.

Assessing Radiological Weapons: Attack Methods and Estimated Effects

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Abstract. In the decade since September 11, 2001, a terrorist attack using radiological materials—usually referred to as a "dirty bomb," but actually encompassing other means of dispersal—has sometimes seemed inevitable. But terrorists have not yet carried out such an attack. Not only do many groups lack the motivation to engage in radiological terrorism, but these types of attacks also require technical, logistical, and financial means beyond those needed for terrorism using conventional methods. This article seeks to address technical questions associated with radiological terrorism. It first presents a summary of the commercially available radioactive sources, dispersal methods, and exposure pathways that could be deployed in a radiological attack. It then critically assesses the simulation-driven, open source research that has been done in the past ten years in the United States. The article goes on to note the estimated effects of a radiological attack according to these studies, with an emphasis on the motivations for, lessons derived from, and misconceptions or shortcomings contained in the various attack scenarios. Finally, the article draws conclusions and implications for the prevention and mitigation of radiological terrorism based on these studies and their respective limits, which mainly consist of technical, scope, and design limits or omissions, and suggests areas for further inquiry.

Keywords. Radiological terrorism, radiological dispersal device, commercial radioactive sources, open source studies, terrorism deterrence and mitigation.

Introduction

If radiological attacks appear, at first glance, to be easy to carry out, then the question of why terrorists have not yet done so must follow. This question has cast a shadow over studies of

terrorist behavior during the past decade, especially given that at least some terrorist groups seem motivated to launch such attacks. After all, if a radiological attack requires simply the detonation of a stick of dynamite in order to disperse radioactive material, expose people to ionizing radiation, and contaminate valuable property, why would terrorists not conduct such apparently easy attacks?

A partial answer is that these so-called "simple" attacks in reality require more effort, and thus more resources, than most conventional attacks, especially improvised explosive devices. Specifically, the terrorists would need to acquire potent radioactive materials, to know how to handle those materials without killing themselves prior to the attack—a concern applicable even to suicidal terrorists—and to determine effective means of dispersing the material. These steps involve a multitude of technical considerations.

Although the focus in this article is the assessment of technological issues, the first hurdle to overcome is actually motivational. It is worth pointing out that most terrorists are not motivated to use radiological or nuclear methods in the first place. As Jerrold Post asserts, for most terrorist groups—especially ones operating on their national territory or those for which constituent support are a concern—nuclear or radiological terrorism would be highly counterproductive; those who study terrorist motivation and decision making are "underwhelmed by the probability of such an event."[1] According to his analysis, the threat of nuclear or radiological terrorism would emanate mainly from political-religious, apocalyptic, right wing, and national-separatist groups.

Some terrorist groups have expressed interest in radiological attacks, most notably al-Qaeda. With numerous statements on the issue, Osama bin Laden has made no secret of his desire to acquire nuclear and radiological materials. In June 2002, then U.S. attorney general John Ashcroft announced the arrest of U.S. citizen Jose Padilla, an alleged al-Qaeda operative who was then accused of plotting a radiological "dirty bomb" attack on the United States; however, no charges related to an RDD were mentioned in Padilla's indictment and he was later convicted of criminal conspiracy charges. In 2006, British citizen Dhiren Barot, also linked to al-Qaeda, was convicted for his plans to construct a dirty bomb using the small radioactive sources contained in smoke detectors. In addition, Chechen terrorists have a substantial history of making radiological threats and seeking out radiological and nuclear materials. To cite one example, in 1995, these terrorists buried in a Moscow park a canister containing a small amount of cesium-137 and then informed the news media. While nothing was dispersed, this incident demonstrates the potential use of radiological material to instill public fear.

A consensus in the policy and technical expert community has emerged that the main threats posed by a radiological terrorist attack are economic, social, and psychological. While some deaths and injuries would certainly result, a radiological device is primarily a weapon of "mass disruption," rather than destruction.[2] Radiological terrorism is thus appealing because it has the

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[1] Jerrold M. Post, "Differentiating the Threat of Radiological/Nuclear Terrorism: Motivations and Constraints," paper presented to the IAEA Symposium on International Safeguards, special session on combating nuclear terrorism, Vienna, Austria, November 2, 2001, p. 2.

[2] Among the first experts to use this term were Henry Kelly, Steven Koonin, and Michael Levi. Henry C. Kelly, Testimony before the U.S. Senate Foreign Relations Committee, March, 6, 2002; Steven E. Koonin, "Radiological Terrorism," *Physics and Society*, vol. 31, no. 2, 2002, pp. 12-13; and Michael A.

potential to cause such effects as mass panic and economic losses. A document on a prominent jihadist website states "the important thing is to disperse radioactive material in a large commercial area so the government is forced to shut down this area." It goes on to explain that the ensuing "massive economic disruption" would result from: the high costs of decontaminating radioactive areas, the high economic losses in a large commercial area due to closures, subsequent job loss and stoppage of general life in that area, and large compounded problems to follow. Finally, it suggests Las Vegas, New York, London, Sydney, Tokyo, Moscow, other large tourist cities, and the commercial capitals of "all infidel nations" as ideal targets.[3]

Scope of the Technological Assessment

In general, four types of nuclear and radiological terrorism exist:[4]

1. The acquisition and detonation of an intact nuclear weapon from a nation-state's arsenal;
2. The acquisition of weapons-usable fissile material such as highly enriched uranium or plutonium, in order to make and detonate an improvised nuclear device, which is a crude nuclear explosive;
3. An attack on or sabotage of nuclear facilities such as nuclear power plants, spent fuel pools, other radioactive waste storage or processing facilities, or research reactors in order to disperse radioactive material; and
4. The acquisition of radioactive materials from commercially available devices or other radioactive materials in order to build a radiological weapon that disperses radioactive material or emits ionizing radiation.

The scope here is confined to use of commercially available radioactive sources, such as those used in hospitals, universities, oil wells, shipyards, and other industrial applications. Because other publications have comprehensively examined the commercial radioactive source industry and the details of the radioisotopes and radioactive sources that may pose security concerns, this article gives just an overview of the subject for ease of reference. Such a survey is also needed as context for analyzing the openly available studies performed over the past decade in the United States, which is the main aim of this article.

First, a few basic definitions are in order. A chemical element has unique chemical properties that derive from the number of protons (positively charged particles) inside the nucleus, or core, of each atom of the element. Also inside the nucleus are neutrons, which are uncharged and help to hold together the nucleus through the strong nuclear force. The number of neutrons also helps determine the nuclear properties of the nucleus. Perhaps the most important property is whether

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Levi and Henry C. Kelly, "Weapons of Massive Disruption," *Scientific American*, November 2002, pp. 71-81.

[3] Abu al-Usood al-Faqir, "Instances of Radiation Pollution from 1945-1987," *al-Farouq* jihadi website, October 2005, as quoted and translated in Sammy Salama and David Wheeler, "Unraveling al-Qa'ida's Target Selection Calculus," Combating Terrorism Center, U.S. Military Academy, West Point, New York, USA, December 2006.

[4] Charles D. Ferguson, William C. Potter, et al., *The Four Faces of Nuclear Terrorism*, Center for Nonproliferation Studies, Monterey, California, USA, 2004, pp. 46-258.

the nucleus is energetically stable or unstable. An unstable nucleus will want to emit radiation, a form of energy, to become more energetically stable or more tightly bound. Each element has a family of different nuclear forms called isotopes. Thus, isotopes of an element have the same number of protons, but different numbers of neutrons. Most isotopes are unstable and thus will eventually experience radioactive decay. This decay involves the emission of ionizing radiation. Half-life measures the amount of time it takes for half the radioactive substance to decay. Thus, a short half-life means a rapid decay time, and a long half-life means a more lengthy decay time.

Ionizing radiation can ionize or knock electrons off of atoms through scattering or absorption. The different types of ionizing radiation include: alpha radiation, which consists of two protons and two neutrons bound together and thus has a plus two charge; beta radiation, which is either an electron or a positron and thus has a minus one or plus one charge; and gamma radiation, which is highly energetic light and thus is uncharged. Alpha radiation is the least penetrating of the three types and can be stopped by a piece of paper or the dead outer layer of skin, but it is also the most ionizing and thus poses an internal health hazard if alpha emitting sources are ingested or inhaled. Beta radiation is intermediate in penetrating ability and can be stopped usually by thin sheets of aluminum, for example. Its ionizing capability is assigned a relative value of one, in comparison to a value of twenty for alpha radiation; beta radiation is considered mainly an internal health hazard, although it could damage unprotected eyes. Gamma radiation is the most penetrating and can be stopped by sheets of lead or thick concrete, for example. Thus, it can pose both internal and external health hazard; however, the lethal dose for a gamma emitter is larger than that of an alpha emitter by approximately ten times, meaning that the latter is much more potent. Alpha sources are often among the least well-protected types of commercial radioactive sources.[5] In addition to these types of ionizing radiation, some unstable nuclei emit protons, neutrons, and deuterons (proton and neutron combined). Yet other nuclei become more stable by spontaneously undergoing fission, that is, splitting into two smaller mass pieces (fission products) and releasing neutrons. Because the commercial radioactive sources of security concern are all alpha, beta, or gamma emitters, only those types of radiation will be considered here.

To determine the radioactive sources of security concern, the following studies have been done by a number of analysts. First comes the assessment of the number of different radioisotopes in use. In principle, more than 3,000 radioisotopes are available, but most of these decay very rapidly, in less than one second. These can be excluded because they will decay too quickly to pose any threat during a radiological attack. The next, more detailed analysis excludes any radioisotopes with a half-life shorter than a few days or longer than several thousand years. As already noted, short half-life materials would not last long enough to pose a serious threat of contamination; very long half-life materials decay relatively slowly and thus would not emit as much radiation as an intermediate half-life material. To place this concept on the human scale, one can conceptualize radioisotopes of concern by imagining living next to certain types of radioisotopes. Those that would emit all or an appreciable portion of their radiation during a typical human lifetime of several decades could present a health concern. An examination of Table

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[5]   James M. Acton, M. Brooke Rogers, and Peter D. Zimmerman, "Beyond the Dirty Bomb: Re-thinking Radiological Terror," *Survival*, vol. 49, no. 3, 2007, p. 155.

1 shows that the half-life of each radioisotope of concern is within the range of 8 days to 433 years.

The other factor that determines whether a radioisotope has made this list is whether it is used relatively prevalently in commercial applications. Table 2 lists commercial radioactive sources that have large enough amounts of radioactive material to pose a potential security concern if used in a radiological attack. Note that this table shows the radioactivity content in units of gigabecquerels (GBq) and Curies (Ci). The gigabecquerel is the international unit and the Curie is the traditional unit, which is still used in the United States. The Becquerel is defined as one disintegration or decay per second; consequently, a gigabecquerel equals one billion decays per second. A curie is defined as the amount of radioactivity in one gram of radium. This means that one Curie would equal 37 billion Becquerels. Table 2 also indicates the category level of each source. The International Atomic Energy Agency (IAEA) defines the category. Table 3 compiles the categorization definitions assessed by the IAEA; however, it should be noted that debate continues between the U.S. and other governments and the IAEA as to whether this categorization is ideal from the perspective of evaluating security threats. The discussion is particularly focused on how to quantify the contamination, social, and psychological effects of sources below category 2.[6]

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[6]   Charles D. Ferguson, "Radiological Weapons and Jihadist Terrorism," p. 179, in Gary Ackerman and Jeremy Tamsett, eds., *Jihadists and Weapons of Mass Destruction*, CRC Press, Boca Raton, Florida, USA, 2009.

Radioisotope	Half-Life	Specific Activity GBq/g (Ci/g)	High-Energy Alpha Emissions	High-Energy Beta Emissions	High-Energy Gamma Emissions
Americium-241 (Am-241)	433 years	125.8 (3.4)	Yes	No	Low Energy
Californium-252 (Cf-252)	2.7 years	19,832 (536)	Yes	No	Low Energy
Cesium-137 (Cs-137) [Barium-137m (Ba-137m)]	30 years [2.6 minutes]	3,256 [19,980 million] (88 [540 million])	N/A	Low Energy [Low Energy]	N/A [Yes]
Cobalt-60 (Co-60)	5.3 years	40,700 (1,100)	N/A	Low Energy [Low Energy]	Yes
Iodine-131 (I-131)	8.0 days	4.8 million (130,000)	N/A	Yes	Yes
Iridium-192 (Ir-192)	74 days	>16,650 (>450) std >37,000 (>1,000) high	N/A	Yes	Yes
Polonium-210 (Po-210)	140 days	166,500 (4,500)	Yes	Low Energy	Low Energy
Plutonium-238 (Pu-238)	88 years	636.4 (17.2)	Yes	No	Low Energy
Plutonium-239 (Pu-239)	24,000 years	2.33 (0.063)	Yes	Low Energy	Low Energy
Radium-226 (Ra-226)	1,600 years	37 (1)	Yes	No	Low Energy
Strontium-90 (Sr-90) [Yttrium-90 (Y-90)]	29 years [64 hours]	5,180 [20.35 million] (140 [550,000])	N/A	Yes [Yes]	N/A [Low Energy]

Table 1: Radioisotopes of Security Concern[7]

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[7] Table based on Charles D. Ferguson, Tahseen Kazi, and Judith Perera, *Commercial Radioactive Sources: Surveying the Security Risks*, Occasional Paper 11, Center for Nonproliferation Studies, Monterey Institute of International Studies, California, USA, January 2003, p. 16; and the U.S Department of Energy/Nuclear Regulatory Commission Interagency Working Group on Radiological Dispersal Devices, "Radiological Dispersal Devices: An Initial Study to Identify Radioactive Material of Greatest Concern and Approaches to their Tracking, Tagging, and Disposition," Report to the Nuclear Regulatory Commission and the Secretary of Energy, May 2003.

Type of Source or Application	Radioisotope	Typical Radioactivity Level GBq (Ci)	Source Categorization
Sterilization and food irradiation	Cobalt-60	148 million (Up to 4 million)	1
	Cesium-137	111 million (Up to 3 million)	
Radioisotope thermoelectric generator (RTG)	Strontium-90	740,000 (20,000)	1
	Plutonium-238	10,360 (280)	
Research and blood irradiators	Cobalt-60	88,800-925,000 (2,400-25,000)	1
	Cesium-137	259,000-555,000 (7,000-15,000)	
Single-beam teletherapy	Cobalt-60	148,000 (4,000)	1
	Cesium-137	18,500 (500)	
Multi-beam teletherapy (gamma knife, e.g.)	Cobalt-60	259,000 (7,000)	1
Industrial radiography	Cobalt-60	2,220 (60)	2
	Iridium-192	3,700 (100)	
High- and medium-dose brachytherapy	Cobalt-60	370 (10)	2
	Cesium-137	111 (3)	
	Iridium-192	222 (6)	
Well logging	Cesium-137	0.74-74 (0.02-2)	3
	Americium-241/Beryllium	0.74-74 (0.02-2)	
	Californium-252 (rare use)	37 (1)	
Level and conveyor gauges	Cobalt-60	0.74-74 (0.02-2)	3
	Cesium-137	0.74-74 (0.02-2)	

Table 2: High-Risk Radioactive Sources[8]

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[8] Adapted from International Atomic Energy Agency, "Categorization of Radioactive Sources," IAEA-TECDOC-1344, Vienna, Austria, 2003; and Ferguson and Potter, op. cit.

Categories of Radioactive Sources	Definition and Types of Sources
Category 1	These sources "if not safely managed or securely protected would be likely to cause permanent injury to a person who handled [them], or were otherwise in contact with [them] for more than a few minutes. It would probably be fatal to be close to this amount of unshielded material for a period of a few minutes to an hour." This category includes radioisotope thermoelectric generators, research and blood irradiators, and radiation teletherapy sources.
Category 2	These sources "if not safely managed or securely protected could cause permanent injury to a person who handled [them], or were otherwise in contact with [them], for a short time (minutes to hours). It could possible be fatal to be close to this amount of unshielded radioactive material for a period of hours to days." This category includes industrial radiography cameras, and high-dose-rate and medium-dose-rate brachytherapy sources.
Category 3	These sources "if not safely managed or securely protected could cause permanent injury to a person who handled [them], or were otherwise in contact with [them], for some hours. It could possibly be fatal to be close to this amount of unshielded radioactive material for a period of days to weeks." This category includes oil well logging sources and fixed industrial gauges using high activity sources such as level gauges, dredger gauges, conveyor gauges, and spinning pipe gauges.
Categories 4 and 5	The sources in these categories contain relatively low activity materials and thus are generally not considered dangerous in the context of most radiological weapons unless a large enough aggregate amount of these sources were collected and used. Examples of sources in these categories are smoke detectors and medical diagnostic sources.

Table 3: Categorization of Radioactive Sources[9]

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[9] All quotes in this table were taken from International Atomic Energy Agency, "Categorization of Radioactive Sources," op. cit., pp. 27-29.

Radiological Attack Methods

The purpose of a radiological weapon is to disperse radioactive materials or emit ionizing radiation from a stationary or mobile radioactive source that has not been dispersed into many pieces. Radiological weapons can use crude explosives, advanced dispersal techniques, or simple emission from radioactive sources. While many members of the public associate the term "dirty bomb" with any type of radiological weapon, or even a nuclear detonation, it strictly should refer to the use of explosives to spread radioactive material. In the policy and technical literature, three terms are used: radiological dispersal device (RDD), radiation emission device (RED), and radiological incendiary device (RID). Of these, the RDD encompasses the largest variety of mechanisms, which could include explosive or non-explosive and passive or active means, to spread radioactive material. An RED refers particularly to a stationary or mobile radioactive source that emits radiation. Terrorists, criminals, or other malicious people could use an RED to expose many people, few people, or just one specific person to ionizing radiation. The former and possibly the intermediate acts are usually associated with terrorists because they would typically want to instill fear in many people. In contrast, a criminal would most likely try to harm or kill one or a few people; this was the case in the 2006 poisoning-murder of Russian dissident Alexander Litvinenko, who died after ingesting polonium-210. An RID refers to a device that couples fire with radioactive material. One reason a terrorist group may want to use an RID is to complicate firefighters' efforts to rescue people and protect property.[10] Emergency responders would have to contend not only with public panic in regard to the fire, but also with the radioactivity.

There exist several generalized human exposure pathways for the materials that would be dispersed in an act of radiological terrorism: external exposure, inhalation, ingestion, and immersion. External exposure is typically associated with gamma emitters, since alpha and beta particles have a low ability to penetrate human tissue, and with scenarios that include exposure to an intact radioactive source or contamination from a dirty bomb or other RDD. It is the most commonly considered pathway, especially in regard to environmental decontamination and the regulatory challenges that would be posed by the distribution of radiation. Inhalation requires that a terrorist convert the radioactive source into an aerosol form in order to create particles small enough to be suspended in air and drawn in through the nose. Common inhalation scenarios include dispersal through ventilation systems, sprays, powders, or the small (micron- and submicron-sized) particles that could result from an RID. Inhalation is overall the most damaging exposure pathway, especially with alpha emitters.[11] However, it is rather challenging and complex to effectively execute on a massive scale. The ingestion pathway is also fraught with difficulty since the primary scenarios—contamination of the water supply, agriculture, or food production and processing—encounter vexing but not intractable problems of scale (the radioactivity would be quickly diluted) and access. It should also be noted that particles small enough to be inhaled could also be ingested. Except in cases where soluble radioactive materials are dispersed, the

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10 Joseph W. Pfeifer, *Improvised Incendiary Devices: Risk Assessment, Threats, Vulnerabilities, and Consequences*, Master's thesis, Naval Postgraduate School, Monterey, California, September 2006.

11 Joseph Magill et al, "Consequences of a Radiological Dispersal Event with Nuclear and Radioactive Sources," *Science and Global Security*, vol. 15, 2007, pp. 112-116.

ingestion pathway is generally less serious than that of inhalation because digestive system would cycle the material out of the body with relative speed, limiting the amount of exposure to radiation. Finally, it is plausible that terrorists cover people with contaminated water. This immersion pathway could lead to external injury (radiation burns) and inhalation or ingestion of radioactive material.

In 2007, researchers at King's College London undertook a reassessment of the threat posed by radiological terrorism. They assert that because radioactive materials cause more harm in smaller quantities when inside the body, as opposed to in the external environment, and since more commercial radioisotopes become available for use in an attack that would aim for internal exposure, that the threat paradigm for radiological dispersal devices should reorient to further include the risks posed by inhalation, ingestion, and immersion attacks, which they dub "I-cubed" attacks.[12] While the authors offer policy solutions to prevent I-cubed attacks—especially eliminating or further securing the commercial radioisotopes most likely to be used by terrorists and better informing the public of these plans.

In summary, once dispersal and subsequent exposure have occurred, the factors influencing the biological impact of a radiological attack include the kind of radiation emitted by the isotope used in the attack and its energy levels, as previously discussed, and the chemical form of the isotopes, which takes into account the varying solubility of different radioactive materials. Finally, it is worthwhile to emphasize again that a radiological attack carried out in any method, even if it does not succeed in exposing or killing large numbers of people, will still foster fear, uncertainty, and other social and economic disruptions.

Review of Open-Source Studies and Estimated Effects

As Peter Zimmerman and Cheryl Loeb emphasize, since most radiological scenarios tend to focus on high explosive dispersal devices, "generalizations about the RDD threat can be misleading."[13] It is thus important to understand the various case studies carried out over the past decades, as well as their shortcomings and conclusions. While the following review is not exhaustive, it illustrates the various types of research done in recent years. For each of the following studies, the discussion includes a description of its scenario or scenarios, the motivations for carrying out the study, conclusions found by the researchers, and any misconceptions or gaps in the scenario design or execution.

Within about six months of the terrorist attacks of September 11, 2001, radiological terrorism studies were initiated by two Washington, DC-based think tanks, the Center for Strategic and International Studies (CSIS) and the Federation of American Scientists (FAS). The Center for Strategic and International Studies has strengths in political science and policy analysis, in addition to being well networked to government officials. While FAS also has connections to government officials, it can further bring to bear scientific expertise, especially in the physical

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[12]   Acton, Rogers, and Zimmerman, op. cit.

[13]   Peter D. Zimmerman with Cheryl Loeb, "Dirty Bombs: The Threat Revisited," *Defense Horizons*, no. 38, January 2004, pp. 4-5.

sciences. These somewhat overlapping strengths and diverging differences played out in the RDD scenarios each organization investigated.

The March 2002 CSIS study focused mainly on the issue of the response to a large explosion in Washington, DC, by many levels of government, private industries, the news media, and the general public. In the words of the lead planner Philip Anderson, the "overall purpose … was to help frame the planning requirement … [for the Metropolitan Washington Council of Governments] led crisis-planning effort, by identifying some of the key issues and friction points to be resolved."[14]

It is important to know that the Washington metropolitan area is a complex mix of jurisdictions; Washington, DC, is a city but also has roles of a state, although it does not enjoy this official designation. The district is surrounded by two states, Maryland and Virginia. In addition, because Washington is the seat of the U.S. federal government, federal officials and police officers would become immediately involved in any terrorist attack in the city. Consequently, the CSIS scenario took into consideration plenty of tough policy and jurisdictional issues, even without the introduction of radioactive material into the explosion.

