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THE CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR STRATEGY OF THE GOVERNMENT OF CANADA – IN NEED OF A REVIEW

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La présente étude a été rédigée par un stagiaire du Collège des Forces canadiennes pour satisfaire à l'une des exigences du cours. L'étude est un document qui se rapporte au cours et contient donc des faits et des opinions que seul l'auteur considère appropriés et convenables au sujet. Elle ne reflète pas nécessairement la politique ou l'opinion d'un organisme quelconque, y compris le gouvernement du Canada et le ministère de la Défense nationale du Canada. Il est défendu de diffuser, de citer ou de reproduire cette étude sans la permission expresse du ministère de la Défense nationale.

ABSTRACT

In March 2005, Public Safety and Emergency Preparedness Canada (PSEPC) released *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*. The strategy was prepared by the Canadian Government following the terrorist attacks of September 11th 2001 and the anthrax-laden letters of that fall, and the recognition that Canada is a potential target of CBRN terrorism.

Since it was published the strategy has not been reviewed to determine whether or not it meets its aim. This paper through an examination of its content will determine that the strategy does not address the desirable characteristics of a national strategy as developed by the United States General Accounting Officer. Although developed to aid US Government in refining its strategies to ensure their viability, they are an ideal tool to assess the Canadian strategy.

The analysis of the strategy will highlight a number of shortfalls, including: lack of intelligence on the threat; lack of a synchronisation mechanism to implement and coordinate the strategy; and the importance of sustained funding. It will also show that the Government needs to entrust PSEPC with more responsibilities if the strategy is to come to its intended fruition. Based on these shortfalls, the paper will conclude with the determination that it is time for the Canadian Government to revitalize its interest in *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*.

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ACRONYMS

BTWC	Biological and Toxins Weapons Convention
CANSOFCOM	Canadian Special Operations Forces Command
CBRN	Chemical, Biological, Radiological or Nuclear
CEMC	Canadian Emergency Management College
CF	Canadian Forces
CFIA	Canadian Food Inspection Agency
CNSC	Canadian Nuclear Safety Commission
CRTI	CBRN Research Technology Initiative
CSIS	Canadian Security Intelligence Service
CTBT	Comprehensive Test Ban Treaty
CWC	Chemical Weapons Convention
DND	Department of National Defence
DG	Dangerous Goods
DHS	Department of Homeland Security
EM	Emergency Management
FCM	Federation of Canadian Municipalities
FERS	Food Emergency Response System
FNEP	Federal Nuclear Emergency Plan
GAO	General Accounting Officer
GPP	Global Partnership Program
GoC	Government of Canada
GWOT	Global War on Terrorism
HAZMAT	Hazardous Materials
HC	Health Canada
IAEA	International Atomic Energy Agency
ICS	Incident Command System
IND	Improvised Nuclear Device
MOE	Measures of Effectiveness
NACD	Non-proliferation, Arms-Control, and Disarmament
NCTP	National Counter-Terrorism Plan
NERS	National Emergency Response System
NPT	Non-Proliferation Treaty
NSP	National Security Policy
OCIPEP	Office of Critical Infrastructure Protection and Emergency Preparedness
OPWC	Organization for the Prohibition of Chemical Weapons
PSEPC	Public Security Emergency Preparedness Canada
PSI	Proliferation Security Initiative
RCMP	Royal Canadian Mounted Police
RDD	Radiological Dispersal Device
SOREM	Senior Officials Responsible for Emergency Management
TICs	Toxic Industrial Chemicals
TIMs	Toxic Industrial Materials
UNSCR	United Nations Security Council Resolution

WMD
WMDC

Weapons of Mass Destruction
Weapons of Mass Destruction Committee

THE CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR STRATEGY OF THE GOVERNMENT OF CANADA – IN NEED OF A REVIEW

Nuclear, biological and chemical arms are the most inhumane of all weapons. Designed to terrify as well as destroy, they can, in the hands of either states or non-state actors, cause destruction on a vastly greater scale than any conventional weapon, and their impact is far more indiscriminate and long-lasting.¹

INTRODUCTION

In March 2005, Public Safety Emergency Preparedness Canada (PSEPC) released *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada (The CBRN Strategy of the GoC)*. This policy was prepared in response to the attacks of September 11th 2001 and the anthrax incidents that struck the United States in the Fall of 2001. It was devised following the realization that Canada and Canadians were not immune to the continuing terrorist threats around the world, in particular the threat of chemical, biological, nuclear and radiological (CBRN) terrorism.²

Furthermore, *The CBRN Strategy of the GoC* became an actualization of Canada's National Security Policy (NSP) that had been released in April 2004. The NSP had provided the "...national framework and action plan to ensure that the Government of Canada (GoC) is prepared for and can respond to emerging or occurring threats to national public safety and security."³ The strategy was to guide efforts of the Government of Canada to protect Canadians, enhance domestic preparedness and further develop relationships internationally to deal with the growing threat of CBRN terrorism.

¹ Weapons of Mass Destruction Commission, *Weapons of Terror: Freeing the World of Nuclear, Biological, and Chemical Arms* (Stockholm, Sweden: EO Grafiska, Stockholm, 2006), 17.

² Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada* (Ottawa: Public Works and Government Services, 2005), 2.

³ Canada Newswire, "Government of Canada Announces CBRN Strategy," *Canada NewsWire* (Mar 31, 2005), 1, <http://proquest.umi.com>; Internet; accessed 3 December 2007.

In fact, the Canadian Security Intelligence Service (CSIS) had assessed in December of 1999 that “although it is impossible to estimate the precise likelihood of a mass-casualty terrorist attack using CBRN materials...It appears to be a case not of ‘if,’ but rather of ‘when,’ the next such event will occur.”⁴ The tragic events of September 11th 2001, although not a CBRN attack, had demonstrated that terrorists had now crossed a “destructive threshold”.⁵ Academics, governments and media everywhere realized that the rules of the game had changed. If terrorists were willing to use airliners as weapons what would prevent terrorists from attempting attacks with CBRN materials?

In addition to this, the Weapons of Mass Destruction Committee (WMDC), in 2006, released its report *Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms* stating that the global community faced three major challenges in the current security environment with regards to weapons of mass destruction (WMD): the existence of WMD arsenals; additional states acquiring WMD; and terrorists acquiring WMD.⁶ It becomes clear that the Canadian and international assessment of a possible CBRN attack is that it is a real threat to Canadian interests at home and abroad.

The issue is the effectiveness of *The CBRN Strategy of the GoC*. The NSP paid very little attention to the possibility of an attack on Canadians with a CBRN weapon, yet the GoC produced a policy that was to be a road map to guide all the different

⁴ Canadian Security Intelligence Service, *Report no. 2000/02: Chemical, Biological, Radiological and Nuclear (CBRN) Terrorism* (Ottawa: Canadian Security Intelligence Service, 1999), <http://www.csis-scrs.gc.ca/en/perspectives/200002.asp>; Internet; accessed 19 November 2007.

⁵ Andrew O’Neil, "Terrorist use of Weapons of Mass Destruction: How Serious is the Threat?" in *Weapons of Mass Destruction and Terrorism*, ed. Alan O’Day (Burlington, VT: Ashgate Publishing Company, 2004), 1.

⁶ Weapons of Mass Destruction Commission, *Weapons of Terror: Freeing the World of Nuclear, Biological, and Chemical Arms*, 27-29

departments and agencies, federal and provincial, on how to deal with a CBRN incident. Many would argue that the policy was long overdue, especially that the 1999 CSIS assessment indicated that the threat to Canada was credible. Moreover, Canada had been engaged in a number of programs, at home and abroad, to limit or counter the CBRN threat to Canadians. Programs such as the Nuclear Non-Proliferation Treaty (NPT), the Biological and Toxin Weapons Convention (BTWC), and the creation of the *Canadian Emergency Management College (CEMC)* are examples of the GoC determination to be prepared to deal with the CBRN threat. Before the release of its CBRN Strategy the GoC did not have an overarching policy to guide its departments and agencies on how it envisioned dealing with the threat. It is, therefore, timely to conduct an analysis of *The CBRN Strategy of the GoC*.

The purpose of this paper is to conduct an analysis of the *The CBRN Strategy of the GoC*. It assesses the GoC strategy on CBRN terrorism using the characteristics developed by the United States General Accounting Office (GAO) to review American strategies. These desirable characteristics have been developed and used by the GAO to assess the US *National Strategy to Combat Weapons of Mass Destruction* and are equally applicable to review the Canadian strategy. The analysis will demonstrate that the content of *The CBRN Strategy of the GoC* is insufficient to achieve the aim of the Canadian Government, to "... protect Canada and Canadians by taking all possible measures to prevent, mitigate and respond effectively to a potential CBRN incident."⁷

At first I will address the issue of the threat to Canada. I will examine what is the terrorist threat, and more specifically what is the CBRN terrorist threat to Canadians at

⁷ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 3.

home and abroad. I will also demonstrate that although the prospect of a CBRN terrorist attack on Canada, or the United States, is a “high-consequence, low-probability event”⁸ it cannot be ignored. My analysis will not only examine the possibility of CBRN terrorism to Canadians, but also reviews the different threats posed by this type of terrorism. Specifically, each component of CBRN (Chemical weapons, biological weapons and radiological/nuclear weapons) is examined.

I will then review what initiatives that the Canadian Government had undertaken prior to the release of *The CBRN Strategy of the GoC* in March 2005. I will do this in order to demonstrate that the Canadian approach to dealing with the threat has been piecemeal. It will also reveal three shortfalls: lack of knowledge of the threat; lack of synchronization amongst the different federal departments; and improper funding. These programs and activities will be regrouped under the strategic objectives of the strategy: prevention and mitigation; preparedness; response; and recovery.⁹

Finally I will provide a comprehensive analysis of *The CBRN Strategy of the GoC* based on the characteristics developed by the United States General Accounting Officer (GAO) through its assessment of various US national strategies in order to will demonstrate that the GoC has failed to clearly define the goals, ways and means of its CBRN strategy. *The CBRN Strategy of the GoC* fails to define the threat and the risk to Canada, leaving the federal departments without a clear intelligence picture. I will demonstrate that a proper framework for synchronization with work timeline is required

⁸ Jerald M. Post, Laurita M. Denny and Polina Kozak, "Weapons of Mass Destruction Terrorism" In *Avoiding the Abyss: Progress, Shortfalls, and the Way Ahead in Combating the WMD Threat*, eds. Barry R. Schneider and Jim A. Davis (Westport, CT: Praeger Security International, 2006), 49.