The scenario opens on the morning of May 23, 2002, with the detonation of a powerful improvised explosive device laced with about 1,000 Ci of cesium-137 and embedded inside a school bus that contains no people. The bus is parked just outside the National Air and Space Museum, a location chosen because it is a major tourist attraction and the outer building wall is made of a large amount of glass. Hundreds of people would likely be in the museum or the immediate vicinity; the glass shattering would create a tremendous spectacle in the center of the city. Moreover, thousands of U.S. government workers are within a few city blocks of this detonation. In the scenario, the federal government closes, leading to transportation issues and self-evacuation. Because of the large numbers of people who self-evacuated from the contaminated area, radiation would eventually be detected in areas far from the blast site. As the scenario continues, the psychological and economic effects of a radiological attack become more apparent; people refuse to return to the city for work, school, and tourism due to fears of radiation, even though the danger of death is almost nonexistent. (The scenario implies that some people would die from the attack, but provides no figures.) The CSIS study concludes that although immediate responses operate fairly smoothly in the scenario, emergency response and recovery would be more difficult in Washington, DC, than in anywhere else in the United States because of the inherent complexities of combining federal, state, local, and private sector decisions into comprehensive and coordinated contingency plans. It also underscores the necessity of rapid, clear, and accurate communications to the public in order to avoid hysteria and attempt to minimize economic losses stemming from fears of radiation. While the scenario can prove useful as a general exercise in jurisdictional policy coordination, it is limited by its lack of specificity.

Like the CSIS study, that of FAS also took place in March 2002. The U.S. Senate Foreign Relations Committee tasked FAS to examine three scenarios, which were chosen to illustrate the effects of relatively small and large amounts of radioactive contamination, as well as to compare

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[14] Philip Anderson, "Greater Washington, DC, Crisis Planning," Center for Strategic and International Studies, Washington, DC, USA, March 21, 2002, p. 2.

alpha and gamma radiation emitters.[15] The FAS researchers used Hotspot, a readily available computer code that can simulate two-dimensional scenarios. Consequently, one of the limitations of this study is that it cannot capture the effects of buildings and other three-dimensional structures. Hotspot uses a Gaussian plume model and thus illustrates neat oval patterns of radioactive material dispersal. In actuality, the situation would be more complex with eddy effects and high concentrations of radioactivity close to lower concentrations depending on the chaotic effects of wind and rain, as well as manmade and natural structures. In addition, all three cases assume calm winds, dispersal in a major U.S. urban area using explosives and resulting in fine particles, which can lead to inhalation, ingestion, or external exposure. The FAS researchers therefore caution that "it is only possible to make crude estimates of impacts" and that their results "might be off by an order of magnitude."

Each case presented in the FAS study makes use of radioisotopes of the type and corresponding quantity that would actually be found in common commercial applications. The first scenario involves cesium-137 from a medical gauge source similar to the one that was found abandoned in North Carolina in 2002; the detonation of 10 pounds of TNT would disperse the two curies of cesium over the area of approximately 40 city blocks in Washington, DC.[16] Because of the relatively small amount of material in the dispersal cloud, people would not be immediately harmed. But if they remained in the most contaminated area of about 5 city blocks, their cancer risk from associated radiation exposure could be one acquisition of cancer per 1,000 people. The second scenario describes the dispersal in lower Manhattan of 10,000 Ci of cobalt-60 from a food irradiation rod. The study predicts that such an attack would contaminate the entire borough of Manhattan to the extent that living in the approximate 300-city block area would carry a one-in-one hundred chance of dying from cancer caused by the residual radiation. The third scenario depicts 1 pound of TNT distributing in Manhattan 10 Ci of americium-241, an alpha emitter used to survey oil wells. Because of the risk posed by inhaling these particles, an area covering 20 city blocks would need to be immediately evacuated and subsequent cancer probability in a 10-block contaminated area could be one death per 1,000 people.

The FAS researchers concluded that radiological attacks pose a credible threat due to the availability of radioactive materials, the ability for some of these materials to be dispersed by explosive or other means. An act of radiological terrorism would not cause the same degree of fatalities as the detonation of a crude nuclear device, despite the much-criticized 2002 statement of then-attorney general Ashcroft, who said a dirty bomb "not only kills victims in the immediate vicinity, but…can cause mass death and injury."[17] Nonetheless, a radiological attack could contaminate many city blocks, prompting evacuation, panic, eventual demolition, and heavy economic losses. The study primarily recommends prevention through reducing access to the commercial radioactive sources that could be used in terrorist applications.

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[15] Henry Kelly, "Dirty Bombs: Response to a Threat," *FAS Public Interest Report*, vol. 55, no. 2, 2002; this article is based on testimony given by Dr. Kelly to the Senate Foreign Relations Committee. The analysis was done by Michael Levi, Robert Nelson, and Jaime Yassif.

[16] Michael Levi and Henry Kelly, "Dirty Bombs Continued," *FAS Public Interest Report*, vol. 55, no. 3, 2002.

[17] "Ashcroft Statement on 'Dirty Bomb' Suspect," transcript, CNN.com, June 10, 2002.

The Top Officials (TOPOFF) simulations are a series of Congressionally-mandated, high-level U.S. exercises, some with an international component, designed to strengthen domestic capacity to prevent, protect against, respond to, and recover from large-scale terrorist attacks involving weapons of mass destruction. TOPOFF 2 was the second in the series, but the first such event following the attacks of September 11, 2001, and the creation of the U.S. Department of Homeland Security (DHS). The exercise sought to identify vulnerabilities in U.S. domestic incident management capabilities by applying the plans, policies, procedures, systems, and facilities of federal, state, and local response organizations against a series of integrated terrorist threats and acts in separate regions of the country. For nearly a week in May 2003, TOPOFF 2 engaged 8,500 people from the United States and Canada in a fictional scenario in which an RDD is detonated in the city of Seattle, along with biological attacks in Chicago and threats against other locations.[18]

Compared to the previously described CSIS and FAS studies, TOPOFF 2 was an enormous set of events that simultaneously included actors, staged catastrophes, and computer simulations (no information was disclosed on the types of models used). In the end, TOPOFF 2 provided some important lessons for emergency responders, above all that interagency communication is of the utmost importance after a radiological attack.[19] Some of the main criticisms of TOPOFF 2 stem from its highly scripted, costly, and massive nature. For example, according to various press reports, officials in Seattle knew for weeks in advance the exact time and location of the "dirty bomb," allowing them ample time to practice for the scenario and potentially undermining its value as a measure of U.S. preparedness for such an attack. Yet most of the findings of TOPOFF 2 have not been made available to the public, a criticism this exercise shares with the original TOPOFF events, undertaken in 2000. As a matter of its design, the exercise is also weighed heavily in favor of addressing the immediate challenges posed by a radiological attack. But the limited time span of TOPOFF 2 misses what would be some of the most difficult aspects of mitigating a radiological attack, processes that would certainly require the same types of interagency coordination that the exercise seeks to bolster, albeit toward very different tasks.[20]

Finally, it should be noted that the stated purpose of the TOPOFF series is to simulate "worst case scenario" terrorism using weapons of mass destruction. This calls into question the choice of an RDD attack. A need exists to better inform policymakers and the public by dispelling myths propagated by a few government officials and some members of the news media. An RDD is an economic weapon and is capable of inflicting devastating damage, but as Zimmerman and Loeb strongly demonstrate, most radiological dispersals would result in few, if any, near term deaths or serious radiation health effects. They point out "some forms of radiological attack could kill tens or hundreds of people and sicken hundreds or thousands."[21]

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[18] "National Exercise Program," U.S. Department of Homeland Security, DHS.gov, last accessed January 2, 2010.

[19] Jaime Yassif, "How Well Did TOPOFF 2 Prepare Us for Mitigating the Effects of a Dirty Bomb Attack?," *FAS Public Interest Report*, vol. 56, no. 2, 2003.

[20] *Ibid.*

[21] Zimmerman and Loeb, op. cit.

In 2006, a senior scientist at Sandia National Laboratories and a health physicist at Brookhaven National Laboratory published an article providing specific guidance to first responders, planners, and other senior decision makers for protective actions that should be undertaken in the first 48 hours after the outdoor detonation of an RDD. The study bases its recommendations on over twenty years of experiments conducted at Sandia—these include more than 500 explosive experiments using upwards of 20 materials and 85 device geometries—to determine what might actually occur after a radiological blast. This data was then incorporated into the Explosive Release Atmospheric Dispersion (ERAD) effects model, which combines methods to simulate the buoyant rise after an explosion and the particulate plume, which in turn can predict the dispersal of actual radioactive sources based on the design of the RDD. Further analysis of the data gives correspondence between the radiological source, its physical form, the nuclide, and the RDD design, and potential health effects, providing extremely valuable and practical information for first responders. The recommendations include how to establish a high zone boundary at 500 meters in all directions from the site of the explosion, confirm and adjust the outer boundary of the high zone based on absorbed radiation dosage, most effectively ration medical triage based on the type of radionuclide used in the attack, interpret radiation levels and make operational decisions based on them.[22]

The limited scope of the project, as well as the depth of the hard data and the complexity of the models behind it, set it apart from the other scenario studies previously analyzed in this article. The authors also specify the need for planners to take different approaches for an RDD attack than they would for chemical or biological terrorism. Another distinctive quality of the Sandia paper is its focus on most probable scenarios, rather than worst case scenarios, in order to make its guidance as applicable as possible and to reduce unnecessary conservatism and inefficiency in RDD emergency response planning.[23]

While most simulation-based studies of radiological terrorism note that the long-term economic costs of such an attack will overshadow the casualties—most of which would occur immediately or very far in the future—very few employ any economic analysis beyond general cost estimates for decontamination or abandonment of an affected area.[24] H. Rosoff and Detlof von Winterfelt employ risk and economic analysis to study potential dirty bomb attacks on the ports of Los Angeles and Long Beach with an eye to identifying port vulnerabilities to radiological terrorism, assessing the potential health and economic impacts of such an attack, and formulating potential policy recommendations and countermeasures. The authors put forth three scenarios in their study: a low radioactivity case using material stolen from a radiotherapy device in a U.S. hospital, a medium radioactivity case using material stolen from a U.S. industrial irradiator, and a high radioactivity case using a spent fuel assembly from the former Soviet Union. They then multiply these three scenarios with four possible modes of transport for the material and three locations for the attack—for a total of 36 attack scenarios—before using qualitative judgments to

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[22] Stephen V. Musolino and Frederick T. Harper, "Emergency Response and Guidance for the First 48 Hours after the Outdoor Detonation of an Explosive Radiological Dispersal Device," *Health Physics*, vol. 90, no. 4, 2006, pp. 381-384.

[23] *Ibid.*, p. 384.

[24] Henry Kelly, "Dirty Bombs: Response to a Threat" op. cit.

narrow probable scenarios.[25] The economic and risk models are finally applied to a medium radioactivity case.

The authors identify the main consequences of a dirty bomb attack as the immediate fatalities and injuries from the blast and acute radiation exposure, medium- and long-term health effects from airborne radioactive material, and the economic impacts that would result from closure of the port, which take account of evacuations, business and property losses, and decontamination costs. By combining a variety of means to analyze the data—including risk models to discover which steps in a potential attack are most subject to intercept—it is concluded that the most cost effective means to counter such a potentially economically damaging act of radiological terrorism are anticipatory. According to such logic, the prevention or interdiction of theft or purchase of the material is ideal, combined with optimally calibrated radiation detection at the ports.[26] As with the Sandia report, the scope of this study is highly limited; however, its specific recommendations are bolstered by the sophistication of the data and analysis backing them.

In contrast to the works analyzed thus far, a 2003 RAND report led by Lynn Davis takes a decisively different approach to preparatory response simulations. Motivated by the new public awareness and concern regarding terrorist attacks that followed September 11, 2001, this study aims specifically to enhance the role of the individual citizen as a supplement and complement to the parts played by federal, state, and local government agencies. The authors assert that identifying individual preparedness and response actions that enhance the safety and security of people in a large terrorist incident not only contributes to educating and empowering the very targets of such an attack, but could also serve to deter terrorist strikes in the United States.[27] In addition to radiological incidents, the report contains scenarios for chemical, nuclear, and biological attacks.

The report presents two RDD scenarios with similar timelines and control factors. In both, a car containing a radioactive source and 100 pounds of TNT explodes on a highway in a major metropolitan area at 10 am on a day with calm wind. Within fifteen minutes, the media releases the news of a "dirty bomb" explosion and within an hour, this is officially confirmed. The main difference is that one scenario images the dispersal of 10,000 Ci of cesium-137, while the other consists of 50 Ci of americium-241.

In either type of attack, the authors recommend individuals devise a strategy that above all else avoids inhaling dust that could be radioactive, while rightly noting that external radiation exposure from a contaminated environment is of secondary concern. They go on to advise people to seek indoor shelter in the case of an outdoor dispersion (or outdoor shelter in the case of an indoor dispersion), to decontaminate through bathing, and to evacuate and seek medical treatment only when directed by authorities. These instructions are sound and if followed by large numbers of people, would contribute to diminishing some of the disruption associated with radiological

[25] H. Rosoff and D. von Winterfeldt, "A Risk and Economic Analysis of Dirty Bomb Attacks on the Ports of Los Angeles and Long Beach," Risk Analysis, vol. 27, no. 3, 2007, pp.

[26] *Ibid*., pp. 543-544.

[27] Lynn E. Davis et al, *Individual Preparedness and Response to Chemical, Radiological, Nuclear, and Biological Terrorist Attacks*, RAND, Arlington, Virginia, USA, 2003, pp. 1-3.

terrorism. However, the primary shortcoming of the radiological scenarios in the RAND report—and the subsequent advice it offers to the public—is the singular focus on "dirty bomb" dispersal. At no point in the radiological sections of the report is there any specific mention of immersion or ingestion pathways, not to mention non-explosive types of RDD.[28]

Implications and Conclusions

Scenario-based approaches have been used effectively to design mitigation strategies for non-terrorist hazards, such as earthquakes and floods. This article does not seek to call into question the utility of scenario- and simulation-based studies in the development of emergency response efforts against terrorism; however, those who undertake such research must properly balance benefits and risks. The gains from open source simulation studies of radiological attacks must be carefully weighed against the potential risk of providing instructions to potential terrorists. For this reason, most of the reports analyzed in this article openly omit portions of methodology or data, especially technical details related to delivery device design, quantities of TNT, and Curies of radioisotopes. This fact alone demonstrates the need to tread carefully in open source work in order to avoid compiling for potential terrorists a "recipe" for a maximally destructive radiological attack that exploits weaknesses in detection methods and vulnerabilities in first response plans.

As a whole, the studies analyzed here address both questions of preventing and mitigating an act of radiological terrorism, although the recommendations derived from these U.S. case studies tend to focus more heavily, or at least in more detail, on response. The most recurrent themes in terms of preventive policy options include limiting or further regulating access to commercial radioactive sources of security concern, increasing the security of existing sources, altering the physical qualities of sources of security concern in order to render them less able to be dispersed —especially forming cesium-137 into a ceramic or non-dispersible forms rather than as a powder, and substituting non-radioactive source alternative technologies, for example, accelerator-based treatment of cancer instead of using teletherapy sources and x-ray. In terms of mitigation, the recommendations generally focus on optimizing operational, communication, and logistical response strategies in the immediate- to intermediate-term after the detonation of an RDD. The review sample selected for this article purposefully includes studies that vary in their scope; the limited scope studies, such as the one undertaken by scientists from Sandia and Brookhaven, offer the most specific response guidelines. With the exception of the RAND report, which presents individual strategies, the other studies here are tilted toward informing first responders and senior decision makers. Another bias identified in the studies is their almost singular focus on "dirty bombs." As noted by Acton, Rogers, and Zimmerman, other plausible scenarios exist that would employ inhalation, ingestion, or immersion attacks.[29] Finally, among some of the more general reports, there emerges a need to be clearer on metrics and findings. To cite one example, the FAS

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[28] The "specific action" items highlighted in the radiological sections of the report, as well as its abridged versions, repeatedly use the phrases "if an explosion occurs outdoors or you an informed of an outside release of radiation" and "if an explosion occurs indoors or you are informed of a release of radiation." *Ibid*.

[29] Acton, Rogers, and Zimmerman, op. cit., pp.152-153.

study mentions both the risks of both cancer acquisition and cancer deaths, seemingly interchangeably at times.

In conclusion, it is not feasible to imagine a single open-source study or methodological approach to address the totality of technical, policy, security, logistical, communication, psychological, health, economic, and regulatory questions that must be considered in preventing, dissuading, and mitigating an array of potential acts of radiological terrorism in the immediate-, intermediate-, and long-terms. Nor would it be desirable to take such a fully comprehensive approach in an unclassified fashion, based on the potential risks it would pose. Many advances have been made in studying the specific challenges associated with potential acts of radiological terrorism, and differentiating planning for and responses to such attacks from actions that would follow a chemical, biological, or nuclear terrorism. Between the many studies of radiological terrorism already undertaken—those with broad and narrow scopes, focusing on broad policy recommendations and specific action items for first responders, as well as the many U.S. and international case studies not assessed in this article—areas for additional study continue to emerge. Examples include how governmental communication of defense-in-depth security measures can help dissuade terrorists from launching radiological attacks and whether there are other means of deterring terrorists from even planning these attacks.

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Doomsday Weapon for Doomsday Ideology: Al-Qaeda and Nuclear Weapons

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Abstract: *This article deals with the probability of the use of WMD by terrorist organizations, especially Al-Qaeda. The capability to execute an attack that includes the use of Weapons of Mass Destruction exists and is easily accessible to terrorist organizations. The most probable player to use WMD, among all other international players, would be religious fundamentalist - Al-Qaeda affiliate groups. Therefore, the question should be: What will prevent such radical religious elements from using WMD and is there a possibility to deter them from using them?*

Keywords: *Terrorism, terrorist groups, WMD, Weapons of Mass Destruction, Al-Qaeda.*

"[There is a] 20 percent per year probability with American cities and European cities included … [of] a nuclear explosion—not just a contamination, dirty bomb—a nuclear explosion."

<div align="right">

Richard Garwin, a designer of the hydrogen bomb
Testimony before Congress, March 2007[1]

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Introduction

The idea of nuclear terrorism was brought to public discussion with the rise of modern terrorism and its internationalization, mainly during the 1970s. After the breakdown of the USSR, many pointed to the fact that this threat had increased significantly, due to the fact that nuclear materials were missing and some discovered in the black markets. This meant that these materials were now much more accessible to non-state actors such as terrorist and criminal organizations. The

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[1] Graham T. Allison, *How Likely is a Nuclear Terrorist Attack on the United States?* Online Debate, Council on Foreign Affairs, 20 April 2007 *available at* http://www.cfr.org/publication/13097/.

emergence of post-modern terrorism and its new characteristics has again brought the attention of the world to this threat.

This article deals with the probability of the use of WMD by terrorist organizations, especially Al-Qaeda.[2] The way to evaluate the credibility of this threat is to examine the equation of terrorism, which is the combination of both capabilities and intent of a terrorist organization to perpetrate an attack.

Two working assumptions form the basis of this article. First, this article shows that the capability to execute an attack that includes the use of WMD exists and is easily accessible to terrorist organizations – whether through the direct use of non-conventional materials, or by indirect use, such as an attack on different installations storing non-conventional materials. Such attacks, as will be shown in the article, can be perpetrated in the same manner as terror groups have perpetrated attacks in the past, and do not require the development of new abilities. Therefore the leading element that should be examined when considering whether or not to use this capability is the *cost-benefit balance as part of the motivation considerations* of the terrorist organizations. This article will discuss the question of why non-conventional terrorism still remains mainly a potential threat and has not been realized.

The second assumption considers that the most probable player to use WMD, among all other international players, would be religious fundamentalist - Al-Qaeda affiliates groups. This assumption stems from the ability to create a balance of deterrence with other players – nuclear power states, rouge states that support terrorist groups, and localized terrorist groups that are supported by a specific state. As will be presented later in this article, a balance of deterrence is unlikely to prevail vis-à-vis Al-Qaeda-like groups. Therefore, the question should be: What will prevent such radical religious elements from using WMD and is there a possibility to deter them from using them?

The Equation of Terrorism: Capabilities & Motivations/Intent

The equation of terror considers the realization of a terrorist act as the combination of both capabilities and motivations/intents.[3] With regard to the capabilities, there are two basic questions: Can terrorist organizations get WMD? If acquired, can they use them effectively? With regard to the issue of motivations there are also two basic questions: Do terrorist organizations want to get WMD? If acquired, do they have intent to use them?

The Capabilities Exist

One of the common assumptions regarding the threat of WMD terrorism is that, in one way or another, terrorists will get their hands on WMD materials and will be able to fabricate a weapon.

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[2]   For the purposes of this article, *mass destruction* attacks are characterized by an extraordinary amount of casualties and extensive direct and collateral damage. This article therefore, does not relate necessarily to any other *limited* use of non-conventional weapons such as biological or chemical agents.

[3]   Boaz Ganor, *The Counter-Terrorism Puzzle: A Guide for Decision-Makers*, The Interdisciplinary Center, Herzliya, 2005.

Their main sources might be through stealing WMD material and knowledge, buying them on the black market, or getting them from a supporting state which possesses these capabilities. For the later, it is relatively safe to assume that states sponsoring terrorism will allow their sponsored groups to build up non-conventional abilities that might be turned against the sponsoring state in the future. Furthermore, if the terrorists are caught before the attack, the origin of nuclear materials could be traced back and the sponsored state exposed.[4]

It is also common to assume that organizations which operate independently, lack the professional knowledge and technologies needed to create a nuclear explosion, or to manage biological or chemical agents effectively.[5] This was demonstrated by the sarin gas attack by Aum Shinrikyo. The poor ability to disseminate the sarin gas in the Tokyo subway caused the attack to be a mere shadow of what it could have been.[6]

However, while it remains difficult to use nuclear materials for weapons, or chemical or biological agents, with enough effort, energy and resources, the needed professional skills can be obtained and the difficulties can be overcome, by the organizations themselves or with the assistance of outside sympathizers. This depends mainly on the motivation factor and will be discussed later. Additionally, there is a multitude of other ways to perpetrate an attack involving WMD without actually using these weapons directly. Several examples and scenarios for this kind of attack follow.

First, crashing an aircraft laden with explosives onto a nuclear facilities compound would be an obvious example. These kinds of installations are not designed to withstand such an impact. One example of the potential consequences of such an attack is explained in a report by The Institute for Radiological Protection and Nuclear Safety in France (IRSN).[7] According to an IRSN report, an airplane crashing on the fuel ponds at La Hague plant in France could cause "the release of up to 10% of the radioactive inventory of the fuel in one pond. The release of around 1.5% of the cesium contained in one pond would correspond to the cesium released by the Chernobyl accident.[8] Though the explosion would be much smaller than a full nuclear explosion, the contamination damage would still be very significant, even if it would not reach its full potential. Indeed, the IAEA spokesmen stated specifically that "[reactors] are built to withstand impacts, but

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[4]   Joint Working Group of American Physical Society (APS), the American Association for the Advancement of Science (AAAS): "Nuclear Forensics - Role, State of the Art, Program Needs Report," American Physics Society, February 2008, p. 16 *available at*

http://www.aps.org/policy/reports/popa-reports/upload/nuclear-forensics.pdf.

[5]   Andrew O'Neil, "Terrorist use of weapons of mass destruction: how serious is the threat?" *Australian Journal of International Affairs*, Vol. 57 No. 1, 2003.

[6]   Council on Foreign Relations: "Backgrounder – Sarin", January 2006 *available at* http://www.cfr.org/publication/9553/#6.

[7]   L'institut de radioprotection et de sûreté nucléaire (The Institute for Radiological Protection and Nuclear Safety).

[8]   IRSN, in Global Chance: "An industry incapable of adapting to the post-9/11 world", January 2009, http://www.global-chance.org/IMG/pdf/GC25english-p61to64.pdf.

not that of a wide bodied passenger jet full of fuel…These are vulnerable targets, and the consequences of a direct hit could be catastrophic."[9]

Another scenario can involve attackers getting into a nuclear installation itself, and attacking storage places with dangerous materials. This scenario was, until now, executed only by Greenpeace activists who were able to penetrate these facilities. Two prominent examples from recent years prove that this scenario is still relevant for discussion. On January 2003, Greenpeace activists broke into Sizewell B site in the UK, simply by cutting through the fence. Some of them even managed to get on the roof, and pained the word "Danger" on the side of the dome.[10] On November 2005, two dozen activists broke into the grounds of a nuclear power plant in Brossele, the Netherlands.[11] Though they did not create a security risk, this case exemplifies the relative ease with which the security of these sensitive places can be evaded.[12]

However, mass destruction is not exclusive for nuclear events. Other targets might include gas depots, oil refineries that use large amounts of hydrofluoric acid, and water treatment facilities that use large amounts of chlorine, all of which are unprepared for deliberate large scale sabotage. In Israel in 2002, for example, the Pi Glilot gas depot north of Tel Aviv was attacked and a gas truck exploded inside the installation area. It is presumed that a bomb was attached to the truck when it was parked outside and that the perpetrators waited for it to get in the installation area, detonating it by a remote control or a cellular phone. There were no casualties from this incident; however, a risk survey that examined a possibility of an explosion in an underground gas tank in Pi Glilot stated that all people in the range of about 5 km would die in 30 seconds. The Bhopal incident in India, 1984, is another grave example of a chemical disaster. A chain reaction in a pesticide plant created a gas leak that spread around the area, killing over 15,000 people, and causing permanent disabilities in 50,000 others.[13] This event occurred due to neglect and was not an attack; nevertheless' it is an example of what might happen should a real attack be perpetrated.

It is important to note that additional implications of attacks on such installations are broader than the immediate casualties and damage. They are multiplied by the psychological effects that a non-conventional attack creates – even if limited in their operational success. They can lead to public panic and disorder, influence crowd behavior and the political perceptions of foreign

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[9]   Moneyline, *CNN*, 18 Sep 2001, quoted at Helfand et al "Nuclear Terrorism", *BMJ*, 9 February 2002 http://www.bmj.com/cgi/content/full/324/7333/356.

[10] *TimeOnLine*: "Greenpeace break-in highlights terror threat to nuclear plant" 14 January 2003 http://www.timesonline.co.uk/tol/news/uk/article812069.ece.

[11] *Department of Homeland Security Daily Open Source Infrastructure Report* for 25 November 2005 *at* http://osd.gov.com/osd/200511_november/DHS_Daily_Report_2005-11-25.pdf.

[12] It is important to note that other nuclear facilities are better protected and that these examples do not reflect the situation for all. An opposite example happened when Israel shot down one of its own jet planes when it mistakenly flew over the nuclear reactor in Dimona. Bennett Ramberg, "Should Israel Close Dimona? The Radiological Consequences of a Military Strike on Israel's Plutonium-Production Reactor" *Arms Control Today*, May 2008: http://www.armscontrol.org/act/2008_05/Dimona.

[13] *BBC*: "Rallies held over Bhopal disaster" 3 December 2004 *available at* http://news.bbc.co.uk/2/hi/south_asia/4064527.stm.

states[14], more than any other conventional terrorist attack. In another aspect, as in the case of the Abqaiq oil refinery in Saudi Arabia - the most important processing facility in Saudi and the world[15] - a successful attack would lead to a sharp increase in oil prices and damage to the global economy and trade. An attack against Abqaiq was perpetrated in 2006, when teams of mujahedeen fighters stormed the facility. The attack was thwarted, but the risk of another one still exists.

The above-mentioned examples and scenarios are used here in order to clearly illustrate that acquiring WMD and the expertise needed to effectively use them, are not a real necessity for launching a mass destruction terror attack. Handling these weapons and using them effectively demand acquiring high technical expertise. However, these indirect WMD attacks might be even more effective in terms of the scope of casualties and damage, be it material or psychological damage. This fact stresses the importance of the motivation factor when evaluating the threat of a WMD attack.

The Motivation Factor – Main Potential Benefits from Acquiring and Using WMD

The reason that a terrorist organization commits an act of terror is to draw the attention of three principal audiences. The *origin community* is the living artery of the organization. It supplies the safe shelter, new recruits, supplies, funding and other necessities. The organization serves its origin community's cause with its attacks and the attention garnered from a successful attack musters public support in all these aspects. With regard to the *target population*, the attack is meant to generate anxiety and public pressure on decision makers to bring about change of policy and certain political achievements.[16] Terror attacks are also used to draw the attention of *international public opinion* and to bring the origin community's just demands and narrative to the international stage, as another means of putting pressure on the target state.[17]

The use of WMD offers terrorist organizations a variety of advantages. A massive number of casualties could serve the interests of the perpetrating organization in a number of ways. While planning the 9/11 attacks, Khalid Sheikh Mohammed, the mastermind, suggested flying a small plane filled with explosives into CIA Headquarters. The 9/11 Commission noted that bin Laden

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[14]   Anthony H. Cordesman, "Defending America: Asymmetric and Terrorist Attacks with Radiological and Nuclear Weapons", *CSIS*, 23 September 2001, http://www.csis.org/media/csis/pubs/nucterr010923.pdf.

[15]   Khalid R. Al-Rodhan, "The Impact of the Abqaiq Attack on Saudi Energy Security" *CSIS*, February 27, 2006 http://www.csis.org/media/csis/pubs/060227_abqaiqattack.pdf.

[16]   This was expressed by the effect the Madrid attack influenced the elections in 2004 which lead to the withdrawal of Spanish soldiers from Iraq. It should be noted that this is not always the case. In some instances the target population pressures the decision makers to increase counter measures against the terrorists, such as Operation Defensive Shield that followed a serious of lethal suicide bombing, picking with the Park Hotel attack in March 2002.

[17]   Boaz Ganor, *The Counter-Terrorism Puzzle: A Guide for Decision-Makers*, The Interdisciplinary Center, Herzliya, 2005

reportedly asked him: "Why do you use an axe when you can use a bulldozer?" [18] The scale of the attack would instantly bring the organization to the international stage as did the 9/11 attacks for Al-Qaeda.

In this regard it can be claimed that the 9/11 attack, and the attacks that followed in Madrid and London, raised the bar, as they were by far the biggest attacks these countries had ever experienced. Later, a much bigger attack was prevented, when terrorists' plan to blow up ten different passenger airplanes at the same time was thwarted by security forces. This demonstrates that organizers of new attacks aspire to expand and increase the scope of attacks. For global Islamist extremists, successful attacks against foreign 'imperialist' countries as well as foreign military forces is a significant tool for recruitment of human, economic and political resources among Muslim populations around the world.

Additionally, the fear that a mass destruction terror attack would instill in the targeted population could give the terrorist organization enormous leverage over the targeted government. This could give an organization enormous political prestige within their origin community and bolster public support; therefore, it generates significant motivation.

This desire to obtain WMD as a political tool and for psychological warfare purposes was expressed in August, 2001, as the Palestinian second intifada was escalating rapidly. In this case, a Palestinian weekly published an article stating that "serious thinking began a while ago about obtaining biological weapons."[19] The writer refers to these weapons as "*weapons of deterrence*" several times, emphasizing its *effect on the balance of power* between the state and the terror organization:

> This weapon terrifies the Israeli security apparatuses… because obtaining its primary components, whether biological or chemical, is possible without too much effort… there are hundreds of experts who are capable of handling them and use them as weapons of deterrence, thus creating a balance of horror… A few bombs or death-carrying devices will be enough, once they are deployed in secluded areas and directed at the Israeli water resources… markets and the residential centers.

Furthermore, for religious extremists with global aspirations, such as Al-Qaeda, an important component for the progress of this struggle would be the collapse of a moderate, U.S.-backed Arab state, such as Saudi Arabia, Egypt or Jordan. Such a tangible success would significantly increase the scope of operations, recruitment and support for global holy war throughout the Muslim world. A mass destruction attack that would bring these states to their knees, and would be beyond their ability to contain, would definitely serve this purpose. The damage is not necessarily in the attack itself, but in its byproducts - economic collapse, loss of control over public order, loss of legitimacy.

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[18] *News Max Wires*: "FBI's Mueller: Al-Qaida Has Intent to Use Nuclear Weapons" 11 June 2007.
     http://www.infowars.com/articles/terror/mueller_al_qaeda_has_intent_to_use_nuke_weapons.htm.

[19] *MEMRI*: "Palestinian Information Center: There Is Serious Thinking about Obtaining Biological Weapons" Special Dispatch No 255, 17 August 2001 *available at*
     http://memri.org/bin/articles.cgi?Page=archives&Area=sd&ID=SP25501.

Practical Expressions of the Motivation Factor – Gathering and Sharing Knowledge, and Attempts to Acquire WMD

Radical Islam activists are also discussing the issue of WMD on forums on the internet. Though getting much less attention than other types of homemade weapons and combat strategies, some forum members are discussing the possibility of manufacturing WMD, rather than getting them from other sources. In one example on the Ma'arik forum, a discussion took place in February 2008, when forum member Abu Ahmad Al-Anbari posted a message proposing ways to manufacture anthrax. Not much later, another forum member warned of the dangers that handling such materials entails and suggested to avoid their use, stating that: "There are many other ways to wage jihad..." Abu Ahmad Al-Anbari responded: "...We need every [possible] means of terrorizing the enemy, especially [since] bacterial [weapons] are so rare. If we say 'this is difficult' and 'that is dangerous,' we will never make any progress..."[20]

Religious zealots are not interested only in biological or chemical weapons, but also aspire to obtain nuclear abilities. The main publication on extremist forums concerning nuclear weapons was released in October 2006, when a document known as "An Encyclopedia for the Preparation of Nuclear Weapons," was published under the title: "The Nuclear Bomb of Jihad and the Way to Enrich Uranium." It includes nine lessons that cover a historical survey of the development of nuclear science, explanations about natural radioactivity, the nuclear qualities of certain materials, critical mass, the construction of nuclear weapons, and the extraction of radium. The accuracy of information in the Encyclopedia can be challenged as flawed and it might be insufficient for building a usable weapon. Nevertheless, its publication expresses sincere efforts for expanding the knowledge and capabilities in this field. As the writer explains, the lessons are designed to build up knowledge "until we reach the experimentation and implementation [stage], with the support of Allah's might."[21]

Additionally, there is some evidence that Al-Qaeda and its affiliated groups have been trying to acquire nuclear materials and weapons. As early as 1993, bin Laden attempted to buy uranium in the Sudan. Later he also stated that it is a duty to acquire WMD. He has also contacted experts in chemistry, physics, and explosives to persuade them to join his radical cause.[22] Noteworthy is the case of the relations bin Laden had with two highly-placed members of the Pakistani nuclear establishment, Syed Bashiruddin Mahmood and Chaudhury Majid. They had traveled several times into Afghanistan during 2001-2002 to meet with him. These scientists are known to hold radical Islamic views.[23]

On September 2006, also Abu Hamza al-Muhajer, while serving as Al-Qaeda's leader in Iraq, called for professional assistance:

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[20] http://memri.org/bin/articles.cgi?Page=archives&Area=ia&ID=IA43508

[21] *MEMRI*: "On Islamic Websites: A Guide for Preparing Nuclear Weapons" Special Dispatch No. 1004, 12 October 2005 http://memri.org/bin/articles.cgi?Page=archives&Area=sd&ID=SP100405

[22] *News Max Wires*: "FBI's Mueller: Al-Qaida Has Intent to Use Nuclear Weapons" 11 June 2007. http://www.infowars.com/articles/terror/mueller_al_qaeda_has_intent_to_use_nuke_weapons.htm.

[23] Pervez Hoodbhoy, "Dealing with Nukes and Terror: The View from Pakistan" *American Physics Society*, February 2002 *available at* http://www.aps.org/publications/apsnews/200202/viewpoint2.cfm.

My last message is to the people of distinctive competencies, and highly experienced scientists in all fields and disciplines, chemistry, physics, management and electronics, information… and in particular nuclear scientists and explosives specialists. We say to you, we are in dire need for your experience. The battlefields of Jihad will satisfy your ambitions… American bases serve as the best test fields for your non-traditional bombs… such as germ warfare and the so called dirty-bombs.[24]

In April 2009, Al-Muhajer emphasized again the need for acquiring biological, chemical and nuclear weapons, in order to overcome the superiority of the enemies with conventional weapons. He called Muslim scientists to do all they can in order to develop WMD, to be used as a deterrent by the Mujahedeen.[25] At the same time, several Jihadi online forums called for an attack on nuclear sites, such as power plants, nuclear reactors and storage facilities for strategic weapons. The call included publication of information and maps of nuclear facilities belonging to NATO, the United States, Britain, Pakistan, Israel, Belarus, France, India, Russia, South Africa, Turkey and the Ukraine.[26]

It is clear that terrorist organizations, both on a local and global scale, have an interest in acquiring WMD, even only as psychological "weapons of deterrence." However, there is a substantial difference between getting WMD, declaring that the group has them in its possession, perpetrating a small scale event to demonstrate their capabilities – and actually executing a mass destruction attack. First and foremost, the perpetrating organization has to have the motivation to actually destroy masses of people from which the overwhelming majority would be civilians. The implications of such an act would have significant influence on all three afore-mentioned audiences. The way terrorist organizations consider this influence stems from their long term goals and relations with each community, as will now be examined.

Essential Differences Between Modern and Post-Modern Terrorist Organizations

Modern terrorist organizations of the 20th century see themselves as part of the political process, with the intention of winning at a future stage, a seat at the table of legitimate political negotiations.[27] They are usually locally oriented and hold specific aspirations to achieve limited and defined goals – political, social, national, economic, etc. The IRA and ETA, for example, sought local autonomy, with the IRA eventually being absorbed into a legitimate political party. Even in the case of political Islamists and radical movements such as Hamas, and Hezbollah which operates on a global level, the focus is on the interests of the ethnic-national origin community and on gaining political achievements in the local arena.

The organizations have a concrete base of operations and an established organizational structure, even if covert and unknown to the other side. Therefore, they use self-imposed

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[24]   Jihadi Websites Monitoring Group (JWMG): "Al-Qaeda and Weapons of Mass Destruction as seen on Jihadi Online Forums", *ICT*, June 2009.

[25]   Ibid.

[26]   Ibid.

[27]   Stevenson, 2001, in O'Neil, 2003.

constraints in order to protect the interests of the organization from a destructive counter attack against their activists and infrastructure, and against the erosion of internal and international public support. Simply put, even organizations that choose to use suicide attacks as a trademark of their struggle do not wish to commit organizational suicide.[28] They will achieve their goals - even if that means complete control over a specific country - gradually, also utilizing legitimate political processes such as elections and appeals to the UN.

For Al-Qaeda affiliated or inspired movements, the rules of the game are essentially different. Based on an extremist interpretation of Islam and religious justifications, their view of the world is black and white, wherein the enemy is the representation of evil and there is no option other than to destroy it completely. The goal justifies the means when acting against the 'near enemy' – strayed regimes in Arab-Muslim states, and the 'far enemy' – the infidel world lead by the U.S. The course of this total, uncompromising struggle ultimately leads to the establishment of the Ummah, the Muslim nation, which will unite all Muslims around the world, creating Dar al-Islam, the house of Islam. The rest of the world, the infidels who refused to accept the religion of Allah, live in Dar al-Hard, the house of war, and a final clash for their complete destruction is unavoidable.

Justification by Religious Leaders – an Essential Element in Facilitation Motivation

One of the senior Saudi religious scholars, Sheikh Naser bin Hamad Al-Fahd, known as being close to Al-Qaeda, published a fatwa (religious ruling) in May 2003, which deals with the use of WMD. According to his ruling, the use of these weapons is legitimate against the U.S., Britain and their citizens. Sheikh Al-Fahd explains that the Muslim world is conducting a defensive war and refers to the religious Islamic foundation allowing Muslims to use non-conventional weapons in these situations. According to this fatwa, in a defensive war, it is permissible to not differentiate between harming military personnel and harming innocent civilians, including women, children and the elderly. Also, such action should not be shunned even if many Muslims are harmed by it. The Sheikh adds a moral aspect to the discussion, emphasizing that the U.S. was the first to use WMD during World War II.[29] Al-Fahd also said that, "[i]f the Muslims could defeat the infidels only by using these kinds of weapons, it is allowed to use them even if they kill them all, and destroy their corps and cattle."[30]

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[28] Anat Kurz, "Non-Conventional Terrorism: Availability and Motivation" Strategic Assessment, *INSS*, March 2005, Vol. 7 No. 4.

[29] Jihadi Websites Monitoring Group (JWMG): "Members of Jihadi Forums Revive Debate on the Question: Is it Permissible to Harm the Innocent?", ICT, May 2009. http://www.ict.org.il/Portals/0/Internet%20Monitoring%20Group/JWMG_Discussion_on_Killing_Innocent.pdf.

[30] Reuven Paz, "YES to WMD: The first Islamist Fatwah on the use of Weapons of Mass Destruction" *Global Research in International Affairs (GLORIA) Center*, The Project For The Research Of Islamist Movements (PRISM), *Prism Special Dispatches*, Vol. 1, No. 1 (May 2003) *available at* http://www.e-prism.org/images/PRISM%20Special%20dispatch%20no%201.doc.

Abu Musab Al-Suri, one of the leading thinkers of extremist Islam, expresses in the famous book "Da'awat Al-Muqawamah Al-Islamiyyah Al-'Alamiyyah" (The Global Islamic Resistance Call) the wish to obtain non-conventional weapons and to use them against the infidels. Amongst other things, he writes that "knowledge and operational abilities should be gained regarding the possession of weapons of mass destruction and the use of these weapons when necessary, in order to pay back in kind, or to bring about a strategic conclusion to the battle against America."

What Will Prevent Extremist Groups From Using WMD?

While most locally oriented groups are unlikely to use WMD to create a mass casualty attack, the case of global religious extremists is quite different. However, there are still other rational considerations that most be taken into account. These considerations relate to the complexities of reactions over a WMD attack in all three audiences, which will now be examined.

Even for Al-Qaeda, the benefit of the use of WMD is not unequivocal. Of the three target populations, Al-Qaeda mainly depends on its origin population, since an essential component of its strategy is to establish the Ummah. Al-Qaeda has no interest in maintaining a positive image in the eyes of the international community, towards integrating into a political process. It strives to change world order and create a new reality, according to its principles of justice. The image it is building is of a just, pure struggle and a complete de-legitimization of the other side – the West and its collaborators.

Therefore negative public opinion in the target population and international community has little effect on Al-Qaeda. Rather, it serves its goals. A demand to increase military pressure, and acts such as sending more soldiers to fight terrorist organizations, are a threat to groups with limited and defined areas of activity and organizational structure. However, Al-Qaeda does not fit these characteristics and it is better described as a network of loosely affiliated groups, sharing the same ideology, without a bonding organizational structure of a permanent territory. Therefore, a surge of military counter-attacks might be successful locally, but will have much less impact on virtual, flexible organizations that are not limited or dependent on a certain territory in their state of refuge. Al-Qaeda proved this in the years following the U.S.-led NATO invasion of Afghanistan, and again after the U.S. invasion of Iraq. Al-Qaeda's areas of tenure in the Middle East, Central and South Asia, Africa and elsewhere, are gradually expanding, despite the actions of the largest armies in the world. On the contrary, it only serves Al-Qaeda's strategy, as described by bin Laden in 2004: "[we] bled Russia for ten years, until it went bankrupt and was forced to withdraw in defeat… So we are continuing this policy in bleeding America to the point of bankruptcy."[31]

Regarding the origin population, for Al-Qaeda as the leader of global holy war against the West, this refers to Muslim communities around the world – the Muslim Ummah. They are the source of new volunteers, a continuous supply of fighters and funding etc. So, in fact, in this context, Al-Qaeda could be severely harmed by perpetrating a WMD attack. An attack such as

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[31] AP: "Bin Laden's message: A call to bleed the U.S. economically" *USA Today*, 2 November 2004, http://www.usatoday.com/news/world/2004-11-02-bin-laden-economy_x.htm.

this might prove counter-productive with regard to recruiting new volunteers. This is so for the following reasons.

First, many volunteers join on the ideological basis of removing a foreign, cruel, occupying force from a Muslim land, especially in the context of the U.S. in Iraq, NATO in Afghanistan, India in Kashmir or the Serbs in Bosnia. However, since its establishment, Al-Qaeda has already encountered various challenges in raising support from local populations in fighting arenas. The presence of foreign volunteers, who usually held more fundamentalist ideology than the local rebels who were fighting more to protect their homeland than to serve God, created violent frictions.[32] This phenomenon has existed since the arrival of volunteers to Afghanistan during the 1980s, culminating with the establishment of the "Awakening Committees" opposition in Iraq. These committees were created, with the assistance and support of the U.S., against the backdrop of violence that was directed not at the foreign forces but against the locals, for not practicing the way of Islam that the radical foreign mujahedeen brought with them.

Second, other objections appeared on discussions on internet websites, including criticism against indiscriminate killings by suicide bombing in various arenas, which lead to the death of more Muslims than foreign forces and personnel. Such internal criticism arose after the recent attacks on civil sites in Mumbai (November 2008), tourists sites in Cairo (February 2009) and the attack in Yemen against South Korean tourists (March 2009). Forum moderators and writers found themselves having to defend the view that innocent civilians are a legitimate target.[33]

Furthermore, groups of fighters in Iraq were abandoning the battle because they did not want to be involved in sectarian fighting against Shiite factions. In their view, this was not the enemy which they came to fight, so they left the Iraqi arena. In fact, since 2007 there has been a decline in volunteers coming to Iraq. The scene has lost its attraction because of these issues, and the mujahedeen's lack of success in executing significant attacks.

This means that even fundamentalist organizations like Al-Qaeda, which need to maintain the origin public support, need to consider the implications that a WMD attack will have on their origin community. Perhaps this principle is part of the reason that there have been no known significant attacks against kindergartens and hospitals. A too brutal attack could cause more harm than benefit. The use of WMD, especially because it would cause a vast number of civilian casualties, could backlash against Al-Qaeda and create significant harm to origin public support; This would also increase internal criticism of Al-Qaeda which has risen in recent years in the Muslim and Arab world, both in the Middle East and in the West. Al-Qaeda's sub-goals (as well as those of other organizations) can also be achieved by conventional means, with a much lower price of support, and lighter response from the enemy.

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[32] Brian Williams, "Operation Enduring Freedom, 2001-2005: Waging Counter-Jihad in Central Eurasia." (currently unpublished), *available at* http://convention2.allacademic.com/meta/p_mla_apa_research_citation/0/7/1/0/3/p71031_index.html.

[33] Jihadi Websites Monitoring Group (JWMG): "Members of Jihadi Forums Revive Debate on the Question: Is it Permissible to Harm the Innocent?", *ICT*, May 2009 http://www.ict.org.il/Portals/0/Internet%20Monitoring%20Group/JWMG_Discussion_on_Killing_Innocent.pdf.