⁹ Public Safety and Emergency Preparedness Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 4.

for this strategy to succeed. I will also show that for the strategy to be successful, proper budgeting with sustained funding is required. My analysis will demonstrate that the GoC needs to revitalize its CBRN strategy by addressing these shortfalls.

As it was determined and presented by the Department of Foreign Affairs and International Trade (DFAIT) in its January 2005 report, *Weapons of Mass Destruction Verification and Compliance: the State of Play, Challenges, and Responses*, the terrorist CBRN threat is real. Although it was assessed by an expert panel that it is unlikely that a non-state actor will use a nuclear weapon, it is most likely (75% of respondents) that it will use a radiological weapon, most likely (97%) that it will use a chemical weapon, and most likely (60%) that it will use a biological weapon.¹⁰ This assessment was based on the potential for an attack in the next five to ten years. This analysis of *The CBRN Strategy of the GoC* is therefore timely, and it will underline the requirement for the Canadian Government to review its strategy and further ensure the safety and security of its citizens.

¹⁰ Canada, Foreign Affairs and International Trade Canada, *Weapons of Mass Destruction Verification and Compliance: The State of Play, Challenges, and Responses* (Ottawa, ON: Foreign Affairs and International Trade Canada, 2005), http://www.international.ca.ca/arms/isrop/research/compl_verif_2005/section02-en.asp; Internet; accessed 6 December 2007.

CHAPTER 1 – THE THREAT

The nature of terrorism has been changing steadily since the end of the Cold War. Many factors are driving this change, including the erosion of national borders, the increasing ease of travel, the revolution in technology and the proliferation of weapons of mass destruction.¹¹

Terrorism - General

Terrorism has become a complicated international issue. Traditional groups, such as Euskadi Ta Askatasuna (ETA) and the Irish Republican Army (IRA), typified what the world knew as a terrorist organization from the 1960s to the 1990s. These groups resorted to violence to promote their message and generally their purposes were clear and limited. They sought to bring social change and wanted to be part of the political processes in their countries.¹² The violence they perpetuated was in their view necessary, but they never engaged in mass-casualty attacks because they did not want to jeopardize their future roles or lose popular support. They wanted to ensure that they were involved in any peace negotiation and post-conflict.

The 1990s dramatically changed terrorism. Many experts began to distinguish new groups that were ideologically different. The new terrorist, that which has typified the twenty-first century, is an "...operative who is part of a loose, yet sophisticated, trans-national network whose goal is to overturn global trends that are deemed to be in profound conflict with their core religious or political beliefs."¹³ Groups such as Aum

¹¹ Canadian Security Intelligence Service, *Backgrounder no.8 Counter-Terrorism* (Ottawa: Canadian Security Intelligence Service, 2002), <http://www.csis-scrs.gc.ca/en/newsroom>; Internet; accessed 19 November 2007.

¹² Andrew O'Neil, "Terrorist use of Weapons of Mass Destruction: How Serious is the Threat?" In *Weapons of Mass Destruction and Terrorism*, ed. Alan O'Day (Burlington, VT: Ashgate Publishing Company, 2004), 9.

¹³ *Ibid.*, 8.

Shinrikyo and Al Qaeda have distinguished themselves in this category. The other dramatic change is that the violence they use is more lethal and does not discriminate when attacking a target. No longer do they only strike targets that represent the authority that they wish to influence; they will strike any target to get their message across even if it involves killing a large number of civilians.

The single operative concept has also been referred to as that of the “micro actor.”¹⁴ This operative will either function alone or in small groups. Terrorists have realized that they cannot challenge the Western countries by organizing themselves into large groups and challenging modern armies on the battlefield, such as Al Qaeda prior to the US and allied invasion of Afghanistan. These smaller groups now operate around the globe adhering to their initial ideological goals, but not necessarily operating in concert. This concept has also driven the groups to become more sophisticated. They now rely heavily on exchanges of information and finance, typically over the internet. Another worrying trend when one examines terrorism today is the connection to crime.¹⁵ Where in the past groups may have avoided the connection for fear of compromising their political position, groups now refer to criminal entities to finance their operations. This means that terrorist groups no longer require large organizations, as they have found alternate means of finance and thus have access to an entire ensemble of illegal resources to conduct their activities.

¹⁴ Post, Denny and Kozak, *Weapons of Mass Destruction Terrorism*, 6 The United Nations emphasized this in their report *A more secure world: ours shared responsibility* when it noted that terrorists can now rely on, “...an armed non-State network with global reach and sophisticated capacity” United Nations, High-level Panel on Threats, Challenges and Change, *A More Secure World: Our Shared Responsibility*, 2004), <http://www.un.org/secureworld/report.pdf>; Internet; accessed 26 November 2007.

¹⁵ *Ibid.*, 60.

Two other factors lead to the evolution of terrorism since the 1990s. The first is that terrorist groups today will not hesitate to cause mass casualties, and therefore warn that this creates an unprecedented danger. The attack on the World Trade Center demonstrated that terrorists have crossed as psychological barrier and that there is no hesitation to limit casualties, even amongst civilian populations.¹⁶ The second factor leading to the evolution of terrorism since the 1990s is the concept of “state sponsored” terrorism. This concept is one whereby a nation would support a terrorist group in its attacks by providing financing, resources, technical assistance and training. This is done by a nation wishing to strike at a mutual enemy while denying any responsibility or knowledge of the attack. The US has been most vocal about these sponsors and its Department of State released a list of seven nations in 2002 it believed to be supporting terrorist activities, namely: Iran; Iraq; Libya; Sudan; North Korea; and Cuba.¹⁷

Where does this place Canada and its assessment of terrorism? CSIS has identified four main groupings for terrorism in Canada: religious extremism, State-sponsored terrorism, secessionist violence and domestic extremism.¹⁸ Elements of each of these groups have been identified in Canada. This led CSIS in 2002 to assess that Canada is second, only to the US, in terms of the number of international terrorist organizations operating within its borders. Although many measures have been taken by the GoC since this CSIS report, as this paper demonstrates, terrorists continue to conduct a number of activities in Canada. Their activities include,

¹⁶ Post, Denny and Kozak, *Weapons of Mass Destruction Terrorism*, 65

¹⁷ *Ibid.*, 60.

¹⁸ Canadian Security Intelligence Service, *Backgrounder no.8 Counter-Terrorism*, 5.

fund raising, lobbying through front organizations, providing support for terrorist operations in Canada and abroad, procuring weapons and materiel; coercing and manipulating immigrant communities, facilitating transit to and from the US and other countries and other illegal activities.¹⁹

In 2005, CSIS confirmed that three serious threats face Canadians. Terrorism remains the primary threat, the proliferation of Weapons of Mass Destruction (WMD) is second, and espionage is third.²⁰ The same report highlighted that Canada remains a target for terrorism because of its role in Afghanistan and the Global War on Terrorism (GWOT). The report also suggests that a number of Canadians have received training in terrorist training camps around the world, participated in insurgencies and participated in the planning of operations overseas. Most disturbing is the realisation that, “Terrorists in Canada have conducted preliminary reconnaissance against potential Canadian targets.”²¹ The terrorist threat to Canadians, at home and abroad, is therefore credible according to our security and intelligence service. Ignoring the threat places the lives, interests and values of Canadians at stake.

CBRN Weapon Characteristics

The threat of terrorism has not only evolved and become more sophisticated, it has also become more lethal. The attacks of September 11th 2001 and the attempted Sarin attack on the Tokyo Subway by Aum Shinrikyo have proven that terrorists have crossed a moral threshold. In the past, “...morality and self-image plus practical concerns about group cohesion, alienating perceived constituents, or provoking popular

¹⁹ Ibid.

²⁰ Canadian Security Intelligence Service, *2004-2005 Public Report* (Ottawa, ON: Canadian Security Intelligence Service, 2005), http://www.csis-scrs.gc.ca/en/publications/annual_report/2004/report2004.asp; Internet; accessed 12 February 2008, 1.

²¹ Ibid.

crackdowns constrained their violence.”²² This can then be extrapolated into a willingness to acquire weapons to create an even greater number of casualties - CBRN weapons in particular.

CBRN weapons include four weapon types: chemical, biological, radiological and nuclear. All have the capability of causing greater human casualties than a conventional attack and all would have a significant economic impact on a country attacked with such a weapon.²³ Some nations refer to these as Weapons of Mass Destruction (WMD). The standard definition is the one adopted by the U.N. in 1948, whereby WMD are defined as,

...atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable to the destructive effect to those of the atomic bomb or other weapons mentioned above.²⁴

The Canadian Government in *The CBRN Strategy of the GoC* has defined CBRN as, “...weaponized or non-weaponized chemical, biological, radiological and nuclear materials that can cause significant harm.”²⁵ The term goes on to include Dangerous Goods (DG) and Hazardous Materials (HAZMAT) because these could be used as weapons by terrorists. The GoC has determined that intentional CBRN incidents are to

²² B. M. Jenkins, "Redefining the Enemy," *RAND Review* (Spring 2004) [journal on-line]; <http://www.rand.org/publications/randreview/issues/spring2004/enemy.html>; Internet; accessed 6 December 2007, 3.

²³ United States of America, General Accounting Officer, *Capitol Hill Anthrax Incident* (Washington, D.C.: General Accounting Office, 2003), <http://www.gao.gov/new.items/d03686.pdf>; Internet; accessed 26 March 2008. The Capitol Hill Anthrax letters of Fall 2001 caused panic in the US capital, and required a large clean-up effort. The Environmental Protection Agency (EPA) paid \$27 Million to have the affected areas cleaned, surpassing its initial estimate of \$5 Million for the operation.

²⁴ S. Carus, *Defining "Weapons of Mass Destruction"*, Occasional Paper 4 ed. (Washington, D.C.: National Defence University Press, 2006), <http://www.ndu.edu/WMDCenter>; Internet; accessed 8 November 2007.