Additionally, a significant escalation in the strength of attacks, such as the use of WMD, could certainly lead to social-cultural-institutional pressure on Muslim immigrant communities in western countries, on the basis of ethnic and religious tensions that already exist today. This could be done through blocking access to work places or educational institutions and various civil rights restrictions. However, this pressure could also lead to a reverse response among the immigrants. Their increased feeling of alienation could cause them to increase their militancy and adopt radical ideals[34] as has already been seen in different cases, for example, the perpetrators of the 7 July bombing in London.

Conclusion

Considerations for the use of WMD are more complex than just the magnitude of the attack. Due to the anticipated severe response of the targeted state and the international community, it is less likely that modern terrorist organizations will use WMD. However, for global religious extremist groups, waging a long term holy war of attrition to achieve supremacy over the world, the cost-benefit analysis of such an attack is different.

A deterrence equation such as MAD does not exist when the opponent is not concrete and clearly identified. Such a balance can work vis-à-vis Iran or North Korea, and maybe even locally oriented and state sponsored terrorist groups. But it is not relevant when dealing with Al-Qaeda and its affiliated groups. Drawing on the Cold War experience, a more relevant approach would be one such as Reagan's SDI (Strategic Defense Initiative), namely, adopting the principle of increasing defensive measures until effectively canceling the power of the opponent weapons, without putting both sides in danger.

It is essential to note that military defense measures will not be enough to give full protection, especially when considering the threat of homegrown terrorism. Therefore as part of a defensive strategy, countries should include mechanisms of conflict resolution and tension reduction when interacting with local minorities and immigrants populations. The significance of these defensive elements stems from the need to lower the motivation factor to embrace radical ideologies, as the capabilities to create a WMD attack are always present.

But even after negating the motivation for the use of WMD by Al-Qaeda affiliated or inspired groups, Al-Qaeda's leadership has its own considerations. In light of the fact that a WMD attack might cause damage and a loss of public support in the Muslim world, it is likely to assume that this scenario will be executed in extreme conditions only, namely, when the time comes to 'change the rules of the game' – such as in the case of the well-planned, coordinated and unprecedented attacks of 9/11. No other terrorist attack before or after 9/11 has exceeded even one tenth of that magnitude. Following these attacks, the conduct of international relations was significantly changed. Since September 2001, the U.S. and its allies are investing enormous budgets into the War on Terror. Despite this Al-Qaeda is broadening its influence.

Therefore, the next mega-attack will probably occur when there will be a renewed need to change the reality of international relations and move to a new stage of the struggle. For example,

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[34] Anat Kurz, "Non-Conventional Terrorism: Availability and Motivation" Strategic Assessment, *INSS*, March 2005, Vol. 7 No. 4.

if Al-Qaeda's leadership finds itself with its back to the wall, a new and successful mass destruction attack on U.S. territory, possibly using CBRN materials, might again radically shock the world perceptions of American power. In order to achieve such an impact, the 9/11 attacks did not target a random shopping mall or even public transportation during rush hour, but the carefully chosen highest symbols of the American governance, security and economics. Hence, it is important to emphasize that as with the 9/11 attacks, in such a case the target for a WMD attack will most likely be high profile, symbolic and of a critical nature.

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Atoms for Peace and the Nonproliferation Treaty: An Unintended Consequence

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Abstract: *Radioactive sealed sources have a long history of use and a much wider distribution worldwide than weapons-grade fissile materials. Through comparing such materials to sources, this paper will provide five key reasons for enhanced policy attention on safe and secure source management. 1) Weaponisation: Sources, used in the form of a radiological dispersal device (RDD), could have potentially devastating economic and public health impacts, yet creating an RDD is much easier than fashioning a nuclear weapon from raw materials or stealing one intact. 2) Incidents: There are many well-documented accounts of diversions and misuse of radioactive materials from regulatory control. Of further concern, the number of radiological diversion incidents is probably under-reported and rising, IAEA reporting requirements are inadequate. 3) Security of Materials: The burden of securing sealed sources often falls on the owner of the source, who may lack a viable disposal pathway at the end of the lifecycle. International variances in requirements for source management make their security much more difficult. 4) Accountancy: Unlike weapons-useable materials, it is difficult or impossible to determine the total amount of sources manufactured and distributed in each country, much less worldwide. 5) Import/Export Controls: Unlike weapons-useable materials, disused sources are constantly found illegally transiting borders, with little media attention and varying penalties. Also the supply and demand of sources, being market-based, are very dynamic, and the regulations are designed for their rapid commercial distribution.*

Keywords: *Radioactive sealed sources (sources), weapons-useable materials, source management, IAEA, NPT.*

Introduction

In April 2009, US President Barack Obama revived nonproliferation and arms control efforts with a speech calling for the worldwide abolition of nuclear weapons. His speech rightly acknowledged

the threat of nuclear terrorism and the vulnerabilities of related unsecured nuclear materials. Unfortunately, the Obama administration and many policy-makers worldwide have not provided the appropriate emphasis on the threat posed by at-risk radioactive materials. Scant attention has been given to the threat posed by the enormous quantities of radioactive sealed sources (sources)[1], which have already been widely distributed globally; this threat has been allowed to increase for decades and has only recently become of political interest as a security issue. Though they continue to remain a perilous threat to the international community, disused or orphan sources and the inherent threat they pose have scarcely been reported by news organizations and have been excluded from most nonproliferation policy discussions.

Background

Starting in the mid 1950s, US President Dwight D. Eisenhower's Atoms for Peace initiative promoted the spread and use of the paradoxically beneficial yet destructive properties of the atom. Sources have a long history of use and a much larger distribution worldwide than weapons-grade fissile materials (weapons-useable materials).[2] Pair this with their broad ranges in isotopes/activities along with minimal mechanisms and barriers facilitating their safe and secure management, and it is not difficult to envision a deadly threat.

Nonproliferation efforts have a well-documented history of focusing on weapons-useable materials and other key materials (chemical and biological) and associated technologies used in a Weapon of Mass Destruction (WMD). One example of how nuclear weapons can overshadow other important threats is how nuclear topics have remained the focus of negotiations and the public war of words with the Democratic People's Republic of Korea (DPRK, or North Korea), while the topic of the perilous threat of the DPRK's stockpiles of chemical/biological weapons is rarely broached.[3] Such intense focus on WMD-related materials/technologies is essential for international safety and security; however, the perception that high-activity sources are of little concern is dangerous. In fact, in the not-so-distant past, radiological weapons were once considered potential WMD material, and the United States and Soviet Union both proposed their prohibition in both the United Nations General Assembly and the then Committee on Disarmament. Nonproliferation threat perceptions appear to be based solely on the scale of the consequences of a WMD event and proliferation concerns without significant consideration of the likelihood of a non-state actor or insider acquisition and misuse of the materials.

Arguments that attempt to minimize or divert attention away from sources may have the effect of distracting necessary policy attention on preventing/mitigating radiological dispersal events. The terrorist attacks on 9/11 should be a clear reminder of the inherent danger of downplaying

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[1]   High-activity sources are IAEA Category 1 and 2 sources; Category 1 sources are those that if mismanaged with short-term exposure give an acute dose resulting in death or permanent injury; Category 2 sources have the same effect, but require longer-term exposure.

[2]   For the purposes of this article, weapons-useable materials are uranium (U) with concentration of over 90% of the isotope ^{235}U (HEU) and plutonium with more than 90% of the isotope ^{239}Pu.

[3]   Ashton B. Carter and William J. Perry, *Preventive Defense: A New Security Strategy for America*, Brookings Institution Press, Washington, DC, 1999.

perceived lower-level threats. While attention should not be diverted from vulnerable weapons-useable materials, the existence of unregulated sources should be a top concern in every country's evaluation of global threats. Through comparison of weapons-grade, weapons-useable materials and source management, this paper will provide five key, yet not all inclusive, reasons for enhanced policy attention on safe and secure source management.

Weaponisation

There are many security (i.e. Permissive Action Links, or PALS) and technical complications (i.e. Criticality) associated with fashioning weapons-useable materials into and detonating a nuclear weapon.[4] Mitigating all possible or likely terrorist attacks is impossible; however, weaponised sources, in the form of radiological dispersal or radiation-emitting devices (RDD/RED), have been a declared target material of Al-Qa'ida.[5] An RDD is a device or mechanism that is intended to spread radioactive material from the detonation of conventional explosives or other means. RDDs are considered weapons of mass disruption; few deaths would occur due to the radioactive nature of the event, but significant negative social and economic impacts could result from public panic, decontamination costs, and denial of access to infrastructure and property for extended periods of time. An RED is a device whose purpose is to expose people to radiation, rather than to disperse radioactive material into the air, as an RDD would. Several expert studies have demonstrated the potentially devastating economic, psychological and public health impacts of terrorist use of an RDD in a metropolis.[6] The development of such a weapon, from the acquisition of the radioactive material to the technical knowledge needed to fashion it into an RDD, is much easier than diverting enough weapons-useable materials for the fabrication or theft of an intact nuclear weapon.

Incidents

Undoubtedly, weapons-useable materials that are unaccounted for, especially in a form amenable to the development of a nuclear weapon, are of grave concern. Losses of control of weapons-useable materials or even intact weapons have occurred, and these incidents are rightly given utmost priority. However, there are many well-documented accounts of accidental and purposeful

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[4]   Michael Levi, "Using Murphy's Law Against Terrorists", in *On Nuclear Terrorism*, Boston, Harvard University Press, 2007, p. 224.

[5]   In January 2003, British officials discovered Al-Qa'ida training manuals on detonating a dirty bomb along with actual radioisotopes necessary for this at a nuclear laboratory in Herat, Afghanistan. Statements from Abu-Zubaydah that Al-Qa'ida already had this capability were made in 2002.

[6]   Examples are the following: B. Reichmuth, S. Short, and T. Wood, "Economic Consequences of a Rad/Nuc Attack: Cleanup Standards Significantly Affect Cost", PNNL-SA-45256, Richland, Washington, USA, Pacific Northwest National Laboratories, 2005. Tom Cousins and Barbara Reichmuth, "Preliminary Analysis of the Economic Impact of Selected RDD Events in Canada", presentation at the CRTI Summer Symposium 2007, Gatineau, Quebec, 11-14 June 2007 (CRTI 05-0043RD).

diversions of radioactive materials from regulatory control.[7] As of the end of 2008, the International Atomic Energy Agency's (IAEA) Illicit Trafficking Database logged 1,562 incidents, of which 18 included weapons-grade nuclear materials. As much as 66% of the radioactive material involved in these incidents had not been recovered. Since 2004, there has been a 75% increase in reported incidents of unrecoverable radioactive material, much of which is labelled "dangerous" with the potential for deterministic health effects if misused. [8]

One study looking at five known databases that track diversions of radioactive materials determined that the majority of reported events involve unknown materials of unknown origin.[9] Although withholding details of a reported theft or loss of sources could be intentional, it might also be the result of poor regulatory reporting or a lack of concrete information about many individual events. The incidents reported to the IAEA database rely solely on voluntary state reporting; therefore, the actual number of lost or stolen sources is likely much higher. As it would improve the IAEA's ability to trend incidents and facilitate the modelling of illicit trafficking pathways, IAEA member states should be required to report losses of control of sources or weapons-useable materials to the IAEA database.

Security of Materials

Aside from poorly secured HEU at the remaining research reactors that have yet to been converted to LEU and growing stockpiles of separated civilian plutonium, weapons-grade weapons-useable materials are usually protected through national security mechanisms. The burden of securing sealed sources, however, often falls upon the owner of the source. These source owners may not have a viable disposal pathway once the source reaches the end of its useful life. The disposal problem is exacerbated by some source owners lacking the resources or the will to maintain safe and compliant source storage. Variances in each nation-state's requirements for licensing, transporting, and enforcing proper source management throughout their lifecycle makes their security on a global scale much more difficult.

Accountancy

Scrupulous attention is paid to protecting and accounting for even gram quantities of weapons-useable materials. Although there are significant issues with weapons-useable materials, such as hold-up (i.e. materials unaccounted for in the U enrichment process), accounting for total legacy

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[7]   The Nuclear Regulatory Commission's "Event Notification Reports" are updated daily, and nearly every day of the year at least one source falls out of regulatory control (http://www.nrc.gov/reading-rm/doc-collections/event-status/event/2008/).

[8]   "IAEA Information System on Illicit Trafficking and Unauthorized Activities Involving Nuclear and Radioactive Materials", IAEA Fact Sheet, 2007, 18 August 2009 (http://www.iaea.org/NewsCenter/Features/RadSources/PDF/fact_figures2007.pdf).

[9]   Charles Streeper, Marcie Lombardi, and Lee Cantrell, "Nefarious Uses of Radioactive Materials", *Proceedings of the 48th Annual Institute of Nuclear Management Meeting, 13-17 July 2008: Session D Nonproliferation & Arms Control: Global Threat Reduction Initiative-Protect II*, INMM, Omnipress, 2007.

production of weapons-useable materials, etc., at least an attempt is made to scrupulously account for these losses. The US only started tracking high-activity Category 1 and 2 sources in 2009. It is difficult, if not impossible, to determine the total amount of sources manufactured and distributed in each country, much less worldwide. This inability to account for total source production is due at least in part to a lack of early production data or original records from source manufacturers that have gone out of business and a reluctance of current manufacturers to provide historic and current data on their source production for proprietary reasons. However, it is important to note that some past source manufacturers have been forthcoming in providing this information, and so efforts to encourage a methodology for governments to obtain this data from current manufacturers without compromising vital business information should be explored.

Export/Import Controls

Weapons-useable materials and technologies related to their development and delivery vehicles are controlled by a very limited set of restrictive supplier states/groups, and further controlled by international treaties, organizations, and nuclear weapon-free zones that tightly regulate supply and severely penalize their abuse. Not only is punishment meted out to those who attempt to circumvent these restrictions, but nation-states are also subject to international pressure and scrutiny based on breaking internationally established norms. In contrast, disused sources are constantly found illegally transiting borders, and their detection at most results in a news article or regulatory report followed by varying degrees of prosecution. Unlike weapons-useable materials, the supply and demand of sources, being market-based, are very dynamic. Exports and imports of sources are also regulated, but it is clear that the regulatory framework is designed for their rapid commercial distribution. Once the source has been distributed, more often than not, it becomes the property and responsibility of the recipient, and many countries' regulations have restrictions on the return import of the source, as they will not accept radioactive "waste" from other countries. Distribution of sources in a timely manner to the source owners is essential to public health, but timely return or proper disposal of those same sources, once they have outlived their usefulness, is also vital to international security. Concrete steps to ensure effective and economical source repatriation and disposal would be an excellent step towards responsible source management. Although this effort will require changes in the current policies and regulations of some source-manufacturing nations, the source owners should also be included in bearing some of the burden of repatriation.

Recycling

Weapons-useable materials – primarily HEU-downblended to low-enriched uranium (<20%) – also benefit from the capability to be reintroduced to the fuel cycle and burned in reactors. Although some sources can be recycled, this is often cost-prohibitive or unavailable, as when the manufacturer has gone out of business. The safe and secure removal of sources is often fraught with barriers such as a lack of disposal/storage pathways, transportation challenges, refusal of repatriation by the source manufacturer/nation-state, and others. Although the disposal of weapons-useable materials also faces enormous challenges, there is at least an enormous effort taking place to mitigate the problem.

IAEA

The IAEA was established in 1957 with a statute that mandated safeguards to assure the non-diversion of weapons-useable materials to military purposes. This was reinforced by the adoption of the Treaty on the Nonproliferation of Nuclear Weapons (NPT), which attempted to include all nation-states to ensure harmonized application of safeguards to prevent further proliferation of nuclear weapons. Normative security of radioactive sources exists, but it varies in each nation-state through non-legally binding, loosely implemented recommendations provided by IAEA Technical Documents (Tec-Docs)/Information Circulars (INFCIRCs) and other cooperation, such as international consultations on best practices and physical protection upgrades. Of course, those states that voluntarily implement IAEA suggestions and attempt to responsibly manage their sources with changes to their laws and regulatory systems do make legally binding commitments, but these too are voluntary and the IAEA does not have a mandate to enforce or oversee their implementation. Most recent IAEA numbers reflect that 95 out of the total 150 IAEA member states have declared a commitment to implementing the IAEA "Code on the Safety and Security of Radioactive Sources" (Code), of which only 53 stated they would harmonize their management of sources with the Code's guidelines.[10]

The 2004 Code and the supplementary 2005 "Guidance on the Import and Export of Radioactive Sources" (Guidelines) that followed were approved by the IAEA Board of Governors and General Conference and were meant to create a voluntary framework for source management and to harmonize related import/export controls. In 2006, a mechanism was established to provide information exchanges, share lessons learned, and to evaluate implementation of the Code. As the IAEA does have a mandate to ensure the peaceful uses of nuclear energy and sources are a direct by-product of nuclear energy, there should be increased funding and political will towards IAEA enforcement and oversight of the above-mentioned commitments. Although the Code does provide language suggesting regulatory authority for the repatriation and safe and secure storage/management of sources, it does not require that member states develop or outline end-of-life disposition strategies for sources. This leaves the sustainable long-term management of sources an open question.

Effect of the NPT

The NPT is a deftly negotiated settlement between Nuclear Weapon States (NWS) and Non-Nuclear Weapon States (NNWS). The NPT is meant to prevent the proliferation of nuclear weapon-related technologies and has been signed and ratified by nearly every country in the world. Despite the honourable intentions and necessity of the NPT as a crucial pillar in the nonproliferation regime, it also has had the unintended effect, through Article IV, of creating an obligation on NWS to share peaceful technology (sources with varying activity levels) worldwide. Article IV of the NPT requires "the fullest possible exchange of equipment, materials and

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[10] Steven McIntosh, International Atomic Energy Agency, *Technical Meeting on Implementation of the Code on the Safety and Security of Radioactive Sources with Regards to Long Term Strategies for the Management of Sealed Sources*, Vienna, International Centre, 2009.

scientific and technological information for the peaceful uses of nuclear energy…with due consideration for the needs of the developing areas of the world." The above commitment, combined with Atoms for Peace and the IAEA Statute, has led to the almost unrestricted global distribution of sources. As nearly all source manufacturers/distributors are official NWS under the NPT or states with existing advanced nuclear technologies, limits of supply might also threaten one of the NPT's core compromises (full exchange of peaceful nuclear technologies) made by NWS to NNWS and further erode the already contentious relationship.

Article VI of the NPT promotes complete disarmament of nuclear weapons, and many other treaties, agreements, governments and non-profit organizations dedicate enormous resources to reducing the amount of weapons-useable materials worldwide.

For sources, there is no legally binding equivalent to the NPT, nor to each signatory state's obligations under the NPT. The NPT has been criticized by some for its loopholes, but at least it exists as a foundation that has been built upon for decades. The Code and its Guidelines are positive steps towards a framework for safe and secure management of cradle-to-grave source lifecycles. The drawback is that because the Code is meant to only provide guidelines, it lacks the legal weight and enforcement mechanisms that a treaty provides. As a legally binding agreement may impose unrealistic goals on many IAEA member states, guidelines may be the most desirable approach. However, as the chairman's report of the 2009 Technical Meeting on Implementation of the Code suggested, harmonization of many aspects of the guidance among not only the member states, but all entities involved in source management, should be a priority.[11] Therefore, either multilateral or IAEA involvement in Code implementation should be a priority.

The problems in enforcement of the NPT through IAEA-mandated safeguard agreements, export control, and other international/national regimes and initiatives pale in comparison with the problems associated with voluntary implementation, reporting, and oversight of sources solely through each nation-state's regulatory framework and the Code. The scope of the problem – unquantifiable amounts of sources in nearly every country worldwide – is indicative of the necessity for a more comprehensive international effort to manage the situation.

Global Issue

Although weapons-useable materials and sources both have the issue of accumulating growth worldwide, weapons-useable materials are generally stockpiled and accounted for, and tremendous efforts towards their disposition are underway. HEU downblending and Pu reprocessing/ conversion to mixed oxide fuel for re-use in reactors are just a few of the nuclear fuel-related disposition methods already in progress. Separated civilian and military Pu stockpiles primarily reside in NWS,[12] as do 99% of total global stockpiles of HEU.[13] This demonstrates that weapons-

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[11] *Technical Meeting on Implementation of the Code of Conduct on the Safety and Security of Radioactive Sources with Regards to Long Term Strategies for the Management of Sealed Sources.*

[12] Exceptions are Israel, India, Pakistan and North Korea; however, their stockpiles total far less than those declared by the NWS.

useable materials tend to remain in countries with advanced nuclear programs and therefore benefit from established security, accounting, and control mechanisms. Alternative technologies to replace high-risk sources continue to be explored, but most of these are not cost effective or technically feasible.[14]

Although the importance of protection, control, and accountancy of weapons-useable materials is vital, the reasoning behind unanimous support for their nonproliferation should also have been applied to radioactive sources long ago. As a result of the ubiquitous nature and undeterminable number of current and legacy sources distributed, some are likely to be or will be abandoned, lost or stolen, or otherwise fall out of regulatory control. Disused and orphan sources are not only an issue for developing nation-states, but are truly a global phenomenon. For example, in the US alone, there are estimates of 5,000 devices (i.e. teletherapy heads, irradiators) containing 55,000 high-activity sources; tens of thousands of smaller sources are owned by the NRC and state licensees.[15] Worldwide there are likely millions of sources of varying activities and isotopes.

Source distributors rely solely on each nation-state's national regulatory agency, which may or may not exist or have effective enforcement mechanisms, to ensure that the end user will manage and dispose of the source properly. Compounding this issue, attempts to restrict the supply of sources to any nation-state would likely have immediate and long-term deleterious consequences to public health. Therefore, as suggested by Charles Ferguson's Occasional Paper 11, the quickest immediate relief to the issue of the global oversupply of sources would be for the IAEA to continue assisting states in improving their regulatory infrastructure.[16]

The Path Forward

The complementary relationship that exists in a strong commercial interest in supplying sources and the high demand for sources among end users must be addressed to ensure that continued source usage does not lead to an increase in society's vulnerability to an accident or deliberate misuse of an RDD. The international community can depend neither on commercial mechanisms nor the inconsistent implementation of individual nation-state's regulatory systems to control the distribution of sources worldwide. This holds true for weapons-useable materials as well, but less so, as at least national export control systems and supplier groups are designed to prevent the dependence upon commerce alone as a control mechanism.

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[13] *Global Fissile Material Report 2008: Third annual report of the International Panel on Fissile Materials*, Program on Science and Global Security, Princeton, New Jersey, Princeton University, 2008, pp. 7-16.

[14] Committee on Radiation Source Use and Replacement.

[15] Committee on Radiation Source Use and Replacement, National Research Council, National Academy of Sciences, *Radiation Source Use and Replacement*, Washington, DC, The National Academies Press, 2008.

[16] Charles D. Ferguson, Tahseen Kazi, and Judith Perera, *Commercial Radioactive Sources: Surveying the Security Risks*, Occasional Paper No. 11, Monterey, California, Center for Nonproliferation Studies, 2003.

The first step in remediating the effects of historical bad habits is to recognize the behaviour itself and assess the consequences. A methodology for the repatriation, disposal, and/or secure storage of all sources that are currently manufactured and distributed worldwide should be a priority. The UN, through its member states, is the proper organization to initiate negotiations for a legally binding agreement that will provide the IAEA the expanded mandate to determine the aspects of the Code that should remain voluntary and those which require oversight in implementation. As the number of sources distributed and continuing to be produced worldwide is in the millions, the initial focus should be on high-activity Category 1-3 sources that appear in Annex I of the Code, which should be the first sources slated for increased IAEA oversight.