²⁵ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 2

be considered terrorist acts, so the Canadian strategy focuses on terrorist-related CBRN incidents. “This includes acts involving serious violence to persons or property where the offence potentially has political, religious or ideological objective in Canada or a foreign state, or is a matter of national interest.”²⁶ The definition that will be used for the remainder of this paper is CBRN as proposed by the GoC. As Seth Carus noted in *Defining “Weapons of Mass Destruction”*, “...none of the definitions is decisively superior to any of the others...WMD = CBRN...”²⁷ He did emphasize that the definition and term used should be consistent with national policy, and in the Canadian context the proper term is CBRN.

Chemical Weapons

These weapons are regarded as the greatest of the CBRN threats. The agents required to produce these are readily available globally, relatively easy to acquire or produce and weaponize. Many countries had stockpiles of chemical-warfare agents during the Cold War and despite the best efforts of many regimes, including the Chemical Weapons Convention (CWC), approximately 60,000 metric tons of the agents remain.²⁸ This type of CBRN weapon, as will later be shown, is ideal for mass-casualty attacks by terrorist groups because they can be easily acquired and manufactured with the minimum of equipment to get the desired effect on the target.

²⁶ Ibid., 2.

²⁷ Seth Carus, *Defining “Weapons of Mass Destruction”*, 17.

²⁸ United Nations, High-level Panel on Threats, Challenges and Change, *A More Secure World: Our Shared Responsibility*, <http://www.un.org/secureworld/report.pdf>; Internet; accessed 26 November 2007, 40. The bulk of the existing stockpiles awaiting destruction are found in Russia and the countries that once comprised the Soviet Union.

There are four categories of chemical-warfare agents that must be considered when dealing with the CBRN threat. The first is the choking agent. This is an agent such as chlorine or phosgene that is designed to attack the lungs and cause respiratory damage. The second is the blood agent. This is an agent that attacks the circulatory system and is designed to prevent the transport of oxygen by the blood. The third is the vesicant, or blistering, agent. This agent is designed to burn skin and tissue throughout the body, including the lungs, and includes mustard gas. The fourth is the nerve agent. Sarin and VX are examples of this agent designed to attack a person's nervous system and destroy the enzymes within.²⁹ A chemical-warfare agent is relatively easy to disseminate and would cause mass casualties in most metropolitan centres.

Chemical-warfare agents are worrisome; they can be acquired from “rogue states”, or theft from a depot in the former Soviet Union. Other CBRN weapons that are a concern in this category are those fabricated from Toxic Industrial Chemicals (TICs) and Toxic Industrial Materials (TIMs). They are of such importance that the Canadian Government included them in their definition of CBRN as DG and HAZMAT. Globally there are nearly 6,000 industrial chemical facilities.³⁰ These industries produce countless quantities of cyanide, chlorine, ammonia and phosgene, all of which could be weaponized. Access to TICs and TIMs is relatively easy, the basic chemistry for their use is open knowledge and their delivery much less complicated than chemical-warfare agents. The Weapons of Mass Destruction Committee (WMDC) stated, “...terrorist

²⁹ Richard A. Falkenrath, "Confronting Nuclear, Biological and Chemical Terrorism" In *Weapons of Mass Destruction and Terrorism*, ed. Alan O'Day (Burlington, VT: Ashgate Publishing Company, 2004), 95.

³⁰ United Nations, High-level Panel on Threats, Challenges and Change, *A More Secure World: Our Shared Responsibility*, 40.

groups could choose to attack targets that would release dangerous chemical agents. Civilian industries that use or produce highly toxic materials are sitting targets.”³¹

Biological Weapons.

These types of weapons “...disseminate pathogenic organisms or biologically produced toxins to cause illness or death in human, animal or plant populations.”³² These weapons generally require minute exposure to be effective, and the detection of their effects normally takes several days. The challenge for any government becomes the early detection of an attack with a biological agent in order to treat the population. The second challenge is that once contaminated a person can then transmit the pathogen to others, spreading the disease in unpredictable patterns that local authorities could not react to or prevent. Biological agents include bacteria, such as Anthrax and Cholera, Rickettsia, Toxins, and viruses such as Ebola and smallpox.³³

Atop of the danger posed by the fact that detection is nearly impossible until signs and symptoms appear, the method available to terrorists to deliver biological weapons is also worrisome. The three ways to contaminate people are orally, through dermal exposure and via insect vector transmissions.³⁴ The first requires that a terrorist has to simply contaminate a food or water source and the unsuspecting target ingests the

³¹ Weapons of Mass Destruction Commission, *Weapons of Terror: Freeing the World of Nuclear, Biological, and Chemical Arms*, 43.

³² Falkenrath, *Confronting Nuclear, Biological and Chemical Terrorism*, 93.

³³ *Jane's Chem-Bio Handbook*, ed. R. Fannee, 2nd ed. (Surrey, U.K.: Jane's Information Group, 2003), 129-184.

³⁴ *Ibid.*, 144-145.

pathogen. This is perhaps the greatest biological threat.³⁵ The second would require a terrorist to disseminate the threat agent in such a way so as to penetrate skin. Human skin, however, is an excellent barrier against most toxins which would limit terrorist use of the weapon in this manner. The last is spreading the disease through ticks, fleas and mosquitoes. It would be difficult for a terrorist to develop an effective weapon this way.

The most terrifying aspect of biological agents is the relatively ease with which some of the agents can be manufactured. Anthrax for example can be produced in almost any University or College laboratory in North America.³⁶ There is no need for a Level 3 or 4 laboratories, and it is naturally occurring in the soil of many locations globally, including Saskatchewan. It would not be challenging but possible for a terrorist group to acquire an agent like Anthrax and prepare a CBRN weapon.³⁷

Radiological Weapons

This type of weapon is the one most often referred to as the “dirty bomb”. It is a weapon that could use plutonium or highly-enriched uranium, but more realistically would probably use another radioactive material such as Caesium 137 which is found in

³⁵ Merck, "Biological Warfare and Terrorism," <http://www.merck.com/mmpe/sec14/ch167/ch167h.html>; Internet; accessed 7 April 2008. “The only other successful use of a biological agent by a terror group in the US occurred in 1984. In this event, 751 people were stricken with diarrhea resulting from the intentional contamination with Salmonella of a salad bar in Oregon. The bacteria were introduced by a religious cult trying to influence the results of a local election. No one died.”

³⁶ R.P. Misra, *Manual for the Production of Anthrax and Blackleg Vaccines* (Rome Italy: Food and Agriculture Organization of the United Nations, 1991), <http://www.fao.org/docrep/004/T0278E/T0278E00.HTM>; Internet; accessed 27 March 2008. The laboratory techniques in this article are for producing anthrax in order to have sufficient quantities to produce a vaccine. It suggests that a proper laboratory (air supplied, etc.) is better but that one with a simple fume hood would suffice if proper cleaning methods are used.

³⁷ Abdul Hamied Bakeer, "Jihadi Website Supplies for Anthrax Production," *Global Terrorism Analysis* 5, no. 10 (2008), <http://www.jamestown.org/terrorism/news/article.php?articleid=2374023>; Internet; accessed 27 March 2008. This article cites several Jihadi websites that demonstrate the means to produce anthrax and make weapons from the biological agent. Although the article argues that it would be challenging for a terrorist organization to produce such a weapon it is not impossible.

medical equipment around the world.³⁸ The harm that radiological weapons can cause is twofold. First, these weapons will disrupt any community attacked. It will spread fear, prompting alarm among citizens beyond the true radioactive danger and eventually entail decontamination costs. Decontamination can be highly expensive. This is the second effect, the economic impact of such an attack. Moreover, when a target is hit, the radioactive fear will paralyze the community for some time. Commerce will immediately be impacted and the local economy will be in disarray.

Primarily there are two types of radiological weapons. The first is the radiological dispersal device (RDD). The intent of this weapon is to contaminate an area with radioactive material, normally done through the use of a conventional explosive.³⁹ Atop the effects listed above, now the target will be affected by the explosive which at times will be more lethal than the radioactive material itself. The second weapon type is the simple radiological dispersal device (SRDD). The weapon will contaminate an area, through the spread of the radioactive material, without an explosive. The challenge with this type of weapon is that people will be unaware they are hit until they begin getting sick from the radiation, heightening the effects noted above.

The WMDC accepts the possibility that a terrorist group could acquire nuclear weapons, but view this as unlikely. They do, however, view radiological weapons as a serious threat.

Terrorist objectives could also be pursued through the use of a so-called dirty bomb...A terrorist group could obtain such materials from nuclear

³⁸ United Nations, High-level Panel on Threats, Challenges and Change, *A More Secure World: Our Shared Responsibility*, 39.

³⁹ J. P. Sullivan and others, *Jane's Unconventional Weapons Response Handbook*, 1st ed. (Alexandria, VA: Jane's Information Group, 2002), 74.

waste or radioactive substances used in hospitals and various industries. Although...not likely to produce very large numbers of fatalities, they are much easier to make than fission weapons and can cause terror and mass disruption, especially if detonated at the heart of major cities.⁴⁰

Nuclear Weapons

“Any use of nuclear weapons...risks human casualties and economic dislocation on a catastrophic scale.”⁴¹ These weapons are designed to create a nuclear reaction, through fission or fusion, to create and release energy. Fission weapons are less powerful than fusion weapons, but are less complicated to fabricate. Fusion weapons are more destructive but require specific technology and cost a great deal to produce. An example of fission weapons would be those used during the Second World War against Hiroshima and Nagasaki. These had the explosive capacity equivalent to 10,000 tonnes of trinitrotoluene (TNT) and levelled the cities.⁴²

Nuclear weapons not only have a large explosive yield, they also have a high radioactive element because of the nature of the material used. Normally, plutonium or highly-enriched uranium (HEU) is used for these weapons, and these stockpiles are strictly controlled.⁴³ It is, therefore, unlikely for a terrorist group to acquire this type of weapon, but through theft or by being supplied by a “rogue state” this threat remains a possibility. As the WMDC has noted, “Since 1995 the IAEA has...662 confirmed

⁴⁰ Weapons of Mass Destruction Commission, *Weapons of Terror: Freeing the World of Nuclear, Biological, and Chemical Arms*, 40.

⁴¹ United Nations, High-level Panel on Threats, Challenges and Change, *A More Secure World: Our Shared Responsibility*, 38.

⁴² Falkenrath, *Confronting Nuclear, Biological and Chemical Terrorism*, 93.

⁴³ Federation of American Scientists, "Nuclear Weapons Design," <http://www.fas.org/nuke/intro/nuke/design.htm>; Internet; accessed 27 March 2008. “Until January 1994, the Department of Energy (DOE) estimated that 8 kilograms would typically be needed to make a small nuclear weapon. Subsequently, however, DOE reduced the estimate of the amount of plutonium needed to 4 kilograms.” This would result in a nuclear weapon with a 21 kiloton yield.

incidents of theft, 18 of which involved highly enriched uranium or plutonium, including a few cases involving kilogram quantities.”⁴⁴

Terrorists wishing to use nuclear weapons would have two options. The first as was discussed above is to steal or have it provided by a “rogue state” or state sponsor (such as Iran or North Korea). The second is through the use of an improvised nuclear device (IND). INDs are relatively inexpensive to fabricate, in terms of cost and technology, and require less radioactive material.⁴⁵ The hurdle that terrorists would have to jump is the acquisition of enough radioactive material to sustain a nuclear explosion. It would be difficult for any terrorist organization to do, but this possibility cannot be discounted because of the catastrophic effects. The WMDC reminded the public in their report that:

Scientists have repeatedly warned of the ease with which terrorists could, with parts from the open market assemble a simple ‘gun-type’ nuclear device...Experts suggest that if a simple nuclear device was detonated in a major city, the number of deaths would range from tens of thousands to more than one million. The shock to international commerce, employment and travel would amount to at least one trillion dollars.⁴⁶

CBRN Terrorism

“As former Secretary of Defence William Cohen stated concerning WMD terrorism: ‘The question is no longer if this will happen, but when.’”⁴⁷ With this as a

⁴⁴ Weapons of Mass Destruction Commission, *Weapons of Terror: Freeing the World of Nuclear, Biological, and Chemical Arms*, 40.

⁴⁵ Sullivan and others, *Jane's Unconventional Weapons Response Handbook*, 77.

⁴⁶ United Nations, High-level Panel on Threats, Challenges and Change, *A More Secure World: Our Shared Responsibility*, 39.

⁴⁷ Michael D. Intriligator and Abdullah Toukan, "Terrorism and Weapons of Mass Destruction" In *Countering Terrorism and WMD*, eds. Peter Katona, Michael D. Intriligator and John P. Sullivan (New York, NY: Routledge, 2006), 75.

premise, it is important to understand the following points: why a terrorist group would want to strike with a CBRN weapon; that there are three criteria or elements that these groups must meet to use these weapons; and the consequences of an attack by a terrorist group with a CBRN weapon.

Why use a CBRN weapon.

As was demonstrated on September 11th 2001, terrorists have crossed a threshold with regards to the willingness to cause mass casualties. The challenges, advantages and disadvantages for the use of the different CBRN weapons have been touched upon, but the symbolism of an attack is equally important. Civilians may be targeted to amplify the effect of their attacks, but terrorists appear to have four general targets for terrorism:

1. target of violence – the immediate physical target and victim of an attack;
2. target of terror – the population that shares the same characteristics with the victim of a terrorist act and consequently can become a potential target;
3. target of compliance – the national governments that the terrorists seek to force to accept their demands; and
4. target of influence – the larger community, usually encompassing the world, to which the terrorist is trying to bring attention to the cause.⁴⁸

Knowing that terrorists in the past have conducted these types of attack with conventional means, it is safe to assume that they would employ a similar targeting methodology for CBRN weapons.

Criteria for use of CBRN weapons

There are three criteria that a terrorist group would have to meet to use a CBRN weapon. The first is the interest in causing mass casualties.⁴⁹ The attacks on the World Trade Center in 2001 and the attacks on the Tokyo subway by Aum Shinrikyo, as well as

⁴⁸ Post, Denny and Kozak, *Weapons of Mass Destruction Terrorism*, 67-68.

⁴⁹ Falkenrath, *Confronting Nuclear, Biological and Chemical Terrorism*, 98.

countless terrorist strikes globally in the past decade, demonstrate that this willingness exists. As terrorist groups are now more apolitical, to wage ideological campaigns they must strike in such a way to demonstrate to their would-be followers that they are capable of attacking their enemies on an unprecedented scale.

The second element is having the technological and financial means to acquire CBRN weapons.⁵⁰ These devices present a threat to the terrorist themselves as they attempt to assemble and prepare for an attack. They must be prepared to invest heavily in time and money to develop these capabilities. This is why an understanding of these weapons is critical. It also serves to explain why there have been many more hoaxes than actual attacks, because mounting a CBRN attack is expensive and time consuming. Hoaxes could be just as effective for a terrorist organization.

The will to use CBRN weapons is the third criteria. "...the acquisition and use of NBC weapons would entail additional risks and challenges...beyond those associated with conventional weapons."⁵¹ Once a group has committed itself to acquiring CBRN weapons, it will embark on a long and perilous journey. There is no easy solution and most law enforcement agencies are on the look out for such an event. Terrorists would attract a greater deal of attention by attacking with a CBRN weapon. A successful attack could enhance the status of their cause, or could draw worldwide condemnation. A terrorist must be determined if he is to conduct a CBRN attack, and be prepared to face the possible consequences.

⁵⁰ Post, Denny and Kozak, *Weapons of Mass Destruction Terrorism*, 65.

⁵¹ Falkenrath, *Confronting Nuclear, Biological and Chemical Terrorism*, 100.

Consequences of a CBRN terrorist attack

From the review of the different CBRN weapons it becomes clear that a terrorist attack would have grave consequences. The major effects would be mass casualties, distress on the economy, contamination and psychological effects. Richard A. Falkenrath, in his article “Confronting Nuclear, Biological and Chemical Terrorism”, identified seven major effects of a CBRN attack, namely: “...massive casualties, contamination, panic, degraded response capabilities, economic damage, loss of strategic position, and social-psychological damage and political change.”⁵²

Of these issues three deserve additional attention. The first is contamination from a CBRN attack. As it was noted, each weapon type (chemical, biological, radiological or nuclear) will contaminate an area in a vastly different manner. For example, a chemical weapon might require very little surface decontamination as weathering would allow the agent to dissipate and evaporate, therefore rendering it harmless.⁵³ On the other hand, radiological contamination could be very problematic. Radioactive material could be spread by weather and the half-life of the materials would mean an area could remain radioactive for years. These secondary effects compound the psychological trauma of such an attack.

The second issue worth noting is the degrading of the first responder capabilities. Without a doubt, all levels of government would rapidly respond to CBRN incident. The problem is that the first responders only possess a finite capability and its reconstitution is

⁵² Ibid., 96-98. In this article the author covers the spread of CBRN weapons, from nuclear weapons to biological weapon attacks akin to the anthrax letters.

⁵³ *Jane's Chem-Bio Handbook*, 271. Personnel would naturally have to be decontaminated. Luckily many chemical agents can be cleaned with slurry made from bleach. As for area decontamination if the site is not immediately required, exposure to wind and sunlight (or weathering) will allow the site to get clean and would only require verification after a number of days.

problematic. Should the terrorist wish to target to create terror most effectively, he would attack once to spread fear and stimulate response, and then strike a second time to create chaos. This is compounded by the fact that not all first responders have appropriate CBRN training or equipment to operate in a contaminated environment and could become casualties themselves.

The final important issue is political change. The public would lose confidence in their government to protect them at home, and would want their government to change their policies internationally to get their revenge on the terrorists. Alternatively, a disheartened public might want their government to radically change foreign policy. The public demand for action might have huge societal impacts, without a doubt certain civil liberties would be sacrificed and paranoia would set in.⁵⁴ One could argue that this is happened in the US after the attacks of September 2001, the creation of the Department of Homeland Security (DHS) and the new security measures the government invoked.

CBRN Terrorism in Canada

Since the mid 1990s, there have been a number of terrorist incidents, and incidents pre-empted, that have affected Canadians at home and abroad. Luckily for Canadians none of these became a CBRN incident. CSIS identified three such events between 1993 and 1998.⁵⁵ In April 1993 Canada Customs intercepted and seized 130 grams of ricin at the Alaska-Yukon border. This potential biological weapon was sent by an American “survivalist” group with some neo-Nazi literature. In March 1996 a cache

⁵⁴ Falkenrath, *Confronting Nuclear, Biological and Chemical Terrorism*, 98.

⁵⁵ Canadian Security Intelligence Service, "Report no. 2000/02 Chemical, Biological, Radiological and Nuclear (CBRN) Terrorism," (Ottawa: Canadian Security Intelligence Service, 2000), www.csis-scrs.gc.ca/en/publications/perspectives/200002.asp; Internet; accessed 19 November 2007.

containing gas masks and other chemical protective garb was discovered in British Columbia belonging to an American right wing militia group. Finally in March 1998 threats to use chemical or biological agents against Montreal by the “World Islamic Front” were received. In all three, no Canadians were killed or injured although fears were raised.

These thwarted attempts and hoaxes serve to highlight that the threat exists and is possible. A possible CBRN incident is further substantiated by the “Fatwa” released in May 2003 by an Islamic Cleric for Al-Qaeda. In his treatise, Nasir Bin Hamd Al-Fahd, professes that the Koran supports the killing of infidels and that to do so with WMD is permissible.⁵⁶ He justifies this assertion because the US has been involved in the killing of millions of Muslims and destroyed countless lands and that killing Americans in return is not evil. The rhetoric is strong and Canada’s allegiance with the US in Afghanistan makes it a possible target.

The link between the rhetoric and the US as a target is particularly worrisome. Many scholars have disputed that the threat is that not only can Canada be targeted but that Canada can be used by terrorists to launch an attack into the US. This possibility is acknowledged by the GoC.⁵⁷ This means that terrorists could smuggle CBRN devices into Canada and then transit to the US. Alternatively, terrorists could acquire the materials and assemble their CBRN weapon in Canada. The arrest in 1999 of Ahmed

⁵⁶ Al-Fahd, Nasir Bin Hamid, "A Treatise on the Legal Status of using Weapons of Mass Destruction Against Infidels"; http://marisaargo.com/MSJ/Scholarship_files/Treatise.pdf; Internet; accessed 31 March 2008, 8.