Both the recent Chairman's report of the Technical Meeting on Implementation of the Code and the subsequent IAEA General Conference resolution call upon member states to identify and develop secure central storage/disposal facilities, address obstacles to the repatriation of sources to the supplier/state, and improve information sharing between member states. These suggestions by the General Conference are laudable and an excellent preliminary step towards proper source management at the end of their lifecycle.

The preamble of United Nations Security Council Resolution 1540 includes a statement that most states have bound themselves legally to their responsibilities under the Code. However, it does not call on remaining states to do so, and furthermore the resolution focuses on only on nuclear, chemical, and biological materials, completely by-passing radioactive materials. Nonproliferation policy specialists from governmental and non-governmental organizations need to assess the potential consequences of allowing the problem of continually unchecked distribution of sources worldwide. News organizations and policy debates need to begin to incorporate the source threat in their dialogue.

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NATO Peacekeeping in Afghanistan: Expanding the Role to Counterinsurgency or Limiting it to Security Assistance

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Abstract: *Afghanistan, with its reputation as the "graveyard of empires", has become the world's most important security zone since the 9/11 attacks. This incident not only brought Al-Qaeda to the forefront of the international agenda but also made Afghanistan a central theatre in the fight against terrorism. This process also coincided with NATO's attempts to adjust and adapt itself to the new circumstances and challenges of the post-Cold War era. By deploying its forces to Afghanistan, NATO assumed a serious responsibility. NATO not only went "out of area", but also expanded the features of its involvement to an increasingly offensive role. International involvement in Afghanistan aims to help the country survive, stabilise and develop. The existence of a Janus-headed international military structure and involvement – in the form of the US-led Coalition Forces and the NATO-led ISAF – make the international efforts more complicated though not necessarily effective.*

Introduction

The attacks of September 11, 2001 constituted an important turning point in the already transforming state of international security problems and international politics in general. This incident not only brought Al-Qaeda to the forefront of the international agenda but also made Afghanistan a central theatre in the fight against terrorism. This process also coincided with attempts by the North Atlantic Treaty Organization (NATO) to adjust and adapt itself to the new

circumstances and challenges of the post-Cold War era. As the nature and intensity of conflicts that could jeopardise international peace and security change, methods of coping with new threats also have to change. Stabilisation efforts consisting of peacekeeping became less adequate in dealing with international and destabilising intra-state conflicts, thus paving the way for deeper international involvement that supersedes the limited features of peacekeeping operations.

This article focuses on changes in methods of managing conflicts, in particular the evolution of peacekeeping and how the international community and particular states have toughened their stances and moved their approaches closer to counterinsurgency. Afghanistan has been one of the few hot spots that got worse over time and thus required new approaches. International involvement with its Janus-headed presence in Afghanistan in the form of the Coalition Forces doing the actual fighting and the United Nations-led stabilisation presence, responsibility for which was later transferred to NATO, has proven to be quite ineffective. The article will also evaluate the international involvement in Afghanistan, in particular that of NATO.

The Evolution of Peacekeeping from its Innovation to Afghanistan

At the dawn of the twentieth century, thoughts about how to define "war" and "peace" were different from those in mid-century. With the foundation of the United Nations in 1945, the definition of peace changed to the opposite of that of war, in essence. Ironically, UN attempts to help prevent war in the international system moved the concept of peace closer to the use of force. After that period, in addition to diplomats, peace became more and more the job of the military due to the innovation of peacekeeping.

After the Second World War, the new international system, which was created by foundation of the United Nations, aimed to avoid wars between states and create an environment conducive to sustaining peace and stability. According to the rules of the new international system laid out in the United Nations Charter, disputes between members of the UN should be settled through negotiation, enquiry, mediation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of the members' own choice.[1] Basically, there are two main methods of settling disputes in the international arena. The first is diplomacy, and the other is war. In fact, in the UN Charter, the term "use of force" is preferred to the term "war". During the post-war establishment of international mechanisms, these methods were placed in Chapters VI and VII of the Charter. In addition to these chapters, there are also other articles related to peace in Chapters IV and V. Chapter IV, on the General Assembly, contains Articles 11 and 14 under the "Functions and Powers" sub-heading. The first article has to do with maintaining international peace and security, and the second is focused on "the peaceful adjustment of any situation". Additionally, Articles 22 and 29 state that the General Assembly and the Security Council "may establish such subsidiary organs as they deem necessary for the performance of its functions".

There are two main chapters in the Charter on settling disputes between parties: Chapter VI, entitled "Pacific Settlement of Disputes", and Chapter VII, entitled "Action with Respect to Threats to the Peace, Breaches of the Peace, and Acts of Aggression". Chapter VI covers

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[1]   Charter of the United Nations, Chapter VI, accessed 14 May 2009 (http://www.un.org/aboutun/charter/).

diplomatic efforts including negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, and other peaceful means of the parties' own choice. On the other hand, Chapter VII covers use of force with the authorization of the UN Security Council and as an exceptional self-defence. Thus, Chapters VI and VII are the two methods of the UN system for dispute settlements; diplomacy on one side of the coin, and the use of force on the other. The lack of any other methods for settling disputes is regarded as a shortcoming of the UN system.

There have been several discussions on reorganize the UN Charter, some of which would involve adding peacekeeping operations to the document.[2] In fact, the main reason for these discussions is the lack of any possibility of settling disputes only with the procedures shown in Chapters VI and VII. Basically, peacekeeping was an innovation for settling disputes at the beginning of the Cold War due to the insufficiency of the UN Charter's limited definitions and procedures for responding to the security threats of the new era.

There are various approaches to peacekeeping. Wiseman defines peacekeeping as "…not an end but a means to an end".[3] According to Evans, it is the "mechanism to assist the ongoing peace making process".[4] In fact, the objective of traditional peacekeeping is to create a chance for conflict resolution and diplomacy by showing a presence in conflict areas during armistices. On the other hand, during the Cold War, "peacekeeping operations symbolise[d] the international community's will for peace and represent the impartial, practical expression of that will", according to then UN Secretary-General Perez De Cuellar, who won the Nobel Peace Prize in 1988 for the UN's peacekeeping operations.[5]

Essentially, after the Second World War, the collective security system should have functioned in line with Chapter VII of the UN Charter. Due to the failure to establish a Military Staff Committee[6], peace operations[7] were co-spearheaded in 1956 by then UN Secretary-General Dag

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[2]   For more information on discussions about UN reform, see http://www.un.org/reform/, accessed 10 March 2009.

[3]   Henry Wiseman, *Peacekeeping: Appraisals and Proposals,* Pergamon Press, New York, 1983, p. 210.

[4]   Gareth Evans, *Cooperating for Peace: The Global Agenda for the 1990s and Beyond*, Australian Print Group Evans, Australia, 1993, p. 100.

[5]   Javier Pérez de Cuéllar, "Acceptance Speech of the Award of the 1988 Nobel Peace Prize" Oslo, accessed 18 May 2009 (http://nobelprize.org/nobel_prizes/peace/laureates/1988/un-acceptance.html).

[6]   Article 43 defines the Military Staff Committee as follows "1. All Members of the United Nations, in order to contribute to the maintenance of international peace and security, undertake to make available to the Security Council, on its call and in accordance with a special agreement or agreements, armed forces, assistance, and facilities, including rights of passage, necessary for the purpose of maintaining international peace and security.

"2. Such agreement or agreements shall govern the numbers and types of forces, their degree of readiness and general location, and the nature of the facilities and assistance to be provided.

"3. The agreement or agreements shall be negotiated as soon as possible on the initiative of the Security Council. They shall be concluded between the Security Council and Members or between the Security Council and groups of Members and shall be subject to ratification by the signatory states in accordance with their respective constitutional processes."

Hammarskjöld and Canadian Foreign Minister Lester Pearson.[8] This innovation was also useful for protecting the balance of power in the bipolar world.[9] During the Cold War, the superpowers' face-off was the most significant threat to peace and security in the global arena. At that time, the main purpose of traditional peacekeeping was to prevent the status quo from descending into war. In short, the innovation of peacekeeping helped to preserve the balance of power.

In 1956, during the Suez Crisis, a resolution[10] called "Uniting for Peace" was passed by the UN General Assembly, rather than the Security Council, due to the presence of two of the crisis' actors as permanent members of the Council. The UN Emergency Force (UNEF) was deployed soon after the resolution, and it was not only the first peacekeeping force but also the model for all other peacekeeping missions. The main principles of peacekeeping were laid out by Hammarskjöld in his report for UNEF in 1958.[11]

During the Cold War, there were thirteen UN peacekeeping operations around the world.[12] The main principles of traditional peacekeeping are: consent, impartiality and the non-use of force, except for self-defence. In more detail, the first principle is that UN peacekeeping forces need the consent of the host state to ensure that the operation is not coercive. According to the second principle, the mission must not favour one side over the other. And the third is that the military units are not allowed to use force, except in self-defence. Consequently, peacekeeping forces do not have regular military missions. But in the 1990s, these principles became inadequate to cope with new challenges. With the end of the Cold War, new wars became more internal, and in these wars, parties were not divided into separate camps or blocs. This made getting consent from legitimate governments harder. The cases of Congo, Bosnia and Somalia were typical examples of confronting problems through traditional peacekeeping. Since the end of the Cold War, UN forces have struggled with the traditional principles of peacekeeping, as increasing violence and massacres in conflict zones damaged the principle of non-use of force. The principle of impartiality was likewise damaged. At the same time, the problem of the legitimacy of governments in such conflict areas also made the principle of consent problematic.

Patrolling, observing, buffering, interpositioning, monitoring, and protecting are missions of peace operations, which exclude war missions. Since peacekeepers were "soldiers without

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In this article, "peace operation" is used as a general term designating such activities as peace support, peacekeeping, peace-making, peace building, peace forcing, etc.

[8] John W. Holmes, "The Political and Philosophical Aspects of UN Security Forces", *Peacekeeping: Experience and Evaluation*, ed. Per Frydenberg, Norwegian Institute of International Affairs, Oslo, 1964, p. 285.

[9] Inis L. Claude, *Power and International Relations*, Random House, New York, 1962, pp. 283-284.

[10] "Uniting For Peace", *United Nations General Assembly Resolution 377A*.

[11] United Nations General Assembly Document A/3943, New York, 1958.

[12] For a detailed history of past and ongoing UN peacekeeping operations, see the website of the UN Department of Peacekeeping Operations, accessed 14 May 2009 (http://www.un.org/Depts/dpko/list/list.pdf).

enemies", they used to carry only light weapons.[13] The main characteristic of peacekeeping during the Cold War was conflict management, not conflict resolution.[14] In the 1990s, while the number of wars between states as main actors began to fall, the number of conflicts among non-state actors rose.[15] On the one hand, these changes forced peacekeeping operations to change due to traditional peacekeeping principles' lack of effectiveness. On the other hand, the number of peacekeeping operations increased due to the disappearance of bipolarity in the international system. The main difficulty for peace operations during the post-Cold War era has been governments' reluctance to consent to participation in missions dealing with domestic disputes.

Basically, the UN Operation in Congo (ONUC[16], 1960-1964) was the unique example of a Cold War era peacekeeping mission that departed from the traditional principles. Soon after Belgian colonial administration ceased in Congo, the new Congo government asked the UN Security Council to set up a UN mission to assist it until law and order were established in the country.[17] ONUC began as a peacekeeping mission and continued as a peace enforcement mission. This was the first peacekeeping mission which later transformed into a peace enforcement mission, deviating from UN principles and transferring the scope of the mission from Chapters VI and VII. The second example of such a mission was the UN Mission to Somalia (UNOSOM), the first such mission in the post-Cold War era.[18] In the same vein, the UN Security Council decided to protect civilians in Sierra Leone and gave "use of force" authorization to the UN Mission in Sierra Leone (UNAMSIL) in 1999.[19] UNAMSIL showed the uncertainty that post-Cold War armed conflicts cause civilian victims in internal conflicts, thus bringing human rights to the fore of peacekeeping forces' concerns. Furthermore, the definition of humanitarian aid also changed because the peace missions' forces had to wage armed confrontations with combatant parties.

The collapse of states as a result of domestic conflicts constitutes another difficulty for peace operations. The increase in the number and intensity of internal conflicts in the post-Cold War era pushed peace operations to become more and more complex.[20] In fact, the problems created by

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[13] Oliver Richmond, "UN Peace Operations and the Dilemmas of the Peacebuilding Consensus", *International Peacekeeping,* Vol. 11, No. 1, 2004, pp. 83-101.

[14] Conflict management and conflict resolution are closely interrelated, but at the same time they differ from each other on some points. Conflict management's objective is to facilitate dispute or conflict without necessarily solving it, whereas conflict resolution's objective is to resolve it. On the other hand, conflict management is focused at a state level, whereas conflict resolution is on an individual level.

[15] Haldun Yalçınkaya, *Savaş: Uluslararası İlişkilerde Güç Kullanımı (War: The Use of Force in International Relations)* İmge Kitabevi, Ankara, 2008, pp. 353-357.

[16] Organisation des Nations Unies au Congo (ONUC), United Nations Operation in the Congo.

[17] Nigel D. White, "UN Peacekeeping - Development or Destruction?", *International Relations*, Vol. 12, No. 1, 1994, p. 149.

[18] Thomas R. Mockaitis, "From Counterinsurgency to Peace Enforcement: New Games for Old Games?", *Peace Operations between War and Peace*, Erwin Schmidl, ed., Frank Cass, London, 2000, pp. 25-26.

[19] UN Mission in Sierra Leone (UNAMSIL). SC Res. 1270 of 22 October 1999, accessed 7 March 2009 (http://daccessdds.un.org/doc/UNDOC/GEN/N99/315/02/PDF/N9931502.pdf?OpenElement).

[20] Boutros Boutros-Ghali, *An Agenda for Peace: Preventive Diplomacy, Peacemaking and Peacekeeping,* United Nations, New York, 1992, pp. 7-9.

failed states and state-built processes led to an expansion of peace operations' scope and content. Basically, second-generation peacekeeping evolved as peace-building, while discussions on third-generation peacekeeping, including peace enforcement, followed the course of the agenda of world politics.[21] The complexity of peacekeeping during the post-Cold War era also led to the establishment of a new position for peacekeeping command within the UN, as special representatives to the secretary-general replaced military commanders at the helm of such operations.[22] As a result of this process, the conduct of second-generation peacekeeping actually moved the contents of the missions from the "virtual" Chapter VI ½ closer to Chapter VII. This is why arms and the presence of peace operations in the field have been in transition from light to heavy.

If the attention is focused on the classification of peacekeeping, two different approaches come to the fore via two prominent international institutions: the UN and NATO. The UN offers four areas for action towards securing peace: preventive diplomacy, peacekeeping, peacemaking and post-conflict peace building.[23] That is to say, the UN puts these four areas under the umbrella rubric of "peacekeeping". NATO calls peacekeeping a peace support operation, unlike UN terminology. NATO's peace support operations are classified into six types: conflict prevention, peacemaking, peacekeeping, peace enforcement, peace building and humanitarian relief.[24] The case of the former Yugoslavia, we should note, was the threshold for NATO peace support operations. Due to the necessity for a coercive approach in that situation, NATO, in order to implement the diplomatic wishes of the USA, handed over UNPROFOR as an Implementation Force (IFOR), so that NATO transformed its strategy into one suitable for peacemaking.[25]

In his 1992 report *An Agenda for Peace*, written after the experiences of Somalia and Bosnia, then UN Secretary-General Boutros Boutros-Ghali pointed to the need to improve peacekeeping. Basically, the classification of the UN represents the second generation of peacekeeping. On the other hand, NATO's classification covers peace enforcement, which is closer to the UN Charter's Chapter VII than first- and second-generation peacekeeping operations, which are relatively closer to Chapter VI. It must be noted that peace enforcement has more military objectives than either

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[21] Uğur Güngör, *The Analysis of Turkey's Approach to Peace Operations*, unpublished doctoral thesis, Bilkent University, Ankara, February 2007, p. 77.

[22] During the Cold War era, peacekeeping missions used to be mainly military operations, so they were led by military commanders. These commanders received political directions indirectly from UN headquarters. Then when the special representative of the secretary-general (SRSG) position was created, the new generation of peacekeeping missions were placed under their leadership. This move made operations more effective. Alvaro de Soto in Central America, Iqbal Riza in el Salvador, Aldo Ajello in Mozambique and Lakhdar Brahimi in a couple of missions became the first UN personnel to serve in the SRSG posts. Malone, David M and Karin Wermester. 2000. "Boom and Bust? The Changing Nature of United Nations Peacekeeping", *International Peacekeeping*, Vol. 7, No. 4, p. 40.

[23] Ghali, *ibid.*

[24] *Peace Support Operations*, Allied Joint Publication 3.4.1, North Atlantic Treaty Organization, Brussels, 2001.

[25] Hilaire McCoubrey and Justin Morris, *Regional Peacekeeping in the Post-Cold War Era,* Kluwer Law International, The Hague, 2000, p. 67-76.

traditional or second-generation peacekeeping. Indeed, peacekeeping and peace enforcement are two different operations. The nature of peacekeeping requires obtaining consent, impartiality and the non-use of force, except for self-defence. Thus it must be emphasized that in the absence of law and order, peacekeeping can be very dangerous not only for the success of the mission but also for the safety of the troops. The changing character of war in the post-Cold War era pushed peacekeeping to transform itself in the 1990s to peace enforcement. In his *Supplement to an Agenda for Peace,* Boutros-Ghali recommended keeping the main principles of peacekeeping and also recommended, in case they were needed for enforcement, the establishment of coalitions composed of member states and regional organizations eager to participate.[26] His successor at the UN helm, Kofi A. Annan, also reaffirmed this approach in his "Programme for Reform".[27]

Counterinsurgency and the New International Environment

The nature of the incidents in the post-Cold War era introduced a new phase in the understanding of conflicts and warfare for states. Although traditional inter-state conflicts and wars have kept their prominent place in states' security conceptions, counterinsurgency has figured increasingly in states' agendas. This has been especially true since the 9/11 attacks, as the United States began to wage the so-called "war on terror" and became involved in counterinsurgency operations while tracking down the sources of the terrorist attacks. Although counterinsurgency is not an unfamiliar concept for states and their armed forces, in the historical perspective not all states have relevant experience, and whoever was involved in such warfare had diverse experiences in various forms and levels of intensity with insurgencies that took place in different regions of the world.

Both insurgency and counterinsurgency have gained prominence in contemporary academic studies on international security. Insurgency has been described as an important part of unconventional war or a form of "irregular conflict"[28] where conventional government armed forces are confronted with organized weaker adversaries that seek to challenge the security of a state with the aim of taking control of the country.[29] In a recent effort to develop a uniform approach for different departments and agencies within its structures, the United States government has defined an insurgency as "the organized use of subversion and violence to seize, nullify or challenge political control of a region".[30] The concept is also defined in the US Department of Defense Dictionary of Military and Associated Terms as "an organized movement

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[26] Boutros Boutros-Ghali, *Supplement to an Agenda for Peace*, 3 January 1995, New York, p. 33, accessed 7 March 2009 (http://www.un.org/Docs/SG/agsupp.html).

[27] Kofi A. Annan, Renewing the United Nations: A Programme for Reform, 14 July 1997, New York, para. 107, accessed 7 March 2009 (http://daccessdds.un.org/doc/UNDOC/GEN/N97/189/79/IMG/N9718979.pdf?OpenElement).

[28] Harald Havåll, *COIN Revisited: Lessons of the Classical Literature on Counterinsurgency and Its Applicability to the Afghan Hybrid Insurgency*, NUPI Report Security in Practice No. 13, 2008, p. 6.

[29] Thomas R. Mockaitis, *Iraq and the Challenge of Counterinsurgency*, Praeger Security International, Westport, 2008, p. 16.

[30] *U.S. Government Counterinsurgency Guide*, United States Government Interagency Counterinsurgency Initiative, January 2009, p. 6.

aimed at the overthrow of a constituted government through the use of subversion and armed conflict".[31] In the newly developed common counterinsurgency manual for the US Army and Marine Corps, this definition is referred to and further clarified as "an organized, protracted politico-military struggle designed to weaken the control and legitimacy of an established government, occupying power, or other political authority while increasing insurgent control".[32] The British Army's understanding of the term is "the actions of a minority group within a state, the intent of which is to force political change by means of a mixture of subversion, propaganda and military pressure, aiming to persuade or intimidate the broad mass of people to accept such a change".[33] From a broader perspective, insurgencies could also be subdivided into those that aim to seize power – revolutionary insurgencies – versus those with more specific aims of separation, autonomy, forcing a policy change, or obtaining concessions.[34] Most recently in the conceptualization of insurgency, its scope has been broadened to the widest level through the inclusion of "global insurgency", a term used to define insurgencies that supersede the national level and have global reach and influence beyond domestic borders. In this context, the existence of external actors and their involvement in the insurgencies also constitute important elements in the course of the insurgencies as well as the shaping of counterinsurgency activities.

Within the scope of insurgency, insurgents may adopt and apply various approaches and methods to achieve their goals, such as terrorism, subversion and irregular warfare. Governments, on the other hand, develop and apply measures to prevent insurgents from succeeding by countering insurgencies. Counterinsurgency involves coping with all types of actors and defeating them before they attain their goals. Government forces' efforts to keep the insurgents out of power have to cover a wide range of political, social and military grounds. As is apparent from reflections on many counterinsurgency experiences, any monolithic approach that neglects essential parts of the totality of this endeavour will eventually end in failure. It is also important that the decision-makers and implementers of counterinsurgency strategies are aware of their local insurgency's distinct environmental and population characteristics – features that its members constantly try to exploit to their advantage – and thus they must adopt an approach that takes into account social structures, culture, national values, and state-society relations.[35]

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[31]   US Department of Defense Dictionary of Military and Associated Terms, Joint Publication JP1-02, April 2001 (Amended October 2008).

[32]   *U.S. Army Field Manual FM 3-24 / Marine Corps Warfighting Publication MCWP 3-33.5*, December 2006, 1-1.

[33]   *Army Field Manual Vol. 1 Combined Arms Operations: Part 10 Counter Insurgency Operations Strategic and Operational Guidelines*, Army Code 71749, July 2001, A-1-1.

[34]   Steven Metz and Raymond Millen, *Insurgency and Counterinsurgency in the 21st Century: Reconceptualizing Threat and Response*, Strategic Studies Institute, November 2004, p. 2, and *Army Field Manual Vol. 1 Combined Arms Operation*, A-1-1.

[35]   John Mackinlay and Alison Al-Baddawy, *Rethinking Counterinsurgency*, RAND Counterinsurgency Study, Vol. 5, pp. 7-8.

In the historical context, insurgencies have always been countered by states; however they are defined using different terminologies. Small wars[36], Operations Other Than War[37], low-intensity conflict, asymmetric wars,[38] and revolutionary wars are all part of the language used to define similar phenomenon. Insurgencies came to the forefront in world affairs especially with the emergence of decolonisation and the bipolar Cold War competition in the wake of the Second World War. Old colonial states began to face challenges to their rule in various parts of the world. These challenges and revolutionary movements made use of the Cold War environment, which was conducive to transforming them into insurgencies.

Major Western powers began to encounter major insurgencies in their colonial areas such as the French in Indochina and Algeria or the British in Palestine, Malaya, Cyprus, Aden, Oman and then Northern Ireland, while the Americans were getting involved in Vietnam. The success of Mao Zedong and the communist insurgency in seizing power in China in 1949 and then the changing of the regime in Cuba 10 years later led to an escalation of nationalist and revolutionary movements against colonial rulers that in time became more and more central in international relations. As the insurgencies intensified, governments simply reacted to the circumstances in the field rather than acting in an organised, planned way in blocking the development of insurgencies.