⁵⁷ Graham Allison, "Is Nuclear Terrorism a Threat to Canada's National Security?" *International Journal* 60, no. No 3 (Summer 2005): 717.

Ressam while travelling from BC to Washington State en route to Los Angeles is such an example.⁵⁸

Conclusion

The terrorist threat to Canada exists. Both CSIS and the US Department of State have acknowledged in various reports that terrorism remains a real threat to Canadians at home and abroad. Terrorism has evolved. The attacks of September 11th 2001 crossed a threshold and now terrorists will not hesitate to conduct attacks causing mass casualties. This is significant as it becomes a precursor for CBRN terrorism. Two other worrisome trends in terrorism are that groups can either act along the lines of the single operative concept or as “state-sponsored” terrorists. Both are linked by the fact that neither group belongs to a state or single cause, rather that they identify a trans-national mission and that they can find resources globally.

The CBRN threat may be chemical, biological, nuclear or radiological. The acquisition of CBRN weapons by terrorist groups is possible. The repercussions of an attack with these weapons would have a significant impact on Canadians. Atop of having crossed a moral threshold for the willingness to cause mass casualties, four reasons were given why terrorists would target CBRN weapons against their foe: target for violence; target for terror; target for compliance; and target for influence. These were significant enough to cause concern to the Canadian Government and were the impetus to the publication of *The CBRN Strategy of the GoC*.

⁵⁸ Ibid., 718. Although Ahmed Ressam’s device was only explosive, the fact that he was able to gather the material and fabricate the device without attracting attention demonstrates that it is possible for a similar plot with a CBRN device.

Finally, with the understanding that the terrorists have the capabilities and reasons to employ CBRN weapons, it is clear that Canadians should be concerned. It is true that Canada has been fortunate enough not have suffered a CBRN incident. However, the three examples highlighted by CSIS from the 1990s demonstrate that these events have been contemplated. Add the possibility that Canada could be used as a launch pad for a terrorist attack on US soil and the credibility of the threat increases exponentially. This justifies the often overused expression that an attack of this nature in Canada is not a matter of “if” but “when”.

CHAPTER 2 – CANADA AND CBRN BEFORE *THE CBRN STRATEGY OF THE GOC*

Introduction

Prior to the attack on the World Trade Center on September 11th 2001, Canada had not centralized the management of national security in a single department. Canada, like the United Kingdom and Australia, coordinated national security issues through Cabinet and other coordinating agencies. This changed on December 12th 2003 when the Prime Minister announced the creation of the department of Public Safety and Emergency Preparedness Canada (PSEPC).⁵⁹ Created from the office of the Solicitor General Canada and integrating the Office of Critical Infrastructure Protection and Emergency Preparedness (OC�PEP), PSEPC was designed to coordinate domestic national security issues and exchange with the Department of Homeland Security (DHS).

This chapter will demonstrate, through the review of numerous federal programs and initiatives, that prior to the publication of *The CBRN Strategy of Canada the GoC* the Canadian government's approach to handling the CBRN portfolio was ad hoc. This disjointedness was a result of initiatives by the different federal departments without an overall governing philosophy. The absence of a federal department like the PSEPC demonstrated that previous Government's failed to understand that domestic and international initiatives were interlocked. Atop the ad hoc nature of managing CBRN matters, this review will highlight three shortfalls: lack of synchronization mechanisms between departments; lack of intelligence; and improper funding.

⁵⁹ Office of the Auditor General of Canada, *Report of the Auditor General of Canada to the House of Commons* (Ottawa: Public Works and Government Services Canada, 2004), <http://www.oag-bvg.gc.ca>; Internet; accessed 27 November 2007.

To properly label and identify the different initiatives (acts, laws and such) they will be regrouped under the headings of the four strategic objectives of *The CBRN Strategy of Canada the GoC*: prevention and mitigation; preparedness; response; and recovery.⁶⁰ Although each of these objectives will be fully explained and developed in during the analysis of the strategy itself, by putting the various federal programs under these headings it will facilitate the review of the Strategy. It should also be understood that the federal initiatives presented in this chapter are not exhaustive. Rather they are those programs that have the greatest importance in aiding the Canadian Government to achieve the aim of its CBRN Strategy, "...to protect Canada and Canadians by taking all possible measures to prevent, mitigate and respond effectively to a potential CBRN threat."⁶¹ However, the programs not presented in this chapter would further substantiate the argument that no federal department had over-arching responsibility for managing the CBRN portfolio, and that all measures taken to achieve the stated aim of *The CBRN Strategy of the GoC* were and remains ad-hoc.

Prevention and mitigation

Prevention and mitigation is the category of activity that takes place before a CBRN incident, or during crisis management. This activity is designed to protect Canadians before the device enters or transits through Canada or as it is being assembled. Many activities make up this category, including: counter-proliferation, prevention (including non-proliferation done through verification and compliance) and mitigation. Counter-proliferation is based on three activities: interdiction; deterrence; and defence

⁶⁰ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 4.

⁶¹ *Ibid.*, 3.

and mitigation.⁶² Prior to the publication of Canadian Strategy, counter-proliferation was done through two possible avenues: the National Counter-Terrorism Plan (NCTP) and the Proliferation Security Initiative (PSI).

Signed in 1993, the NCTP made the Solicitor General of Canada responsible for responding to terrorist threats in Canada.⁶³ Should a terrorist incident develop into one with a CBRN threat, such as a dirty bomb, the NCTP could have called upon the support of other plans such as the Federal Nuclear Emergency Plan. The NCTP contained the operational protocols permitting the Solicitor General, and now PSEPC, to coordinate the federal response to a terrorist crisis. Federal departments involved in the NCTP included, among others: RCMP; DND; CSIS; Health Canada. The NCTP was further enabled by the passing of the Anti-Terrorism Act.⁶⁴ The NCTP continues to be used today and has been updated and integrated into the National Emergency Response System (NERS).⁶⁵

The NCTP contributes to prevention and mitigation by conducting counter-proliferation tasks and mitigation measures. For example, PSEPC could draw on the NCTP to interdict CBRN weapons and their delivery systems in Canada. This not only

⁶² United States of America, *National Strategy to Combat Weapons of Mass Destruction* (Washington: Government of the United States of America, 2002), <http://www.whitehouse.gov/news/releases/2002/12/WMDStrategy.pdf>; Internet; accessed 18 September 2007, 2-3.

⁶³ Health Canada, "Emergency Planning Documents," (Ottawa: Health Canada), <http://www.hc-sc.gc.ca/ed-ud/event-incident/readiol/infor/emergency-urgence.html>; Internet; accessed 30 January 2008).

⁶⁴ Department of Justice, "Backgrounder: Royal Assent of Bill C-36 *the Anti-Terrorism Act*," (Ottawa: Department of Justice), http://www.justice.gc.ca/en/news/nr/2001/doc_28217.html; Internet; accessed 28 January 2008. The Anti-Terrorism Act, "...creates measures to deter, disable, identify, prosecute, convict and punish terrorist groups; provides new investigative tools to law enforcement and national security agencies..." This Act has added legislative strength to the NCTP, permitting the NCTP to become a better response mechanism.

⁶⁵ Public Safety Canada, *Departmental Performance Report - for the Period Ending March 31, 2005* (Ottawa: Health Canada, 2005), http://www.tbs-sct.gc.ca/rma/dpr1/04-05/PSEPC-SPPCC/PSEPC-SPPCCd45_e.pdf; Internet; accessed 1 February 2008.

assures the safety and security of Canadians but of Americans. Mitigation is complimentary to counter-proliferation because there is no guarantee that the participants of the NCTP could interdict the CBRN weapons prior to their deployment or in transit. Mitigation includes active defences that disrupt, disable or destroy these weapons once they are deployed.⁶⁶ The shortfall is that the NCTP is not designed solely to counter CBRN terrorism, and the threat is of such a technical nature that it is unsure whether the properly qualified expert would be readily available during a CBRN incident.

The PSI launched in 2003 by the United States. As part of their *National Strategy to Combat Weapons of Mass Destruction*, the PSI was designed to counter the growing WMD threat. Specifically, it is a multilateral effort whereby the 70 signatories participate to enhance international security by addressing the dangers of WMD by preventing their spread, as well as their delivery systems and WMD materials.⁶⁷ The PSI is designed to enhance existing international efforts in prevention such as treaties, conventions and international law. It is not a treaty organization, nor is it a formal institution. It is a global effort that relies on cooperation and that is consistent with the United Nations Security Resolution 1540.⁶⁸ Canada is member of PSI Operational Expert Working Group (OEWG) and contributed in the drafting of the Interdiction Principles for the PSI.⁶⁹ The GoC seeks to participate in the PSI because it allows it to

⁶⁶ United States of America, *National Strategy to Combat Weapons of Mass Destruction*, 3.

⁶⁷ Weapons of Mass Destruction Commission, *Weapons of Terror: Freeing the World of Nuclear, Biological, and Chemical Arms*, 54.

⁶⁸ Department of National Defence, "Backgrounder - the Proliferation Security Initiative," Department of National Defence, http://www.dnd.ca/site/newsroom/view_news_e.asp?id=1329; Internet; accessed 27 November 2007.

⁶⁹ Foreign Affairs and International Trade Canada, "Proliferation Security Initiative," (Ottawa: Foreign Affairs and International Trade Canada), <http://www.dfait-maeci.gc.ca/arms/psi-en.asp>; Internet; accessed

advance its non-proliferation, arms-control and disarmament (NACD) objectives through this multilateral effort.

The PSI contributes to prevention and mitigation through two measures: non-proliferation and mitigation. The GoC has actively exercised in support of the PSI with the Canadian Forces (CF). The Canadian Navy with its maritime interdiction operations capability and Canadian Special Operations Forces Command (CANSOFCOM) have trained with other federal agencies to conduct PSI operations. The shortfall of PSI is that effective non-proliferation is dependent on intelligence. Ex Ardent Sentry was typical of PSI scenarios where Federal authorities intercepted a vessel with a suspected CBRN device in national waters.⁷⁰ There are thousands of ships that transit through Canadian waters on any given day. If the GoC does not have proper intelligence it will not be able to put its resources to locate and disable or destroy the threat.

Prevention is the best method to avoid a deliberate CBRN incident. The United States, while soliciting the assistance of its allies and the international community, wants to "...undertake every effort to prevent states and terrorists from acquiring WMD and

27 November 2007). The interdiction principles of the PSI are: "1. Undertakes effective measures, either alone or in concert with other states, for interdicting the transfer or transport of WMD, their delivery systems, and related materials to and from states and non-state actors of proliferation concern... 2. Adopt streamlined procedures for rapid exchange of relevant information concerning suspected proliferation activity, protecting the confidential character of classified information provided by other states as part of this initiative, dedicate appropriate resources and efforts to interdictions and capabilities, and maximize coordination among participants in interdiction efforts. 3. Review and work to strengthen their relevant national legal authorities where necessary to accomplish these objectives, and work to strengthen when necessary relevant international laws and frameworks in appropriate ways to support these commitments. 4. Take specific actions in support of interdiction efforts regarding cargoes of WMD, their delivery systems, or related materials to the extent their national legal authorities permit and consistent with their obligations under international law and frameworks..."

⁷⁰ Department of National Defence, "Backgrounder: Exercise Ardent Sentry 2006," (Ottawa: Department of National Defence), http://www.forces.gc.ca/site/newsroom/view_news_e.asp?id=1915; Internet; accessed 15 April 2008.

missiles.”⁷¹ The GoC rests much of its prevention efforts on non-proliferation. Activities within this field are verification and compliance. These two are critical to the creation and application of multilateral arms control regimes and disarmament agreements that involve CBRN weapons.⁷² Verification concerns itself with building trust between the signatories of the agreements by assuring them that the regimes are fairly and fully implemented. It is primarily a technical means by which adherence to the agreement is monitored. Compliance, on the other hand, is used to resolve concerns when it is unsure that signatories are complying with the agreements. It is primarily a political and financial undertaking. The verification and compliance processes are closely related and reinforce each other. Without these principles the following major agreements would fail: The Global Partnership Program (GPP) and the United Nations Security Council Resolution (UNSCR) 1540.

The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, or The Global Partnership Program (GPP), was initiated at the 2002 G8 Summit in Kananaskis.⁷³ It was conceived after the events of September 2001 with the increased realization of the terrorist threat and the understanding that it was critical to

⁷¹ United States of America, *National Strategy to Combat Weapons of Mass Destruction*, 2.

⁷² Foreign Affairs and International Trade Canada, *Weapons of Mass Destruction Verification and Compliance: The State of Play, Challenges, and Responses*, (Ottawa: Foreign Affairs and International Trade); http://www.international.ca.ca/arms/isrop/research/compl_verif_2005/section02-en.asp; Internet; accessed 6 December 2007, 3. Verification – “...is the process of gathering and analyzing information to make a judgement about compliance or non-compliance with a treaty or agreement. It aims to build trust between the parties or participants, assuring them that their agreement is being implemented effectively and fairly. Verification achieves its objectives by three means: detection; deterrence; and confidence-building.” Compliance – “...is used to describe the process used to deal with questions relating to compliance and non-compliance, which, for some, runs the whole spectrum from monitoring at one end through to attempts to enforce compliance at the other.”

⁷³ Foreign Affairs and International Trade Canada, *Global Partnership Program - Making A Difference* (Ottawa: Foreign Affairs and International Trade Canada, 2006), 3.

prevent terrorists from acquiring WMD or materials to fabricate them. It was to focus on four areas in particular: the destruction of chemical weapons; the dismantlement of nuclear submarines; the disposition of fissile materials; and the redirection of former weapons scientists.⁷⁴ The aim of the program is to assist the Russian Federation to manage and reduce its stockpile of nuclear and chemical weapons, as well as all CBRN materials. Not only does the Russian federation have the largest stockpile in the world of these materials, it also has tens of thousands of former defense scientists that are unemployed and that could be hired by potential terrorist groups. The GPP is a multilateral agreement, and Canada has committed \$1 billion to support the aforementioned priorities.

Since the launch of the GPP, the GoC has been able to enhance the safety and security of Canadians through two primary means.⁷⁵ First, by aiding in the dismantling of nuclear powered vessels and installations (submarines and lighthouses for example), authorities have been able to secure and dispose of radiological and nuclear material that could be used by terrorists. Second, by hiring scientists from the former-Soviet Union military-industrial complex to fulfill the GPP in Russia, the GoC has contributed to securing the knowledge of how to fabricate a CBRN device with this material, thus reducing the threat. This preventive measure by the GoC demonstrates that non-proliferation works.

⁷⁴ Ibid., 3.

⁷⁵ Foreign Affairs and International Trade Canada, *Global Partnership Program - A Tangible Canadian Contribution to Reducing the Threat of Weapons of Mass Destruction* (Ottawa: Foreign Affairs and International Trade Canada, 2007), http://geo.international.gc.ca/cip-pic/library/GPX_AnnualReport_07-en.pdf; Internet; accessed 15 April 2008.

Adopted in April 2004 by the United Nations Security Council, the United Nations Security Council Resolution (UNSCR) 1540 recognized WMD and delivery systems as a threat to international security.⁷⁶ It is not a treaty but a resolution complimentary to the PSI, in that it sanctions certain actions by the members of the UN to prevent the spread of WMD. Although it has been designed to address the spread of CBRN materials to non-state actors, it can be used against states. It has invoked Chapter VII status, and considering that this is only the second time this has been done since 1945, it is viewed as significant and controversial.⁷⁷

UNSCR 1540 has the potential of contributing to international security by obliging all of its member states to create national legislation to govern this matter. This includes requiring the states to establish national controls over CBRN materials to prevent the proliferation of these weapons and their delivery means. Like the PSI, it relies heavily on cooperation to be successful. Although no institutional mechanisms have been put in place to aid member states, it is seen as a promising effort to monitor the spread of these materials.⁷⁸ Canada has ratified UNSCR 1540. Like the PSI, the shortfall of UNSCR 1540 is that it is only as successful as the information that is provided by the participants or in other words, the intelligence.

⁷⁶ *United Nations Security Council Resolution 1540 - Non-Proliferation of Weapons of Mass Destruction*, 4956th Meeting sess., 2004, <http://daccessdds.un.org/doc/UNDOC/GEN/N04/328/43/PDF/N0432843.pdf?OpenElement>; Internet; accessed 2 February 2008), 1.

⁷⁷ National Threat Initiative, "WMD411 - United Nations Security Council Resolution 1540," NTI, http://www.nti.org/f_WMD411/f2n.html; Internet; accessed 2 February 2008.

⁷⁸ Weapons of Mass Destruction Commission, *Weapons of Terror: Freeing the World of Nuclear, Biological, and Chemical Arms*, 55.

Canada has been involved internationally on nuclear and radiological matters since the Second World War. In 1957 it joined the International Atomic Energy Agency (IAEA). The IAEA is a verification organization with two main goals. First, it has a verification role whereby it ensures signatory compliance to its regulations, in this case contributing to the prevention of the spread of nuclear and radiological materials for non-energy uses. Second, it has a role of promoting the peaceful use of atomic energy.⁷⁹ The IAEA has been challenged more often than any other multilateral mechanism when it comes to compliance issues, such as, the nuclear verification and compliance of Iraq before the first Gulf War. With support of countries like Canada, however, it is a credible organization through which the GoC contributes to international stability and non-proliferation of radiological and nuclear materials.

Another important legislation to which Canada is signatory is the Nuclear Non-Proliferation Treaty (NPT). Signed in 1968 the NPT was agreed upon to stop the nuclear arms race and give clear direction for nuclear disarmament. It was also designed to prevent the spread of nuclear weapons and restrict the number of nuclear states.⁸⁰ The NPT is enforced by the IAEA and has become one of the pillars upon which the agency conducts its operations. Much like the IAEA, it contributes to international security but has domestic relevance. By preventing the spread of nuclear and radiological weapons, be it to state or non-state actors, the safety of Canadians is enhanced.

⁷⁹ Foreign Affairs and International Trade Canada, *Weapons of Mass Destruction Verification and Compliance: The State of Play, Challenges, and Responses*, 9.

⁸⁰ Weapons of Mass Destruction Commission, *Weapons of Terror: Freeing the World of Nuclear, Biological, and Chemical Arms*, 62.

A similar conclusion can be drawn from another important international agreement that Canada uses for verification and compliance. The Comprehensive Nuclear Test Ban Treaty (CTBT) of 1996 bans the testing of nuclear weapons in all environments.⁸¹ The CTBT is designed to permit one nation to demand the organization to verify compliance of another state through the organization created by the CTBT, the CTBTO. Although the CTBT has not been fully implemented, but when it is it will contribute to international security, like the IAEA and NPT, by providing surveillance and monitoring data on nuclear explosions to the UN Security Council.

Of all the CBRN terrorist threats that Canada faces, the biological threat is the one with the least legislation. Canada signed the Biological and Toxin Weapons Conventions (BTWC) in 1972. “The Convention bans the development, production, stockpiling, acquisition and retention of microbial or other biological agents or toxins, in types and in quantities that have no justification for prophylactic, protective or other peaceful purposes.”⁸² The BTWC also bans delivery systems, weapons and any equipment that is designed to spread this type of agent. It has very little in terms of compliance and verification measures despite the fact that the convention requires signatories to pass national legislation to augment the BTWC.⁸³ Like the CTBT, the BTWC needs to become more robust in terms of verification and compliance so that Canada’s aim of

⁸¹ Foreign Affairs and International Trade Canada, *Weapons of Mass Destruction Verification and Compliance: The State of Play, Challenges, and Responses*, 6.

⁸² Biological and Toxin Weapons Convention, "Biological and Toxin Weapons Convention," <http://www.opbw.org/>; Internet; accessed 1 February 2008.

⁸³ Foreign Affairs and International Trade Canada, *Weapons of Mass Destruction Verification and Compliance: The State of Play, Challenges, and Responses*, 23.

promoting international security through this multi-lateral agreement will enhance domestic security.