Counterinsurgency operations at that time were performed by regular army personnel who were trained and equipped to fight in conventional wars and often resorted to excessive force in order to succeed. In the post-Second World War period, except for the clear instance of British success in Malaya, in various cases of insurgency, the insurgents in fact accomplished their goals and seized power or were able to continue their efforts. When the Western powers began adapting to the new way of fighting, it was too late to turn back the wave and most engagements ended badly. During this period, a number of Western scholars, many with extensive field experience in dealing with insurgencies, laid the groundwork for counterinsurgency strategies and literature. French army officer David Galula's case studies of counterinsurgency strategies[39] as well as

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[36] The early US armed forces term for the equivalent of today's insurgency operations was "small wars". The collective experiences of the interventions and expeditions of the American Army and Marines in Latin America and the Philippines from 1898 to 1940 can be found in the US Marine Corps' Small Wars Manual. The manual defines "small wars" from the US perspective as "operations undertaken under executive authority, wherein military force is combined with diplomatic pressure in the internal and external affairs of another state whose government is unstable, inadequate or unsatisfactory for the preservation of life and of such interests as are determined by the foreign policy of our Nation". *Small Wars Manual*, US Marine Corps NAVMC 2890, Reprint of 1940 Edition, p. 1. For further analysis of this period and the contents of the manual, see Mockaitis, 2008, pp. 27-34.

[37] The British Army uses this term to cover counterinsurgency as well as peacekeeping operations, which in their doctrine evolved to peace-support operations. *The Tactical Handbook for Operations Other Than War, Army Code 71658*, December 1998.

[38] The nature of the relationship between governments and insurgents contains an asymmetry, as the insurgents, the weaker side, try to balance their disadvantage by avoiding classical forms of armed conflict with regular armed forces.

[39] David Galula, *Counterinsurgency Warfare: Theory and Practice*, Praeger Security International, Westport, CT, [1964] 2006, and David Galula, *Pacification in Algeria: 1956-1958,* RAND Corporation, Santa Monica, [1963] 2006.

theoretical work and accounts of insurgencies by British officers such as Frank Kitson[40] and Robert G. Thomson[41] made important early contributions to the field. The writings and analyses of those authors about the successes and failures of military campaigns against the insurgencies are still considered valuable and continue to be sources of reference in understanding contemporary insurgencies as well as inspiration for developing new counterinsurgency strategies.[42] In particular, the British success in Malaya against the communist insurgents set an important example showing the need to develop specific strategies including winning over the people, applying effective amounts of force, and means besides military ones.[43] Despite the accumulation of experience on the part of Western countries that were involved in counterinsurgencies especially against revolutionary insurgencies[44], the transfer of these "classical insurgency" experiences to the theatres of modern insurgency was not easily accomplished. The classical environment for insurgencies was relatively plain in comparison to complex contemporary insurgencies. The slowdown of decolonisation and the decrease in revolutionary activities led to a relative decrease in the new insurgencies. Despite the continuation of some longstanding insurgencies, the focus on counterinsurgency approaches was limited and the experience gained from various counterinsurgency campaigns was transferred to new military staff in only a limited fashion.

The post-Second World War era also paved the way for the development and application of the peacekeeping concept in the international arena. Strictly neutral and codified peacekeeping operations with very restricted authorisation to use force had little in common with the counterinsurgency operations of individual states. Despite this divergence, as time passed and the Cold War came to an end, the new international environment led traditional peacekeeping to lose ground in comparison to a peacemaking approach embracing a less limited use of force by international forces under UN mandate. Particularly under circumstances that involve international interventions only to face hostile local reactions, the counterinsurgency experience became more and more relevant as the gap between peacemaking and counterinsurgency rapidly narrowed.

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[40] Frank Kitson, *Low Intensity Operations: Subversion, Insurgency and Peacekeeping*, Faber and Faber, London, 1971.

[41] Robert Grainget Ker Thompson, *Defeating Communist Insurgency: Lessons of Malaya and Vietnam*, Hailer Publication, Florida, [1966] 2005.

[42] Frank Hoffman argues that the most recent version of the US armed forces' field manual (*FM 3-24/ MCWP 3-33.5, December 2006)* is written in light of the above-mentioned classical counterinsurgency writers, and thus that it merges traditional approaches with contemporary realities which he describes as "neo-classical counterinsurgency". Frank Hoffman, "Neo-Classical Counterinsurgency?", *Parameters*, Summer 2007.

[43] Mackinlay and Al-Baddawy, pp. 10-12.

[44] About the learning curve of the US and British armies during their counterinsurgency operations in Malaya and Vietnam, see John Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam*, University of Chicago Press, Chicago, 2005.

Afghanistan: Rebuilding the State and the International Involvement

Alexander the Great, the British Empire, and the Soviet Union all fought to win Afghanistan and failed. Thus, Afghanistan earned a reputation as the "graveyard of empires".[45] Moreover, although Afghanistan attempted modernization at the beginning of the twentieth century, by the end of it this effort had also failed. Thus, the key word in the history of Afghanistan is "failure", not only for empires but also for the country itself. Hence, the history of Afghanistan is a dramatic lesson for all actors. This record makes the current situation more critical for the international community – mainly the UN, the West (in particular the US), the NATO allies, as well as Pakistan and other regional actors. The word "failure" has become the nightmare of all the actors that have been working to "build up" the state of Afghanistan since 2001.

Although Afghanistan had suffered from violence since the 1970s, with the beginning of the twenty-first century a new episode began both for Afghanistan and the international community. The 9/11 attacks in the US caused Afghanistan to become the centre of gravity for efforts against global terrorism, as it was a base of the Al-Qaeda terrorist organization, which was responsible for the attacks. This is why, soon after 9/11, the international community unanimously responded to that crisis. On 12 September 2001, the United Nations Security Council expressed "*support for the efforts of the Afghan people to replace the Taliban regime, while condemning for allowing Afghanistan to be used as a base for terrorism and for providing safe haven to Osama bin Laden, and authorized the UN member states -under Chapter VII of the Charter of United Nations- to take appropriate measures to tackle with international terrorism*".[46] Resolutions 1373 (28 September 2001) and 1377 (12 November 2001), followed by resolution 1386 (20 December 2001), continued to give support to international efforts to change the situation in Afghanistan.[47]

In addition to the UN, NATO invoked Article 5 for the first time and "declared its solidarity with the United States and pledged its support and assistance" within twenty-four hours of the terrorist attacks.[48] Besides broad international efforts, the United States led an international coalition that was established to overthrow the Taliban regime in Afghanistan. This coalition cooperated with local opposition forces and entered Kabul with the support of the main opposition Northern Alliance's militia forces within eight weeks of the start of attacks. Those attempts provoked the dual faces of the Afghanistan effort, including war and the country's post-Taliban administration. The Coalition Forces waged war against the Taliban under the umbrella of Operation Enduring Freedom (OEF), and an international effort was also simultaneously activated to ensure Afghanistan's security and development.

On 27 November 2001, the international community and all parties, including Afghan groups opposing the Taliban, gathered in Bonn under UN leadership. At the end of the meeting,

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[45] Milton Bearden, "Afghanistan, Graveyard of Empires", *Foreign Affairs*, November/December 2001.

[46] UNSC Resolution 1368, accessed 14 May 2009 (http://daccessdds.un.org/doc/UNDOC/GEN/N01/708/55/PDF/N0170855.pdf?OpenElement).

[47] Cited on the UN Security Council website; access 14 May 2006 (http://www.un.org/Docs/scres/2001/sc2001.htm).

[48] Adgar Buckley, "Invocation of Article 5: Five years on", *NATO Review*, Summer 2006 (http://www.nato.int/docu/review/2006/issue2/english/art2.html).

participants agreed on the "*Agreement on Provisional Arrangements Pending the Re-establishment of Permanent Government Institutions*" that led to the start of the so-called "Bonn Process". The Bonn Agreement was endorsed by UN Security Council Resolution 1383 on 6 December 2001.

Basically, the document was built on three pillars: political reform, securing the environment, and reconstruction of the country. Under the Bonn Agreement, the Afghan Interim Authority (AIA) was founded and it was decided also that an Emergency Loya Jirga[49] would be convened within six months in order to establish the Afghan Transitional Authority. As part of the process, the Emergency Loya Jirga would eventually elect a president for the country. Besides that, a Constitutional Loya Jirga would be convened and a new constitution would be adopted within the following eighteen months. At the end of that period, elections were planned to be held in order to establish a relatively stable political environment. All this post-conflict process led by the Bonn Agreement was based on Lakhdar Brahimi's "light footprint"[50] approach, as pointed out in his report on "United Nations Peace Operations".[51]

The Bonn Agreement largely consisted of a political framework that stressed the need for security. Initially, Hamid Karzai was designated chairman of the Afghan Interim Authority. Following this appointment, Karzai requested that the UN send forces to Afghanistan on behalf of the authority. In addition to political efforts, security concerns led to the initiation of a Security Sector Reform in Afghanistan was well.

As of December 2001, expectations in Afghanistan were relatively positive. The Taliban regime collapsed and a road map for reconstruction was drawn up. The international community was committed to providing assistance for political reconstruction and security through the UN. As the US-led Coalition Forces were waging war in the field, the efforts of the international community produced the Bonn Agreement. Therefore the Afghan Interim Authority and Karzai gave consent and led the post-conflict operations. In the first phase of the Bonn Process, the Afghan Interim Authority, Emergency Loya Jirga, and Constitutional Loya Jirga worked together and produced a constitutional National Council, a president, and a provincial administration.[52] This was the political fruit of the Bonn Process in 2001-2005.

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[49] The Pashto phrase "Loya Jirga" means "grand council". In Afghanistan, the Loya Jirga was originally a Pashtun tradition. Later it spread and was adopted by other ethnic groups. Its function was used to cover the settling of disputes and decision-making on important matters, especially political ones. After the Bonn Process, the Emergency Loya Jirga functioned as the parliament of Afghanistan.

[50] Lakhdar Brahimi, in his report, pointed to the importance of consent, will and participation of local factions for the domestic and international legitimacy of intervention, so that the international presence could be justified.

[51] For details of the United Nations Peace Operations, see (http://www.un.org/peace/reports/peace_operations/).

[52] Moreover, the international community pledged US$4.7 billion for the first three years of reconstruction at a donors' conference in Tokyo in January 2002. At the second donors' conference held in Berlin in March 2003, an additional US$8.2 billion was pledged for the next three years. At the next major international conference for Afghanistan in London in January 2006, international leaders and donors agreed on a new programme called the "Afghanistan Compact" for the next five years. The compact set

The other pillar of the Bonn Process was security. Security Sector Reform (SSR) was to perform the mission of securing the environment. The SSR process was divided into five areas which would be led by a lead-donor notion; the US would be responsible for military reform, Germany for police reform, the UK for counter-narcotics, Italy for judicial reform, and Japan for Disarmament, Demobilization and Reintegration of ex-combatants (DDR) reform.

It could be inferred from the Bonn Agreement that the main goal of the process was the rebuilding of the institutions of the Afghan state. The political and security pillars were planned to help to create the main body of the reconstruction process in Afghanistan. At the end of the Bonn Process, the president was elected; parliament was established and its members were elected; Internally Displaced Persons (IDPs) and refugees were returned to their homes; and the DDR process advanced and state services had resumed, up to a point.[53] The parliamentary elections of 2005 were a milestone in fulfilling the Bonn Process. Therefore it could be argued that the political pillar was in progress while the security sector reform had almost failed. Essentially, soon after the Bonn Process, international military forces (Combined Forces Command-Afghanistan or CFC-A, and the International Security Assistance Force or ISAF) and Afghan security partners (National Directorate of Security, Afghan National Army and Afghan National Police) were dealing with security issues in Afghanistan. The UN Assistance Mission in Afghanistan[54] (UNAMA) and the lead country, Japan, were dealing with the DDR process, while the US and its partners were working on the establishment of the Afghan National Army (ANA). The international community through its involvement was supposed to create a secure environment in Afghanistan. Its involvement included the DDR activities of the Afghan Militant Forces, i.e. ANA, securing environment by the CFC-A, and security assistance by ISAF with the UN mandate. It should also be noted that the CFC-A has been carrying out Operation Enduring Freedom, whose goal has been to destroy Al-Qaeda, the remnants of the Taliban regime, and the insurgents against the Afghan Interim Authority. The critical point about the operations is that the CFC-A has not been subject to an agreement with the Afghan government.

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out benchmarks in areas such as security, economic development and good governance. A further US$10.5 billion was pledged to assist this programme.

[53] Christopher Freeman, "Introduction: Security, Governance and Statebuilding in Afghanistan", *International Peacekeeping*, Vol. 14, No. 1, January 2007, p. 1.

[54] The United Nations Assistance Mission in Afghanistan (UNAMA) was established by Security Council Resolution 1401 on 28 March 2002. The UNAMA is responsible for fulfilling the UN's obligations in Afghanistan for managing UN humanitarian relief, recovery and reconstruction activities in coordination with the Afghan administration. UNAMA's mandate has been extended several times by the UN Security Council. UNAMA is conceived as an opportunity for the international community to put lessons learned from previous peacekeeping operations into practice. UNAMA is led by the special representative of the secretary-general (SRSG).

ISAF deployed in Afghanistan after the Bonn Agreement under UN Security Council mandate[55] and under UN command. ISAF I was under British military leadership, and the UN secretary-general appointed Lakhdar Brahimi his senior representative to Afghanistan. The principal tasks of ISAF I were aiding the interim government in developing a security structure, aiding the country's reconstruction, and assisting in developing and training future Afghan security forces. As could be interpreted from its principal tasks, ISAF's mission was planned under the jurisdiction of Chapter VI of the UN Charter. Moreover, the ISAF mission was limited to Kabul and the Bagram Air Base. The reason for limiting the Area of Operation (AoO) was that the US-led military campaign was still ongoing throughout Afghanistan. With the impact of the initial achievements of the Bonn Process, the UNSC in October 2003 gave ISAF the authorization to expand its operations beyond Kabul.[56] In August 2003 the command of ISAF was also handed over to NATO. It should be pointed out that ISAF is a non-Article 5 operation of the NATO allies. Canada had taken over command as the first NATO ISAF COM. The NATO-led ISAF fulfilled the expansion as of 2006. Therefore the NATO-led ISAF AoO covered all of Afghanistan with around 50,000 troops from 42 countries, including all NATO members and 26 Provincial Reconstruction Teams (PRTs).[57]

The innovation of PRTs in Afghanistan made NATO's expansion easier. PRTs are basically small teams of civilian and military units to provide security for aid workers and help reconstruction. PRTs play a key role in supporting the Bonn Agreement in Afghanistan's provinces in three respects: security, reconstruction and political stability. UNAMA and non-governmental organizations (NGOs) constitute the other key actors supporting Afghanistan's reconstruction.

Although the Bonn Process ended with the inauguration of the Constitutional Loya Jirga on 19 December 2005, Afghanistan had a long way to go in terms of establishing governance with all necessary institutions, so the Afghan authorities prepared the Afghanistan National Development Strategy (ANDS) for this purpose.[58] Actually, the ANDS was a response to the lack of a specific national plan for reconstruction during the Bonn Process.[59] On 31 January-1 February 2006, during the Afghan-led London Conference, the ANDS turned into the Afghanistan Compact with the approval of the international community, mainly the donor countries. The Afghanistan Compact entailed the mutual commitment of both Afghanistan and the international community

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[55]   As of this writing the UN Security Council has passed nine resolutions related to ISAF, as follows: 1386, 1413, 1444, 1510, 1563, 1623, 1707, 1776 and 1833, accessed 18 May 2009, (http://www.un.org/Docs/sc/unsc_resolutions.html).

[56]   UNSC Resolution 1510.

[57]   "NATO's Role in Afghanistan", accessed 18 May 2009, (http://www.nato.int/cps/en/natolive/topics_8189.htm).As of May 2009, ISAF consists of around 58,000 troops from 42 countries. (http://www.nato.int/isaf/docu/epub/pdf/isaf_placemat.pdf).

[58]   Barnett Rubin and Humayun Hamidzada, "From Bonn to London: Governance Challenges and the Future of Statebuilding in Afghanistan", *International Peacekeeping,* Vol. 14, No. 1, January 2007, pp. 8-10.

[59]   Sean M. Maloney, "Afghanistan: Perceptions from the Front, 2001-2006", *Small Wars and Insurgencies,* Vol. 18, No. 1, p. 33.

comprising approximately 60 countries.[60] The Afghanistan Compact had three major pillars: security, governance and development. Ending the lead-nation concept, the compact made it so all efforts in Afghanistan should be implemented by a joint board co-chaired by the UN and the Afghan government.

After the Madrid attacks by Al-Qaeda on 11 March 2004, Spain withdrew from Iraq. This lesson was well received by opposition forces in Afghanistan and affected global resistance to terrorism.[61] In 2006, the counterinsurgency in southern Afghanistan grew due to Pakistan's lack of control of Balochistan and the Federally Administered Tribal Area (FATA).[62]

NATO in Afghanistan: Peacekeeping, Stabilization and Counterinsurgency

In the post-Cold War era, with the disappearance of the imminent Soviet threat, NATO's role and relevance began to be questioned. NATO's *raison d'être* as a collective security organisation was based on the existence of a solid source of threats to the safety of the West in particular. As circumstances changed, the Alliance felt the need to adopt and develop strategies to remain the core source of security for its members. However, this process has been long and incomplete. The evolving international environment basically changed the character of the sources of threats to international peace and security. The strategies and means to cope with conventional sources of threats have become inadequate and irrelevant. The possibility of massive warfare between two major Cold War blocs disappeared, and this made NATO's massive conventional defensive capabilities less relevant in the contemporary security environment. The new sources of instability and threats to international security emerged and necessitated new approaches and strategies for NATO members in facing challenges. The sources of those threats became geographically broadened and encompassed the wider North Atlantic area. This brought together discussions about the future of the Alliance on whether it should "go out of area or go out of business" in line with NATO's transformation, which has yet to be agreed on by all its members, including the issue of the scope of international involvement such as stability operations and wider peacekeeping missions.[63] In this sense, Afghanistan became the decisive test case for the Alliance, paving the way for NATO members to participate in an international mission definitely "out of area" and beyond a simple defensive role. It has also been further argued that the Alliance's credibility is at stake, taking into account that NATO is extending and deepening its responsibility in order to respond to the new security threats to its members as well as the global international order.

For NATO, deployment in Afghanistan means dealing with a different kind of conflict, one apparently much more complicated than it seems. Executing a stabilisation operation in Afghanistan and getting even more involved by participating in actual fighting on the ground is

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[60] For the full text of the "Afghanistan Compact", UNAMA official website, accessed 18 May 2009, see http://unama.unmissions.org/Portals/UNAMA/Documents/AfghanistanCompact-English.pdf.

[61] Maloney, ibid, p. 36.

[62] Ibid, p. 40.

[63] Mats Berdal and David Ucko, "NATO at 60", *Survival*, Vol. 51, No. 2, pp. 59-65. For the "go out of area or go out of business" quote, see the end note no. 7, p. 74.

different than NATO's previous experiences in the Balkans.[64] It is the insurgency in the field that is challenging the Allies, as they were ready to fight conventional wars in the North Atlantic area.

It is also different in that US involvement in Afghanistan is an important factor for the Allies being in the field. It was the attacks that were aimed at the US that brought the Alliance to the region. Although the US initially succeeded in toppling Afghanistan's Taliban administration by gathering and leading a coalition for this purpose within the framework of Operation Enduring Freedom, over time, with the worsening of the country's security situation, NATO forces became more and more indispensable to the Americans. Stability could not be sustained in Afghanistan after the changing of the regime, due to the lag in channelling necessary financial means to build a viable state and the lack of security forces to ensure safety in all parts of the country. Both were basically caused by the changes in US priorities when Iraq replaced Afghanistan as the most urgent issue American leaders felt they had to deal with. Iraq took up almost all the necessary funding and US forces which were essential to help stabilise Afghanistan. At this point, NATO Allies' increasing contributions to the ongoing mission in Afghanistan became essential for the US, while the security situation was getting worse, as Taliban forces increased and widened their insurgency activities. By 2006, the US wanted to share the burden of fighting the insurgency with other NATO members. This would necessitate the expansion of NATO's role in Afghanistan, which concentrated on stabilisation through reconstruction and development activities in selected areas of the country within the ISAF framework, to the counterinsurgency, a change which narrowed the gap between the NATO mission and Operation Enduring Freedom.

By October 2006 ISAF's expansion throughout Afghanistan ended and the military command structure of international military forces in Afghanistan substantially changed. Under NATO's new operation plan, the command of Operation Enduring Freedom and NATO ISAF merged, while both of them continued to have separate mandates and missions. The mission of Operation Enduring Freedom is counterterrorism, whereas ISAF's is a non-Article 5 operation. In fact, ISAF's mission is to assist and support the Afghan government in creating a secure environment in the country for stability and development. At the end of 2005, ISAF had a larger footprint in Afghanistan with new PRTs, new regional commands, enhanced training support, and additional troops throughout the country. Hence, ISAF expanded to the entire country in 2006.

On the other hand, the Afghan National Army and Afghan National Police (ANP) have been emerging since SSR was in process. As of 2009, the ANA reached 80,000 troops and ANP also reached 80,000 policemen with the mentor support of the international community. Both the ANA and ANP have weaknesses that they must address in order to take over the security burden from ISAF. These weaknesses include the corruption of the ANP, lack of ANA troops, and a shortage of trainers and mentors for both.[65]

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64   While all NATO members participate in the ISAF mission in Afghanistan, not all NATO members participated in the NATO operations in the Balkans, as during Operation Allied Force towards Kosovo in March 1999. For more information on Bosnia, Kosovo and Macedonia, see Burak Tangör, *Avrupa Güvenlik Yönetişimi (European Security Governance)*, Ankara, Seçkin Yayınevi, 2008, pp. 112-114, 128-131, and 147-149.

65   Jason Campbell, Michael O'Hanlon and Jeremy Shapiro, "Assessing Counterinsurgency and Stabilization Missions", *Policy Paper No. 14*, April 2009, p. 21.

Despite ISAF's expansion, merging the command of the international military forces in Afghanistan, as well as the evolving Afghan security partners, the security environment has been worsening since 2006. 2008 was the worst year for operations. In 2008 both ISAF force strength and security incidents increased respectively by 37% and 33%. Moreover, civilian casualties increased by some 40-56%, while ISAF/OEF casualties also rose 37%. It must be noted that the 28% increase in Afghan National Security Forces (ANSF) also resulted in an increase of ANSF deaths of up to 6%.[66] It must also be mentioned that 70% of security incidents occurred in the south and south-eastern parts of country that border Pakistan.