The 1993 Chemical Weapons Convention (CWC) and its subsequent creation of the Organization for the Prohibition of Chemical Weapons (OPCW) in 1997 are Canada's contribution internationally to manage chemical weapons. The CWC, "...prohibits states from using, developing, producing, acquiring, stockpiling or retaining chemical weapons, and transferring them directly or indirectly."⁸⁴ This convention has been highly successful and has an established verification system relying on both civilian and military expertise. It is well financed and the creation of the OPCW to conduct operations to ensure compliance to the CWC is becoming a model for other multi-lateral agreements. The GPP compliments the CWC and is aiding the convention in reaching its goals.

Preparedness and Response

Preparedness and Response are the next two strategic objectives of *The CBRN Strategy of the GoC*. For the purpose of this chapter they have been grouped because many of the initiatives undertaken by the Canadian government prior to the release of the CBRN Strategy are applicable in both fields. The first deals with preparing Canadians to respond to a CBRN incident and the second with the strengthening of the capabilities for the actual response.⁸⁵ Similar to the consequence management pillar of the *National Strategy to Combat Weapons of Mass Destruction*, it stresses that preparedness and

⁸⁴ Ibid. The CWC, "...requires parties to destroy, within ten to fifteen years of the convention entering into force, all their CW and CW production facilities, as well as any chemical weapons abandoned on another party's territory."

⁸⁵ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 6.

response are the "...most basic responsibility of our government."⁸⁶ This must include plans or programs aimed at training first responders and preparing them for the incidents. The first responders must be fully equipped and be able to rapidly identify, assess and respond to the CBRN threat.

Since September 11th 2001 and the creation of PSEPC, this department is now responsible in Canada to make the assessment of requirements for training and equipping the first responders.⁸⁷ However, prior to the release of *The CBRN Strategy of the GoC* a number of measures had been taken by the federal government to better prepare all levels of government (federal, provincial and municipal) for the CBRN threat. The measures included: the Canadian Emergency Management College; the Emergency Preparedness Act; the Emergencies Act; the Federal Nuclear Emergency Plan; the Food Emergency Response System; and the CBRN Research Technology Initiative.

Founded in 1954, the Canadian Emergency Management College (CEMC) is the GoC leading institution to teach emergency management to first responders.⁸⁸ The mission of CEMC is to prepare the first responders for disasters, natural or man-made, and minimize the risk to Canadian public. It does this in close collaboration with the provincial emergency management personnel and by training federal personnel on the different disciplines within emergency management. The CEMC establishes the standard

⁸⁶ United States of America, *National Strategy to Combat Weapons of Mass Destruction*, 6.

⁸⁷ Public Safety Canada, "An Overview of Canada's Counter-Terrorism Arrangements," (Ottawa: Public Safety Canada), http://ww2.ps-sp.gc.ca/publications/national_security/terrorism_arrangements_e.asp; Internet; accessed 11 January 2008. The GoC defines consequence management as, "...measures to mitigate the damage, loss, hardship and suffering caused by acts of terrorism, It also includes measures to restore essential government services, protect public health and safety, and provide emergency relief to affected governments, businesses and populations."

⁸⁸ Public Safety Canada, "Mandate of the Canadian Emergency Management College," (Ottawa: Public Safety Canada), http://www.publicsafety.gc.ca/prg/em/cemc/03abt_01-eng.aspx; Internet; accessed 28 January 2008.

to which the provincial emergency management establishments must train. The college provides crisis and consequence management training for all disasters and has numerous courses specializing in the CBRN threat. The CEMC priorities are:

Advance the state of EM knowledge in Canada by gathering, developing, integrating and sharing core information and resources; In close collaboration with provincial and territorial EM training programs, work to support and augment those programs with complementary courses and services; Provide federal employees a training and learning program focused on cross-disciplinary EM; and Promote the development of the Canadian EM educational community, including its academic, government, not-for-profit and private sector elements, through proactive community building and outreach nationally and internationally.⁸⁹

Although CEMC existed to standardize procedures and training of emergency management teams across the country, this has not been achieved. The Federation of Canadian Municipalities (FCM) noted in 2006 that, “Public Safety Canada should initiate the concept of a national standard for municipal emergency preparedness.”⁹⁰ This standard needs to address levels of preparedness for response, training and equipment. This shortfall, the synchronization of levels of preparedness and capabilities, needs to be addressed.

The Emergency Preparedness Act was signed in 1985 and established the GoC responsibilities for emergency preparedness. This act covers all disasters, natural and man-made, and includes CBRN threats. The act is critical to delineate responsibilities to the different levels of government in order to prepare themselves for emergencies. It also

⁸⁹ Ibid.

⁹⁰ National Security Group, *Emergency: Municipalities Missing from Disaster Planning* (Ottawa: Federation of Canadian Municipalities, 2006), <http://www.fcm.ca/english/documents/emergency.pdf>; Internet; accessed 3 February 2008). The Federation of Canadian Municipalities noted that PSEPC should approach the issue much like the Canadians Standards Association (CSA) which has produced, “...a national standard for emergency preparedness in industry.”

highlights how the interface between them is to work and how funds are to be recovered in case of an emergency. The key elements of the Act are:

Establishes the responsibilities and functions of the minister responsible for Public Safety and Emergency Preparedness; Establishes the emergency preparedness responsibilities of all federal ministers in their respective areas of accountability; Recognizes the interests of the provinces and territories in relation to federal assistance provided during a provincial emergency; Provides the legal basis for the Governor in Council to declare a provincial emergency to be of concern to the federal government, and to provide financial and other assistance requested by the affected province(s).⁹¹

The Emergencies Act was created at the same time as the Emergency Preparedness Act and replaced the War Measures Act. It makes the GoC responsible for all emergencies but gives the provinces the authority and responsibility for first response. The guiding principle to emergency preparedness is that provinces have jurisdiction for consequence management after a CBRN incident or any other incident. Should their resources be overwhelmed, the provinces may make a request through PSEPC for federal assistance.⁹² Depending on the type of incident, PSEPC would then redirect the request to the department that has the responsibility for the type of event. For example, in case of a biological attack, Health Canada would take the lead on behalf of PSEPC. Four emergencies are covered by the Act, the first three can be CBRN events:

Public welfare emergencies - Severe natural disasters or major accidents affecting public welfare, which are beyond the capacity or authority of a province or territory to handle; Public order emergencies - Security threats that are beyond the capacity or authority of a province or territory to handle; International emergencies - Intimidation, coercion or the use of serious force or violence that threatens the sovereignty, security or territorial integrity of Canada or any of its

⁹¹ Public Safety Canada, "Emergency Preparedness Act," (Ottawa: Public Safety Canada) <http://www.publicsafety.gc.ca/pol/em/epa-eng.aspx>; Internet; accessed 1 February 2008.

⁹² Maj P. Naud, *Canada's Ability to Face a Chemical Biological Nuclear Terrorist Attack* (Toronto: Canadian Forces College, 2002), 11-12.

allies War emergencies - War or other armed conflict, real or imminent, involving Canada or any of its allies.⁹³

These two acts present two similar shortfalls: synchronization with other national level programs; and funding. The FCM made several observations to this effect in 2006.⁹⁴ The Federation noted that it was not fully aware of the capabilities and responsibilities of the GoC Operations Centre, the National Emergency Response System (NERS), the expectations of Transport Canada and the Canadian Border Services Agency in time of crisis. The Federation also stated it was not fully aware of the funding of these capabilities. Although the acts laid the legislative framework for emergency response, the practical aspects of preparing first responders and authorities cannot be ignored. Neither can the importance of sustained funding because all aspects of emergency preparedness (training and equipment purchases) are costly and the GoC must be prepared to cover the costs if standards for preparedness are established.

The Federal Nuclear Emergency Plan (FNEP) was developed by the GoC in 1984 following the crash of COSMOS 954 (Soviet nuclear powered satellite) in the Northwest Territories in 1978 and the incident involving the Three Mile Island nuclear power generating station in 1979.⁹⁵ These two incidents demonstrated that an effective federal strategy was required to deal with nuclear emergencies. FNEP designated Health Canada (HC) as the lead agency in case of a nuclear emergency and that HC would be responsible to protect the public from the immediate and delayed health effects of

⁹³ Public Safety Canada, "Emergencies Act," (Ottawa: Public Safety Canada), http://www.publicsafety.gc.ca/pol/em/em_act-eng.aspx; Internet; accessed 1 February 2008.

⁹⁴ National Security Group, *Emergency: Municipalities Missing from Disaster Planning*, 38-39.

⁹⁵ Health Canada, "Federal Nuclear Emergency Plan," (Ottawa: Health Canada), http://www.hc-sc.gc.ca/ed-ud/deplan/index_e.html; Internet; accessed 28 January 2008.

radiation, minimize the impact of such an emergency on property, and maintain the public confidence.

The FNEP can also be enacted by PSEPC in the case of CBRN terrorism. Should an incident be determined to involve radiological or nuclear material, the NCTP would be activated by this plan. FNEP would activate its Technical Advisor Group which would provide advice to Health Canada and PSEPC on possible impacts of the incident and actions that could be taken to protect the public and first responders.⁹⁶ The FNEP also calls upon the Canadian Nuclear Safety Commission (CNSC), Environment Canada and any other department that could be affected by the incident to contribute to the crisis and consequence management.

The Food Emergency Response System (FERS) was initiated when the Canadian Food Inspection Agency (CFIA) was created in 1997. CFIA is responsible to Health Canada to monitor and report any irregularities in the Canadian food chain. This includes accidental contamination of foods but can include sabotage and tampering incidents.⁹⁷ This could include the introduction of bacteria or toxins into the food chain, thus creating a CBRN incident. CFIA and Health Canada use the FERS to support PSEPC through crisis and consequence management.

In 2001 the CBRN Research Technology Initiative (CRTI) was created after the federal science and technology (S&T) community completed their assessment of

⁹⁶ Ibid. The FNEP would be implemented in the event of an incident involving, “- a nuclear facility in Canada or in the United States along the shared border; - nuclear-powered vessels or vessels containing radioactive materials visiting Canada or in transit through Canadian waters; - a nuclear facility in the southern United States or in a foreign country; - any serious radiological event, such as: malevolent acts involving improvised nuclear devices or the use of conventional explosives at a facility that stores or uses radioactive material; or the re-entry of a nuclear-powered satellite.”