In line with its increasing role and activities in Afghanistan, NATO has been facing some problems. First, despite the necessities of the expanding role, there was no clear consensus among the Allies over what role NATO should play in Afghanistan and which responsibilities it should assume within the ISAF mandate. This reflects a "strategic ambiguity" due to apparent differences over either, on one hand, limiting NATO activities to wider peacekeeping based on stabilisation efforts through reconstruction and development or, on the other hand, to counterinsurgency activities by doing the actual fighting, which actually signified a "two-tier alliance".[67] The differences among the Allies concerning NATO responsibilities in Afghanistan led to a "coalition of the willing"-type of support within the Alliance itself. NATO members that support the idea of an ever-expanding role of NATO and ISAF in Afghanistan began to increase their presence and get involved in counterinsurgency operations. In contrast, some NATO members are reluctant in their approach to changing the character of NATO's involvement, as their understanding is shaped by the idea of a limited role to play. This mainly results from public balking at the prospect of fallen soldiers as well as the image of fighting wars for American global ambitions rather than helping the stabilisation of a failed state that otherwise could jeopardise international peace and security and eventually threaten their security. Each NATO member that sends troops to the field in Afghanistan stipulates the roles and extent of their contribution as well as under which circumstances they take responsibility. Through specific caveats, the various Allies define the limits of their deployment and involvement, and basically specify their "don'ts". Who will hunt down terrorists, or trace opium producers, or sweep for mines or not, is up to individual NATO members taking part in the ISAF mission. In this sense, there is no unity in the contents or scale of the responsibilities that Allies take within the ISAF mandate.

In addition to the differences in the Allies' commitments, there is also the fact that not all NATO members have the experience and the capacity to fight insurgencies. A limited number of ISAF contributors have previous counterinsurgency experience, and the experience they have has to be adapted to the new and transforming circumstance in the field in Afghanistan. NATO countries have experience in peacekeeping from previous missions, which helps them apply the strategy of ensuring security along with reconstruction and development, but fighting an insurgency in most cases is not what their forces trained, or are ready, for. ISAF forces try to achieve stability and development in Afghanistan though utilising PRTs in the field by enabling security and development (including governance and reconstruction) in a wider peace enforcement

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[66] Afghanistan Report 2009, NATO, p. 9.

[67] Julianne Smith and Michael Williams, "What Lies Beneath: The Future of NATO through the ISAF Prism", RUSI, 31 March 2008, pp. 1-2.

perspective. The relationship between security and reconstruction is mutual and considered essential for success, similar to the counterinsurgency strategy that adopts a clear-hold-build approach to be successful in the field. However, direct confrontation and the scope of the use of force as part of combat against insurgents draws a difference between stabilisation-oriented wider peace enforcement and counterinsurgency missions. Thus, besides commitment, capable, equipped and trained forces are necessary for counterinsurgency operations in a theatre as difficult and dangerous as Afghanistan. The experience of Afghanistan shows the need to develop a coordinated institutional capability if NATO is to continue to focus its attention on dealing with insurgencies.

NATO clearly identifies Afghanistan as its "key priority"[68] and establishes a direct link between the stability and security of Afghanistan and the surrounding region and its members' security.[69] The ever-more-complex insurgency necessitates a comprehensive, well-organised and implemented NATO strategy towards Afghanistan. In this context, NATO defines its guiding principles in its approach towards Afghanistan as: long-term commitment, support for the Afghan leadership, a comprehensive approach that brings together civil and military approaches, and regional engagement.[70] Despite the references to supporting each other in sharing the burden in Afghanistan and providing maximum possibility of use of their forces by the ISAF commander as parts of ISAF's Strategic Vision, the stability-related challenges in Afghanistan illustrate the necessity for NATO members to develop a more harmonious and integrated strategy in order to cope with the challenges.

Counterinsurgency is a multidimensional phenomenon. In this context, ensuring security and sustaining it with military means along with providing the basic needs of the people would pave the way for winning the "hearts and minds" of the people. Without the support of the people, neither foreign forces nor international aid can be successful alone. The legitimacy of the foreign presence in the eyes of the locals and the support of local actors in countering the insurgency are crucial components of successful counterinsurgency. Accordingly, especially in the case of Afghanistan, where a strong scepticism towards the presence of foreigners – in particular foreign military forces – exists, it is essential to establish some form of legitimacy in the country. The role that local forces play in the counterinsurgency engenders less hostility and more support from the locals. In this sense, the role that the ANA and the Afghan National Police Force play in counterinsurgency emerges as just as vital as the NATO and ISAF contribution in the formation of those forces to help the country create the capability to ensure stability through local means.

The insurgency in Afghanistan is closely tied to the state of affairs of the region, and in particular Pakistan. Taliban and Al-Qaeda militants use the harsh conditions and difficult terrain in the border areas between Afghanistan and Pakistan to their advantage. They also use adjacent Pakistani areas which fall outside the direct control of the Pakistani state (the Federally Administered Tribal Areas) as sanctuaries where they get protection, material supplies, and new militants. Border security is a very important part of the counterinsurgency in terms of the

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[68]   NATO, ISAF's Strategic Vision, 3 April 2008.

[69]   North Atlantic Council in Strasbourg / Kehl, "Summit Declaration on Afghanistan", 4 April 2009.

[70]   NATO, ISAF's Strategic Vision, 3 April 2008.

infiltration of militants, illegal arms and drug trafficking, and the functioning of NATO supply lines that are vital for the continuation of the ISAF mission and Operation Enduring Freedom.

Conclusion

Changes in the sources and nature of the threats in the post-Cold War environment have created new challenges for states. Traditional approaches and conventional strategies that were designed or invented after the Second World War kept their relevance with relatively limited revisions and adjustments until the end of the Cold War. In this process, individual states as well as international organisations had to face new challenges.

The concept of peacekeeping, though it maintained prominence in longstanding unresolved conflicts, grew inadequate in its conventional form and existing features in coping with ever-more-complex threats to international peace and security. Parties in international conflicts became diversified as more and more non-state actors began to gain influence within national borders and make their impact felt beyond those borders. During this period, the circumstances that necessitated peacekeeping operations influenced the way such operations were formed and used as a response to contingencies. Peace operations had to be more aggressive in terms of resorting to force in order to respond to new security threats. Furthermore, ensuring stability began to require being involved in actions against insurgencies as well. In this context, elements of counterinsurgency and a wider use of force came to be seen as more relevant in peace operations, along with reconstruction and development activities. As conflicts grew more complex, the contribution of counterinsurgency methods along with more traditional features of peacekeeping operations began to be applied as part of wider stabilisation efforts in the field.

Today Afghanistan represents one of the world's most complex conflict zones. International involvement in Afghanistan aims to help the country survive, stabilise and develop. The presence of two military structures, the US-led Coalition Forces and the NATO-led ISAF, makes international efforts more complicated though not necessarily more effective. Despite the merging of the military command structures of the two forces, the security situation has not drastically improved. On the contrary, the constantly deteriorating situation since 2003 has not presented a hopeful picture. The international commitment to Afghanistan represented by the NATO-led ISAF operations thus focused its attention particularly on building up the security sector. The Afghan National Army and Afghan National Police have been the central bodies in security planning, but these institutions have been unable to ensure peace and security in Afghanistan without the international military presence. As local contributors to security remained relatively limited in comparison to the Coalition Forces and ISAF, the chances of successfully countering the insurgency also remain miniscule. NATO is not losing a war in Afghanistan, as it is not engaged in war in the classical sense. However, NATO should not lose the peace that it trying to help to build and sustain there.

By deploying its forces in Afghanistan, NATO has assumed a serious responsibility. NATO not only went "out of area", but also expanded the features of its involvement to an increasingly offensive role. However, as NATO has not revised its Strategic Concept since 1999, the approach to issues such as Afghanistan and strategies for dealing with insurgencies has not been directly addressed by the Alliance. As the result of the ambiguity in NATO's approach to Afghanistan due

to the divergences among the Allies, NATO projects an image of both indecisiveness and diversity. As the situation in the field gets worse in line with the deteriorating situation in Afghanistan as well as neighbouring Pakistan, which itself has been vexed by an emerging insurgency, NATO has to develop a firm strategy to follow, one agreed upon by all its members.

At this critical juncture, the Allies should decide whether NATO will get more involved with peace support operations or retain a position of limited engagement in "out of area" crises and conflicts. If NATO members opt for further commitments to deal with international security problems, then there will be a need to create crucial tools to deal with various armed conflicts and extending counterinsurgency operations with a full commitment to the use of force. In this context, NATO should also harmonise the members' approaches and capacities when they agree to get involved, as peace operations edge closer to counterinsurgency operations, as in Afghanistan. If NATO members fail to come to common terms with this, then they should at least draw clear boundaries for any NATO involvement and stick to them in order to get support for NATO operations and maintain credibility in the eyes of potential adversaries.

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BOŞ SAYFA

A Regional-Global Paradigm for Implementing the United Nations Global Counter-Terrorism Strategy

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Abstract: *Trans-national and cross-border threats posed by terrorism have led a significant number of regional organizations to become more involved in countering this menace. The United Nations Global Counter-Terrorism Strategy, which emphasises its implementation at the regional level, has laid the groundwork for an emerging regional-global paradigm as an implementation framework of the Strategy. Putting the Strategy into the broad context of the maintenance of international peace and security, the article starts by examining the delivery of peace and security as a regional public good, and how implementation of the Strategy can contribute to such endeavours. The article then analyzes the regional implications of the Strategy by detailing regional actions on supporting and implementing it while recognizing that the levels of commitment and resources, priorities accorded, and capacities available to implementation vary from region to region. This is followed by an analysis of the comparative advantages, complementary functions, and limits of regional organizations as well as their existing engagement with the United Nations on implementing the Strategy. The subsequent analysis of the engagement of the UN Counter-Terrorism Implementation Task Force with regional organizations leads to the author's envisaging of a regional-global paradigm for implementing the Strategy*

Keywords: *Regional-global paradigm, United Nations, counter-terrorism, Strategy, regional organizations.*

Introduction

In recent years, an increasing number of regional organizations have made tackling terrorism one of their security priorities. The trans-national and cross-border nature of terrorism operations has

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made improved regional cooperation and enhanced regional capacities a necessity. Combating terrorism has also been considered an area to build synergy by some regional organizations in consolidating political wills and strengthening substantive security cooperation. In addition, counter-terrorism provides a window of opportunities for an emerging regional-global paradigm to advance international peace and security. The United Nations Global Counter-Terrorism Strategy (hereafter, the Strategy), which was unanimously adopted by 192 member states in September 2006, has assigned a strong role to regional organizations in a comprehensive global framework and plan of action on counter-terrorism, with nine provisions specified for regional and sub-regional organizations[i] (see Annex 1).

Enhancing international counter-terrorism cooperation through the participation of regional organizations has been addressed by only a small number of scholarly studies, most of them limited to analyzing counter-terrorism challenges and activities in a particular geographical region. This article attempts to fill this vacuum through examining regional contributions to global counter-terrorism efforts, particularly by exploring the role of regional organizations in implementing the United Nations Global Counter-Terrorism Strategy. The analysis of the comparative advantages and complementary functions of regional organizations as well as their existing engagement leads to the conclusion that the Strategy's emphasis on implementation at the regional level merits greater efforts to raise awareness of the Strategy as well as a strong commitment to implementation by regional organizations. Equally importantly, an emerging regional-global paradigm on counter-terrorism could set a model for interaction between international and regional organizations for delivering the global goods of peace and security, and portends its potential role in the future of global governance.

Delivering Peace and Security at the Regional Level

Regional security complex theory (Barry Buzan and Ole Wæver) holds that security is a regional phenomenon, since most threats travel more easily over short distances than long ones. Indeed, in a globalized world, it would be difficult to comprehend the security dynamic of one country without inserting it into a broader regional context and without grasping the conflicting or cooperative patterns that defines the external policy of that country with its neighbours.[2]

The same is true of the peace agenda, which goes hand-in-hand with security. One distinctive characteristic of the lack of peace is insecurity – the presence of threats, dangers and incidents, as a classic Chinese dictionary explains "security" in terms of "no danger", "no threat", and "being free of incidents".[3] And security is defined as primarily concerning the management of threats.[4]

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[2]   Rodrigo Tavares, "Understanding Regional Peace and Security: a Framework for Analysis", *Contemporary Politics*, Vol. 14, No. 2, June 2008, p. 107-127.

[3]   *Xiandai Hanyu Cidian* (A Modern Chinese Dictionary), Shangwu yinshuguan, 3rd. revised edition, 1996, p. 7.

[4]   Rodrigo Tavares, "Understanding Regional Peace and Security: a Framework for Analysis", *Contemporary Politics*, Vol. 14, No. 2, June 2008, p. 107-127.

The United Nations and regional organizations are and should be partners in the endeavour to advance international peace and security. In drafting the United Nations Charter, the founders already envisioned a role for regional organizations in this regard. Chapter VIII of the Charter states that Members of the United Nations shall make every effort to achieve the pacific settlement of local disputes through such regional arrangements or by such regional agencies before referring them to the Security Council (Art. 52.2). It adds that the Security Council shall, where appropriate, utilize such regional arrangements or agencies for enforcement action under its authority, but that no enforcement action shall be taken under regional arrangements or by regional agencies without Security Council authorization (Art. 53.1).

Global and regional deliveries of peace and security are not only a must but also a matter of complementarities. The value regional organizations add to the global spectrum includes their transcendence of the geographic and political limitations of state-centrism, their close-to-home understanding of peace and security challenges and the enabling factors of such challenges, their better grasp of local dynamics, and their quicker delivery of results on the ground, given the cultural coherence, fewer diverse interests, potentially easier information-sharing, etc. within the region, all of which are factors that reduce obstacles in mobilizing collective actions.

In October 2005, the UN Security Council adopted Resolution 1631, which for the first time outlined a coherent guideline for enhancing cooperation between the United Nations and regional organizations, thus recognizing their growing contribution to the maintenance of international peace and security. The Security Council debate in November 2007 on the role of regional organizations in preventing, managing and resolving conflicts underlined their importance in peacekeeping, peace-building, the fight against terrorism and illicit weapons, and other collective efforts. The debate emphasized that the growing contributions made by regional and organizations in cooperation with the United Nations can support the maintenance of international peace and security.

Given the magnitude and diversity of regional organizations, the extent of their mandates on and involvement in addressing security issues also varies. The European Union, Organization for Security and Co-operation in Europe (OSCE), Organization of American States (OAS), and the African Union (AU) all have specific mandates and historical experiences to address security issues. Others, such as the Economic Community of West African States (ECOWAS), the Inter-Governmental Authority (IGAD), the Caribbean Community and Common Market (CARICOM), and the Association of Southeast Asian Nations (ASEAN), have also addressed security issues, though they were formed as regional economic organizations. Still others, such as the Commonwealth of Independent States (CIS), the Asia Regional Forum (ARF) and the Shanghai Cooperation Organization (SCO), are relatively newer organizations with some experience in security affairs, whose mandates include addressing security issues. Other established regional organizations, such as the South Asian Association for Regional Cooperation (SAARC), the League of Arab States (LAS, or Arab League), the Organization of the Islamic Conference (OIC), and the Gulf Cooperation Council (GCC), have dealt with security issues sporadically.[5]

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[5]   S. Vasu Vaitla, "Regionalism and Regional Organizations: An option for more effective and more democratic global governance", Paper presented at the annual meeting of the International Studies

Counter-terrorism is one of the deliverables of peace and security from the regional level. When UN Secretary-General Ban Ki-moon addressed Harvard's John F. Kennedy Forum in October 2008, he highlighted that, in the pursuit of the common good, it is essential to address a set of global challenges that hold the key to our common future – countering terrorism among them, in addition to ensuring global financial stability, addressing climate change, advancing global health, and ensuring non-proliferation and disarmament.[6] Most recently the Secretary-General reiterated to more than 80 national counter-terrorism focal points that terrorism is a global challenge that requires a global, integrated response.[7]

Indeed, terrorism remains one of the major threats to international peace and security. It has been long recognized by both the UN Security Council and General Assembly that the suppression of acts of international terrorism is essential for the maintenance of international peace and security. Therefore, counter-terrorism is and should remain an integrated part of the global goods deliverable for the advancement of peace and security.

In September 2006, the UN reached an important milestone with the General Assembly's unanimous endorsement of the United Nations Global Counter-Terrorism Strategy. The adoption of the Strategy by 192 member states symbolized the consensus to address the threat of terrorism as a global peace and security challenge. This success in adopting a global framework and plan of action on counter-terrorism, an issue that had been stifled by decades of political debates, has been attributed to the way the Strategy proposes a balanced, holistic approach to counter-terrorism between addressing conditions conducive to the spread of terrorism, law enforcement, security, and human rights. The Strategy is multi-pronged: In addition to traditional security and law enforcement priorities, the Strategy resolves to undertake measures aimed at addressing the conditions conducive to the spread of terrorism, including but not limited to prolonged unresolved conflicts, the dehumanization of victims of terrorism in all its forms and manifestations, the lack of the rule of law accompanied by violations of human rights, ethnic, national and religious discrimination, political exclusion, socio-economic marginalization, and lack of good governance, while recognizing that none of these conditions can excuse or justify acts of terrorism:[8] As guided by the Strategy, effective counter-terrorism efforts have to be pursued as part of the global peace and security agenda.

Besides being significant in being integrated the broad context of international peace and security, the Strategy is also distinctive in assigning a clear role for regional organizations in implementing the Strategy. Given that the maintenance of security has traditionally been regarded as a national issue, and that perceptions of terrorist threats and responses to them are usually shaped by domestic concerns, it is not surprising that terrorism, though a major threat, does not

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Association, Town & Country Resort and Convention Center, San Diego, California, USA, 22 March 2006 .

[6]   *Secretary-General Ban Ki-moon, Speech at the John F. Kennedy School of Government on "Securing the Common Good in a Time of Global Crises", Cambridge, Massachusetts, USA, 21 October 2008.*

[7]   Secretary-General Ban Ki-moon, message to the Counter-Terrorism Focal Point Meeting, delivered by Jean-Paul Laborde, Special Advisor to the Under-Secretary-General for Political Affairs of the United Nations, Vienna, 13 October 2009

[8]   United Nations Global Counter-Terrorism Strategy.

seem to be necessarily correlated to the regional dimension, and remains primarily at the national and bilateral levels. However, the delivery of global public goods, including counter-terrorism, can only be enhanced through effective delivery at the regional level. It has been argued that directly or indirectly, both the origin and target of this threat has a regional dimension, and therefore coping with it should be considered a regional public good.[9] Also, it has been recognized that the struggle against terrorism is at times at the very core of regional organizations' activities – they have adopted normative or quasi-normative instruments such as conventions, protocols, plans of actions, and various pragmatic initiatives have been adopted at the regional level.[10]

Broadly speaking, regional mechanisms should be considered part of the reform process of global governance on peace and security. This examination of regional roles for implementing the Strategy also intends to explore the emergence and development of a new regional-global paradigm for advancing international peace and security.

Regional Implications of the United Nations Global Counter-Terrorism Strategy

The United Nations Global Counter-Terrorism Strategy laid out a national-regional-global paradigm as an implementation framework. While recognizing that the primary responsibility for implementation lies with member states, the Strategy underlines the need for collective action at the regional level, particularly through the efforts of regional and sub-regional organizations.

In particular, the Strategy encourages regional and sub-regional organizations to mobilize resources and expertise, create or strengthen counter-terrorism mechanisms or centres, improve border and customs control, share best practices in counter-terrorism capacity building, and increase information-sharing at the national, regional and international levels. Implementing these provisions does not simply mean obligations for regional and sub-regional organizations, but also allows them the opportunity to leverage on a global platform the rich resources associated with it in order to advance their own counter-terrorism programmes.

For the past three years-plus since its adoption, the Strategy has gradually gained recognition, support, and endorsement by various regional bodies. In November 2007, the Organization for Security and Co-operation in Europe (OSCE), which works on the basis of a comprehensive concept of security, issued a ministerial statement supporting the Strategy. The statement recognized the leading role of the United Nations in international efforts against terrorism and expressed support for the Strategy, which it said provides guidance for OSCE counter-terrorism activities. The statement particularly commended the Strategy's comprehensive global approach towards countering terrorism by addressing not only its manifestations, but also the conditions conducive to its spread, within a framework based on human rights and the rule of law, and

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[9]   Rodrigo Tavares, "Understanding Regional Peace and Security: A Framework for Analysis", *UNU-CRIS Occasional Papers* 0-2005/17.

[10] Giuseppe Nesi (ed.), *International Cooperation in Counter-terrorism: The United Nations and Regional Organization in the Fight Against Terrorism*, Ashgate, England and USA, 2005, p xii.

committed support to the OSCE Secretariat's work to promote the Strategy's implementation.[11] It is believed that OSCE's substantive expertise and knowledge, as well as the advantage of field presence and natural political platform were assets for a comprehensive response to terrorism through the implementation of the UN Global Counter-Terrorism Strategy.[12]

The European Union has repeatedly reiterated its call to maintain the Strategy's authority and redoubled its efforts to fully implement the four pillars of the Strategy, exemplified by both domestic initiatives and technical assistance projects with third states by EU Member States. The EU also has showed its commitment to implementation of the Strategy by welcoming contributions by the United Nations, and by offering political and substantive support to the UN Counter-Terrorism Implementation Task Force (CTITF), and by inviting CTITF to the EU Council Working Party on Terrorism (COTER) in Brussels for sharing of information on implementing the Strategy.

The Council of Europe (CoE) has committed to facilitating implementation of the Strategy by providing a forum for discussing and adopting regional standards and best practices and by providing assistance to its member states in improving their counter-terrorism capabilities. In September 2008, the CoE participated in the United Nations Secretary-General's Symposium on Supporting Victims of Terrorism in New York. In underlining one of the CoE's priority counter-terrorism actions – supporting victims – in relation to the Strategy, the CoE stressed that constant improvements are needed to the forms of assistance available to victims and that the development of new, innovative approaches is therefore imperative.

In Asia, the *Asia-Pacific Economic Cooperation (*APEC) has recognized the important role played by the UN and its Global Counter-Terrorism Strategy. It stressed that terrorism poses a direct threat to APEC's vision of secure, open and prosperous economies. At the 17th APEC summit in November 2009 in Singapore, APEC leaders re-emphasised the Strategy and stressed the need for its implementation, where applicable.

Member states of the Association of Southeast Asia Nations (ASEAN) have time and again reiterated their call for further strengthened and coordinated efforts in implementation of the Strategy. The 7th Asia-Europe Conference on Counter-Terrorism, held in Manila, the Philippines in June 2009, recognized the United Nations' leading role in the fight against terrorism and reaffirmed its support for the Strategy. While emphasizing the primary responsibility of states to implement the Strategy, the conference recognized that the Asia-Europe Meeting (ASEM) and other international, regional and sub-regional organizations and fora play a key role in the dissemination of best practices in implementation of the Strategy.

Members of the Shanghai Cooperation Organization (SCO) have confirmed their efforts to maintain the central coordinating role of the United Nations in the global fight against terrorism, and to steadfastly implement the Strategy. This commitment was reiterated at the at the SCO

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[11]   Ministerial statement on supporting the United Nations Global Counter-Terrorism Strategy, Organization for Security and Co-operation in Europe, 30 November 2007.

[12]   "OSCE and U.N. Avenues of Cooperation in Implementing the U.N. Global Counter-Terrorism Strategy", Jean-Paul Laborde, Special Advisor to the Under-Secretary-General for Political Affairs of the United Nations, statement at the OSCE Annual Security Review Conference, Vienna, 23 June 2009

summit in Dushanbe, Tajikistan, on 28 August 2008. The series of meetings co-planned by the United Nations Regional Centre for Central Asia on implementation of the Strategy in Central Asia, set to culminate with a ministerial conference in 2010, was commended by UN Secretary-General Ban Ki-moon as an excellent vehicle for building the relationship between the United Nations and SCO.[13]

The Peace and Security Council of the African Union (AU), at its 149th meeting held on 28 August 2008, requested that the AU Commission, together with its African Centre for Study and Research on Terrorism (ACSRT), work closely with the United Nations in pursuit of the Strategy. Ministers of justice of member states of the Intergovernmental Authority on Development (IGAD) in Eastern Africa, in a September 2007 statement, requested that IGAD member states implement the Strategy. Discussions have been undertaken in the continent on improving African awareness and understanding of the Strategy. For example, it was recognized that, in order to maximize the impact of the Strategy on the continent, implementation of the Strategy must take into account local and sub-regional contexts, with African institutions and other stakeholders including assuming key roles. Africa's sub-regional economic communities also need to be empowered and develop a stronger voice on issues of terrorism. In addition, terrorism must be addressed against a broader background by taking into consideration many other complex security challenges facing Africa.[14]

The Organization of the Islamic Conference (OIC) has supported a consensus in the UN General Assembly on implementation of the Strategy. In November 2007, the OIC's Islamic Educational, Scientific and Cultural Organization (ISESCO) co-organized with the government of Tunisia an international conference on "Terrorism: Dimensions, Threats and Counter-Measures". Addressing the conference, UN Secretary-General Ban Ki-moon commended the initiative as "giving life to the Strategy", as it calls on people to make full use of the role which regional and other organizations can play in the global endeavour to counter terrorism.[15]

The Arab League Council, at its summit in March 2007, reaffirmed its support to the United Nations on counter-terrorism, and emphasized the importance of recommendations in the Strategy. Consequently, the League of Arab States (LAS, or Arab League) formed an expert team to follow up and implement the Strategy at the Arab level, with a particular emphasis on addressing conditions that promote the spread of terrorism.

The role of the Inter-American Committee against Terrorism of the Organization of American States (OAS/CICTE) on implementing the Strategy was re-affirmed at a ministerial conference on international cooperation against terrorism in March 2007 co-organized by the OAS. At the

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[13] Message of Ban Ki-moon to the Council of Heads of State of the Shanghai Cooperation Organisation (SCO), delivered by B. Lynn Pascoe, Under-Secretary-General for Political Affairs, in Yekaterinburg, Russian Federation, on 15 June 2009.

[14] Discussion at an experts group meeting on "African Perspectives on International Terrorism", organized by the United Nations Office of the Special Adviser on Africa, 3-4 June 2009.

[15] Ban Ki-moon, Address to the International Conference on Terrorism: Dimensions, Threats and Counter-Measures, 15 November 2007, Tunisia.

conference, an appeal was made to the United Nations and other relevant international, regional and sub-regional organizations to implement the Strategy at the international, regional and sub-regional levels, including the mobilization of human and material resources. Addressing the OAS/CICTE in March 2009, the chair of the United Nations Security Council Counter-Terrorism Committee commended the OAS/CICTE's counter-terrorism endeavours and highlighted the important role of regional organizations in implementing the Strategy, as regional organizations, including the OAS/CICTE, are instrumental in developing tailor-made implementation initiatives, including coordinating with other stakeholders in the region and relevant United Nations entities. They provide capacity-building assistance, in partnership with the UN and international organizations, with special attention to the needs and priorities of the region. They also promote the ratification and implementation of regional and sub-regional counter-terrorism instruments in support of the universal legal framework and related counter-terrorism initiatives.[16]

The above is a long yet non-exhaustive list of regional organizations that have endeavoured to implement the Strategy and their relevant actions. It is evident that the commitment level, resources allocated, priorities, and capacities vary from region to region. Instead of being considered disadvantages to implementation at the regional level, such unevenness should be regarded as both a reality and impetus for us to be more sensitive in adopting region-tailored approaches to implementing the Strategy as well as to be more reasonable in assessing the implementation in different regions. The fact that implementation efforts are absent in certain regions by relevant regional organizations should also serve as a reminder to explore means to fill these gaps.

Implementation of the Strategy: Why Do Regional Organizations Matter?

The strengths of regional organizations lie in their substantive expertise, knowledge of a particular region, field presence, and political platform. They provide a resource that has not been used enough by the United Nations system to the greatest advantage of countries all over the world. Specifically for implementation of the Strategy, regional organizations can contribute in terms of: 1) developing region-tailored implementation strategies, timetables, and evaluation plans; 2) mobilizing political will and support in fulfilling implementation commitment by regional governments; and 3) facilitating cross-regional assistance and cooperation so that regional organizations that have developed expertise and experience can provide support to those still developing these capacities.

The common objectives that exist in the regional-global paradigm on counter-terrorism include the following – all in accordance with implementation of the Strategy: 1) improving implementation by member states of relevant resolutions, universal treaties, instruments, legislation, and sanctions regimes; 2) complementing and ensuring the sustainability of regional

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[16]   Remarks by His Excellency Ambassador Neven Jurica, permanent representative of Croatia to the United Nations, March 4, 2009.

capacities on counter-terrorism; 3) ensuring an integrated and coordinated response to provide technical assistance and proper prioritization of technical assistance; avoiding duplication of efforts and increasing the impact of technical assistance; and 4) garnering political support and momentum in member states for counter-terrorism efforts.

The existing arrangements in this regional-global paradigm, which contribute to implementation of the Strategy, can be broadly categorized as follows:

1. Information-sharing: This includes exchanging technical assistance matrices, identifying capacity needs and gaps as well as best practices for technical assistance delivery, conducting joint country visits, and jointly assessing terrorist threats. For example, the Monitoring Group of the 1267 Committee (sanction committee of Al-Qaida and the Taliban) makes common assessments of the regional/sub-regional threats from Al-Qaida-related terrorism with regional and sub-regional organizations to ensure that they do not enter into contracts with listed individuals or entities in any way that would contravene the Al-Qaida and Taliban sanction measures. In addition, as mandated by General Assembly Resolution 54/110, regional and intergovernmental organizations have submitted information to the secretary-general for his annual report "Measures to Eliminate International Terrorism".

2. Capacity-building: This includes organizing training programmes, workshops, seminars and study visits, supporting the development of databases, conducting joint projects, programmes and field exercises, and assisting member states, through regional organizations, in fulfilling their obligations under relevant Security Council resolutions or in becoming party to and implementing the universal instruments against terrorism. One excellent example is that the United Nations Office of Drugs and Crime (UNODC) has developed regional counter-terrorism model laws in compliance with the universal legal instruments against terrorism, held sub-regional technical assistance and training workshops, and collaborated with regional and sub-regional organizations in the implementation of its global project on "Strengthening the Legal Regime against Terrorism".

3. Outreach and Liaising: This includes establishing regional offices and training centres. Such arrangements include aviation security training centres of the International Civil Aviation Organization, Regional Centres for Peace and Disarmament of the Office of Disarmament of the United Nations, and Financial Action Task Force (FATF)-style Regional Bodies.

4. Engagement with civil society: This includes involvement with regional and sub-regional political, cultural, faith-based, trade-related, and media organizations. The United Nations Educational, Scientific and Cultural Organization (UNESCO), for example, works with regional and sub-regional professional media and press freedom monitoring organizations to maintain a healthy debate on professional standards in reporting on terrorist activities.

In achieving the aforementioned objectives and arrangement of the regional-global paradigm, some UN entities and special agencies are still shaping their interaction and cooperation with regional organizations; some already have had successful experiences. To mention just a few, the United Nations Office on Drug and Crime's (UNODC) partnership with the OSCE and OAS has been regarded as exemplary cooperation. They systematically jointly conduct training seminars, workshops, ministerial conferences and technical assistance missions. The participation of regional organizations in the country visits of the *Counter-Terrorism Committee* Executive Directorate

(*CTED*) have contributed insight and thus given the host countries a more constructive evaluation for better-targeted delivery of technical assistance. The *International* Atomic Energy Agency (*IAEA*) also benefits from working with regional organizations in terms of having member states become aware of and participate in conventions on the physical protection of nuclear materials.

Nevertheless, such a regional-global paradigm must also overcome a number of challenges in reaching their objectives and ensuring positive interaction. The main challenges include:

1. Further strengthening of political will: Counter-terrorism issues may not be high on the political agenda of some regional organizations, and concerns about encroachments on sovereignty and the diversion of resources sometimes incur resistance. For example, UNESCO faces certain obstacles in convincing authorities (national and/or local) to take action in curriculum reform and textbook revision based on the results of collaborative research.

2. Ensuring provision of resources: Some regional organizations lack human and financial resources for counter-terrorism activities, as counter-terrorism represents a small part of their overall mandates. This leads to uneven counter-terrorism capacity across regions (currently strongest in Europe and weakest in Africa and Asia) and results in underutilized potential and missed opportunities for rallying resources, expertise and contacts. For example, some regional organizations lack the resources to participate in CTED country visits. On the flip side, many UN entities and special agencies also do not have sufficient resources to engage with the vast contingent of regional organizations.

3. Further improvement of coordination: Coordination among regional organizations is sometimes inadequate, resulting in duplication and the waste of already scarce resources. Other difficulties include: the diversity of relevant actors and institutions, geographic overlap between some organizations, different working methods (e.g. some organizations have a broad mandate to examine various aspects of counter-terrorism, while others adhere to strict and extremely detailed methodological criteria in focusing on one specific area), and the need to ensure that institutional coordination initiatives do not create disproportionate resources demands on participating institutions.

4. Further enhancement of information exchange: The exchange of information between regional organizations and the United Nations is limited. For example, it was difficult for the CTED to obtain access to country profiles and analyses of terrorist threats and assessments of compliance, because much of the data was confidential. After all, identifying and arresting terror suspects are eminently clandestine efforts led by intelligence agencies and domestic security services.

5. Ensuring continuity: Cooperation with regional organizations has been mostly project-based and not systematic. The involvement of regional organizations therefore has more than often been sporadic and fragmented.

To marshal the advantages and minimize the disadvantages, an optimal structure of the regional-global paradigm for implementing the Strategy must be developed.

Regional Engagement of the United Nations Counter-Terrorism Implementation Task Force

Often regional organizations wonder how to interact effectively with global organizations such as the United Nations. At the same time, the UN wonders how to systematically engage regional entities, which are very often substantively different. One vehicle through which a comprehensive regional-global paradigm on counter-terrorism surrounding implementation of the Strategy can be established is the United Nations Counter-Terrorism Implementation Task Force (CTITF).

The CTITF was established in 2005 by the Secretary-General to enhance the coordination and coherence of counter-terrorism efforts of the United Nations system. Over time, the Task Force, composed of 26 United Nations Systems entities[17] plus the International Criminal *Police* Organization (Interpol), has participated in CTITF activities on catalyzing UN system-wide and value-added initiatives to support member states' efforts to implement the Strategy in all its aspects. This range of experience represented by the CTITF members allows the United Nations to address terrorism as part of its broader mission to promote development, human rights, and peace and security. It also promotes synergies and information-sharing, and allows each entity to maximize its comparative advantage.

Members of the Task Force contribute to UN counter-terrorism efforts according to their specific organizational mandates. In addition, the Task Force has identified some cross-cutting areas of work where implementation of the Strategy requires cooperation across several system entities, where the United Nations can provide added value, and where there is a geographically broad-based demand for assistance from member states. Specific initiatives include preventing and resolving conflict, supporting victims of terrorism, protecting human rights while countering terrorism, strengthening the protection of vulnerable targets, countering the use of the Internet for terrorist purposes, tackling the financing of terrorism, protecting and responding to WMD terrorist attacks, countering the appeal of terrorism, and integrated assistance for countering terrorism, etc.

So far, the positive dynamic of the CTITF has been central to advancing the counter-terrorism agenda within the United Nations system. While continuing to aim for the deepening of the partnerships that have been formed within the system, the CTITF is actively seeking to expand and strengthen partnerships between member states, the United Nations system, regional and other organizations, and civil society on implementing the Strategy, including the CTITF's potential to

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[17] These 26 entities include: Al-Qaeda/Taliban Monitoring Team, Counter-terrorism Committee Executive Directorate (CTED), Department of Peacekeeping Operations (DPKO), Department of Political Affairs (DPA), Department of Public Information (DPI), Department of Safety and Security (DSS), Executive Office of the Secretary-General (EOSG), Expert Staff of 1540 Committee, International Atomic Energy Agency (IAEA), International Civil Aviation Organization (ICAO), International Maritime Organization (IMO), International Monetary Fund (IMF), Office of Disarmament Affairs (ODA), Office of Humanitarian Affairs (OCHA), Office of the High Commissioner for Human Rights (OHCHR), Office of Legal Affairs (OLA), Organization for the Prohibition of Chemical Weapons (OPCW), Special Rapporteur on the promotion and protection of human rights while countering terrorism, United Nations Development Program (UNDP), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations High Commissioner for Refugees (UNHCR), United Nations Interregional Crime and Justice Research Institute (UNICRI), United Nations Office on Drugs and Crime (UNDOC), World Customs Organization (WCO), World Bank (WB), and World Health Organization (WHO).

provide an interface with regional organizations on coordinated engagement at the regional level on implementing the Strategy.

As a starting point of forging new partnership between the United Nations and regional organizations through the global counter-terrorism strategy, the issue of counter-terrorism was introduced for the first time in September 2006, on the agenda of high-level meetings between the UN Secretary-General and regional and intergovernmental organizations. Assistant Secretary-General Robert C. Orr, then chair of the United Nations Counter-Terrorism Implementation Task Force (CTITF), briefed the heads of regional and sub-regional organizations on the Strategy. At the briefing, many of the regional representatives welcomed the UN Global Counter-Terrorism Strategy and expressed willingness to cooperate with the UN in implementing the strategy, building upon many existing activities. Some of them specifically mentioned that the United Nations could engage regional organizations as the entry point to help states build capacities in counter-terrorism, including streamlining and fulfilling reporting obligations, providing assistance on legal drafting, ratification and implementation of the international instruments, and filling gaps in implementing relevant Security Council resolutions.

A regional-global paradigm is taking initial shape through sporadic involvement of regional organizations in CTITF activities, through various kinds of analyses, exercises or engagements:

1) Mapping exercises as a starting point for potential cooperation. For example, the United Nations Department of Political Affairs (DPA), which is the UN's focal point for the secretary-general's high-level meetings with intergovernmental organizations, has put together a mapping of counter-terrorism activities by respective regional organizations.[18] The CTITF, in consultation with its participating entities, also put together a matrix on various CTITF entities' engagement and cooperation with regional organizations.[19] The CTITF also developed a UN Counter-Terrorism Online Handbook[20] which centralized and disseminated information on UN system counter-terrorism activities as well as relevant information on regional organizations.

2) Building partnerships in regional initiatives. Various CTITF initiatives are factoring regional organizations into their partnership-building endeavours. For example, the UN/DPA is embarking on a project in Central Asia together with the European Union and the European Commission on regional implementation of the Strategy, through the DPA's leadership in the CTITF Working Group on Conflict Prevention and Resolution. A number of regional organizations, including the EC, OSCE, SCO, NATO, CIS, and CST, would be expected to participate in and make contributions to the process. The CTITF Working Group on Protecting Human Rights While Countering Terrorism also aims to bring together relevant stakeholders at the regional level to facilitate the exchange of information and experiences through the organization of regional workshops.

3) Sharing of experiences and best practices. Regional expertise on thematic matters at times can be useful to relevant CTITF activities. For example, in assisting the Secretary-General in

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[18]   Document in file.

[19]   Document in file.

[20]   Available at: http://www.un.org/terrorism/cthandbook/.

convening a symposium on supporting victims in September 2009, the CTITF Working Group on Supporting Victims also benefited from the OSCE experience on supporting victims through, for example, the concrete results of the OSCE High Level Meeting on Victims of Terrorism in September 2007. Various CTITF projects also have involved regional organizations in the brainstorming of their activities. For example, experts from the OSCE participated in a stakeholder meeting of the CTITF Working Group on Countering the Use of the Internet for Terrorist Purposes in November 2008, which discussed the nature of the threat represented by use of the Internet for terrorist purposes, and the most appropriate means for dealing with it. The CTITF Working Group on Strengthening the Protection of Vulnerable Targets has worked extensively with regional organizations such as the CICTE, OAS, EC and OSCE in its applied research work on public-private partnerships (PPPs) for the protection of vulnerable targets from terrorist attacks.

The Way Forward: A Regional-Global Paradigm for Implementing the Strategy

In order to establish systematic and comprehensive cooperation between the United Nations and regional organizations in the fight against global terrorism, it is important to seize the opportunity to implement the Global Counter-Terrorism Strategy by fully utilizing existing cooperation mechanisms between the UN and regional organizations.

The initial evolution of such a regional-global paradigm should aim for: 1) promoting broader, balanced, and systematic cooperation between the United Nations and regional organizations through developing a coherent, coordinated approach; 2) ensuring that implementation of the Strategy becomes a more prominent part of the work programme of regional organizations, raising awareness as well as ensuring allocation of sufficient resources and enabling necessary capacity-building; 3) increasing information flow between the UN and regional organizations about each other's programmes, operations, and plans.

There are several layers in the regional-global paradigm – ranging from strategic planning to concrete plans of action:

1) Mainstreaming counter-terrorism, within the framework of the Strategy, in the cooperation priorities between the United Nations and regional organizations. This could be achieved by establishing a component of implementing the Strategy in the further evolution of the Secretary-General's high-level meetings with regional organizations.

2) Enhancing cooperation mechanism between the CTITF and regional organizations. The potential mechanism should aim to convene an annual meeting with regional organizations. The inaugural meeting should aim to achieve: 1) identifying key officials in various regional organizations dealing with counter-terrorism, and accordingly establishing focal points in these organizations with the CTITF, and 2) creating a channel of effective information-sharing between the CTITF and regional organizations. In this way, the CTITF could take the first step in meeting the expectation that it serves as a strategic interface between the United Nations and regional organizations on the Strategy, and eventually use its convening authority to bring regional

organizations together to share best practices and assess implementation in each region and sub-region.[21]

3) Establishing appropriate modalities through which the United Nations can work with regional organizations to promote timely and effective responses to terrorist threats on the ground. This can be achieved through a through mapping of the expertise of relevant regional organizations and all participating entities of the CTITF, and the matching, combination, and joint application of these resources, all based on their comparative advantages.

4) The United Nations should encourage and facilitate dialogue and cooperation among regional organizations on implementing the Strategy. Such closer cooperation may not only enable more collective delivery of counter-terrorism activities at the regional level, but also facilitate cross-regional capacity-building. One example was highlighted in CTITF message to the ASEM Conference on Counter-Terrorism on 22-23 June 2009 in Manila, saying that, as the main multilateral channel for communication and dialogue between Asia and Europe, one particular merit for ASEM is to facilitate cross-regional assistance and cooperation so that global, regional and sub-regional bodies that have developed expertise and experience can provide assistance to those still developing related capacities. Other cross-regional forums that could serve this purpose include the Asia-Africa Forum, East Asia-Latin America Forum, etc. The exact model of comprehensive regional organization cooperation on counter-terrorism still has yet to emerge, but some inspiring ideas include establishing a network of regional counter-terrorism focal points, or the OSCE proposal that regional organizations unite into an "Alliance of Regional Organizations in Combating Terrorism".[22]

It is hoped that, with the gradual evolution and eventual maturity of a regional-global paradigm for implementing the UN Global Counter-Terrorism Strategy, a model of cooperation between the United Nations and regional organizations to advance peace and security can thus be set.

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[21] Eric Rosand, Alistair Millar, Jason Ipe, and Michael Healey, "The UN Global Counter-Terrorism Strategy and Regional and Subregional Bodies: Strengthening a Critical Partnership", Center on Global Counterterrorism Cooperation paper, October 2008.

[22] Raphael F. Perl, head on anti-terrorism issues, OSCE Action against Terrorism Unit, "Building Stronger Partnership to Prevent Terrorism", Washington, 8 October 2009.

ANNEX

The United Nations Global Counter-Terrorism Strategy: Provisions relating to regional organizations

1. To encourage relevant regional and subregional organizations to create or strengthen counter-terrorism mechanisms or centres.

2. To step up national efforts and bilateral, subregional, regional and international cooperation, as appropriate, to improve border and customs controls in order to prevent and detect the movement of terrorists and prevent and detect the illicit traffic in, inter alia, small arms and light weapons, conventional ammunition and explosives, and nuclear, chemical, biological or radiological weapons and materials, while recognizing that States may require assistance to that effect;

3. To take advantage of the framework provided by relevant international, regional and subregional organizations to share best practices in counter-terrorism capacity-building, and to facilitate their contributions to the international community's efforts in this area;

4. To encourage relevant specialized agencies, relevant international, regional and subregional organizations and the donor community, to develop States' capacities to implement relevant United Nations resolutions;

5. To encourage the Counter-Terrorism Committee and its Executive Directorate to continue to improve the coherence and efficiency of technical assistance delivery in the field of counter-terrorism, in particular by strengthening its dialogue with States and relevant international, regional and subregional organizations and working closely, including by sharing information, with all bilateral and multilateral technical assistance providers;

6. To continue to work within the United Nations system to support the reform and modernization of border management systems, facilities and institutions at the national, regional and international levels;

7. To encourage the United Nations to work with Member States and relevant international, regional and subregional organizations to identify and share best practices to prevent terrorist attacks on particularly vulnerable targets;

8. To consider becoming parties without delay to the core international instruments on human rights law, refugee law and international humanitarian law, and implementing them, as well as to consider accepting the competence of international and relevant regional human rights monitoring bodies;

9. The Special Rapporteur on the promotion and protection of human rights and fundamental freedoms while countering terrorism should continue to support the efforts of States and offer concrete advice by corresponding with Governments, making country visits, liaising with the United Nations and regional organizations and reporting on these issues.

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Note for Contributors

The *Defence Against Terrorism Review* (DATR) is an inter-disciplinary, biannual journal, publishing in-depth analyses of the complex issue of terrorism in a changing and globalised security environment. It includes political, legal, sociological, economic, and psychological approaches to the terrorism predicament. DATR intends to reach academics as well as practitioners and aims to publish theoretical as well as policy papers. It also encourages contributions from different cultural perspectives.

Manuscripts submitted to DATR should be in the environs of 8,000 words and must be written in English. Each paper is screened at COE–DAT and then sent to referees for reviewing.

Manuscripts must be typed in 12 puntos and double spacing with *Times New Roman* font, and should be sent directly to the Editor-in-Chief (acad@coedat.nato.int) *or* Assistant Editor (datr@coedat.nato.int) by e-mail.

Manuscripts should be organized as the title page, an Abstract (around 200-300 words), and Keywords (up to 5), Footnotes, and a Bibliography as shown below:

FOOTNOTES

1. Mustafa Kibaroğlu and Ayşegül Kibaroğlu, *Global Security Watch – Turkey: A Reference Handbook*, Praeger Security International, Greenwood Publishing Group, Westport, Connecticut, USA, 2009, pp. 87-109.

2. Monica Den Boer, "The EU Counterterrorism Wave: Window of Opportunity or Profound Policy Transformation?" in Marianne Van Leuween (ed.), *Confronting Terrorism. European Experiences, Threat Perceptions and Policies*, Kluwer Law International, The Hague, 2003, p. 196.

3. Michael Doran, "Somebody Else's Civil War", *Foreign Affairs*, Vol. 82, No. 1, 2002, p. 32.

4. European Commission, Proposal for a Council Framework Decision on the European Evidence Warrant for Obtaining Objects, Documents and Data for Use in the Proceedings in Criminal Matters, Brussels, 11 November 2003 (http://eur-lex.europa.eu/LexUriServ/site/en/com/2003/ com2003_0688en01.pdf).

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