⁹⁷ Health Canada, "Food and Nutrition - Assessment Reports," (Ottawa: Health Canada), http://www.hc-sc.gc.ca/fn-an/securit/eval/reports-rapports/fers-siua_02_e.html#es; Internet; accessed 1 February 2008.

Canada's capacity and capability to address the CBRN threat. The GoC wanted to create the infrastructure to respond to the CBRN threat. This required extensive investment in the scientific community and laboratories to develop a better means of detecting and identifying biological and chemical threats. The gap analysis that the S&T community had identified rested on three tasks: criminal investigation; crisis management and immediate reaction; and consequence management.⁹⁸ CRTI is providing the coordination for the research and development to permit PSEPC and its partners to better respond to a CBRN incident.

Although many federal and provincial departments have benefited from CRTI, there remain two key issues when considering preparedness and response. First, the different initiatives are disjointed and lack an overarching scheme, or plan for synchronization. Without it can be surmised that the majority of Canadian municipalities do not have the same level of response capability in training and equipment. Second, training and equipping first responders is costly. Without sustained funding the safety and security of Canadians is at risk.

Recovery

The final strategic objective of *The CBRN Strategy of the GoC* is recovery. Many of the aforementioned initiatives will be used by the Canadian Government during this phase of a CBRN incident. The federal Government will also rely upon the National Emergency Response System (NERS). NERS is the GoC all hazards emergency response framework that will ensure Canadians are protected during emergencies. Based

⁹⁸ Science and Technology, "Chemical, Biological, Radiological and Nuclear (CBRN) Research and Technology Initiative (CRTI) Framework," (Ottawa: Science and Technology), http://www.crti.drddc-rddc.gc.ca/en/publications/framework/framework_e.pdf; Internet; accessed 27 November 2007.

on the Incident Command System (ICS), NERS, "...supports effective national leadership and maximizes our national capability to identify, plan for and respond to threats or emergencies that may affect Canada's national interest and the safety and security of its citizens."⁹⁹

Synchronization of the implementation of the NERS is a shortfall. The FCM noted that it was not fully aware of the roles and responsibilities of the NERS, including the interface between it and municipalities. It also noted that the Canadian Government needs to, "...provide strong leadership during terrorism-related events, including threat analysis and early warning training."¹⁰⁰ This shortfall, as was noted for the CEMC, needs to be addressed in order to enhance the security and safety of Canadians.

Conclusion

The GoC has approached the planning and preparation for the CBRN threat haphazardly. There was no overarching philosophy or policy to counter the threat. Despite the strategic objectives of *The CBRN Strategy of the GoC*, it is clear that there is very little linkage between the different programs. However, despite the fact that the initiatives appear ad-hoc, they do provide important tools for the different levels of government to be prepared to respond to a CBRN incident. For example the PSI and NCTP have been exercised and appear to be sufficient to permit an effective GoC response.

⁹⁹ Public Safety Canada, "National Emergency Response System (NERS)," (Ottawa: Public Safety Canada), www.ps-sp.gc.ca/publications/backgrounders/2005/20050124-7_e.asp; Internet; accessed 2 April 2008.

¹⁰⁰ National Security Group, *Emergency: Municipalities Missing from Disaster Planning*, 37.

A number of shortfalls exist: lack of synchronization between the different programs; lack of intelligence; and lack of funding. The lack of a synchronization mechanism is important. Without this how can the GoC ensure that all of its departments are working in the same direction as they pursue national and international agreements? At home this is troubling because it insinuates that not all municipalities are equipped or prepared to the same level of readiness to counter the threat. The lack of intelligence is worrisome. The nature of the CBRN threat is so complex that without an understanding of the emerging trends how is the GoC to respond? Without appropriate and sustained funding the GoC cannot continue to prepare to face the threat.

These are important to note because they are not rectified by *The CBRN Strategy of the GoC*. The final conclusion that can be drawn from the examination of the different programs, and related to one of the shortfalls, is the lack of a governing department to provide guidance on CBRN matters, and on CBRN terrorism in particular. The nature of the CBRN terrorist threat runs a broad spectrum, and this requires the Canadian Government to develop a response based on coordination of its departments and agencies along with those of provinces and non-governmental organizations.¹⁰¹

¹⁰¹ Nadine Gurr and Benjamin Cole, *The New Face of Terrorism: Threats From Weapons of Mass Destruction* (New York: I.B. Tauris Publishers, 2000), 213.

CHAPTER 3 – ANALYSIS OF *THE CBRN STRATEGY OF THE GOC*

Introduction

In January 2004, the C.D. Howe Institute Backgrounder *Thinking the Unthinkable: Security Threats, Cross-Border Implications, and Canada's Long-Term Strategies* was published and claimed, “The risk of new attacks is real, though there has not been a robust national discussion in Canada over what security threats entail for public policies in an increasingly integrated North America and world.”¹⁰² It did, however, point out that under the leadership of its new Prime Minister Paul Martin the Canadian Government was taking steps to change this. Three months later the GoC released *Securing an Open Society: Canada's National Security Policy*. Touted as Canada's first true National Security Policy (NSP) it was to be a framework by which the GoC would address threats to Canadians.

On 31 March 2005, the Deputy Prime Minister and Minister of Public Safety and Emergency Preparedness Anne McLellan announced the release of *The CBRN Strategy of the GoC*. She stated that it “...will serve to define a Canadian approach to CBRN threats and foster international cooperation and partnerships...sets out our goals and objectives to guide the way ahead...”¹⁰³ *The CBRN Strategy of the GoC* is designed to support the NSP and aid the Government in its response to threats to Canadians, at home and abroad. It would seem that the GoC was responding to the concerns of many as voiced by the

¹⁰² D. Goldfarb, *Thinking the Unthinkable*, No.77 ed. (Toronto: C.D. Howe Institute, 2004), http://www.cdhowe.org/pdf/backgrounder_77.pdf; Internet; accessed 1 February 2008, 1.

¹⁰³ Canada Newswire, *Government of Canada Announces CBRN Strategy*, 2.

C.D. Howe Institute, "...Canadians are potentially vulnerable to direct attacks within the country. They are also susceptible to the outcome of attacks in the U.S...."¹⁰⁴

The CBRN Strategy of the GoC was the second instance where the Canadian Government produced such an encompassing strategy. In the past the GoC addressed issues through programs and initiatives directly without developing what is now considered a "whole-of-government" approach. Considering that the CBRN strategy is one of the first comprehensive strategies for the GoC several questions begged to be asked. Are the strategies truly overarching? Has the GoC clearly identified the aim of its strategy? Has the GoC clearly identified the objectives of its strategy? Has the GoC clearly identified the resources to be allocated for the strategy?

According to M. Sauter in *Homeland Security: A complete guide to understanding, preventing and surviving terrorism*, the evaluations of strategies are generally done in two areas: sufficiency; and capacity.¹⁰⁵ It is along these lines that *The CBRN Strategy of the GoC* must be analyzed. Since it has been only three years since the Strategy was released and no CBRN terrorist attack has occurred against Canadians, the Strategy has not been tested. The analysis must therefore focus on the document itself, complimented with the works of some leading academics and Government analysis, such as the *Roundtable on Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Terrorism: Progress, Challenges & Priorities for Action*.

¹⁰⁴ Goldfarb, *Thinking the Unthinkable*, 5. This report provided the highlights of a confidential seminar (Exercise TOPOFF-2) where participants discussed three scenarios that involved both the US and Canada. The first was a biological attack in Chicago that was initiated in Vancouver. The second was a radiological attack with a "dirty-bomb" in Seattle which affected the Washington-British Columbia when people attempted to flee the attack area. The third was a radiological threat aboard a ship in Canadian territorial waters. The exercise demonstrated major shortfalls in infrastructure, response, communication and more.

¹⁰⁵ M. Sauter and J. J. Carafano, *Homeland Security: A Complete Guide to Understanding, Preventing and Surviving Terrorism*. (New York: McGraw-Hill, 2005), 251.

The analysis focuses on the two questions: does *The CBRN Strategy of the GoC* provide sufficient guidance to departmental programs; and does the strategy provide the necessary mechanisms and arrangements (capacity) to counter the CBRN terrorist threat to Canadians? The analysis leads to the conclusion that the strategy does not meet either requirement and that the GoC should conduct a formal review of its approaching order to ensure the safety and security of Canadians, at home and abroad.

The analysis of the *The CBRN Strategy of the GoC* will go through three steps. First, it is important to understand what a national strategy serves and why it is important. This is particularly pertinent in the Canadian context because never before has the GoC approached national security, specifically the defense against a particular threat, with such an all-inclusive effort. Second, is the analysis of the CBRN strategy through the criteria from the US General Accounting Officer (GAO) report *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies related to Terrorism*. The criteria will be those characteristics devised by the GAO to evaluate the different American strategies released post-9/11 to combat terrorism.¹⁰⁶ The criteria cover the areas traditionally assessed during the evaluation of a strategy; sufficiency and capacity.

The analysis leads to the final step which is the summarization of the major observations of the analysis of the CBRN strategy. The shortfalls will be: intelligence; a framework for harmonization; and budgeting. The conclusion of the analysis is that *The CBRN Strategy of the GoC* is incomplete and that it is time for the Canadian Government

¹⁰⁶ United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism* (Washington: United States General Accounting Officer, 2004), <http://www.gao.gov/new.items/d04408t.pdf>; Internet, accessed 11 February 2008, 2. The GAO developed six desirable characteristics to evaluate a number of national strategies developed by the US Government post 9/11. The characteristics are: (1) a statement of purpose, scope and methodology; (2) problem definition and risk assessment; (3) goals, subordinate objectives, activities and performance measures; (4) resources, investment, and risk management; (5) organizational roles, responsibilities and coordination; and (6) integration and implementation.

to conduct a review of its content and mechanisms in order to ensure that the aim of the strategy is achieved, "...to protect Canada and Canadians by taking all possible measures to prevent, mitigate and respond effectively to a potential CBRN incident."¹⁰⁷

What is Strategy and why is it important?

Douglas Lovelace, Director of the US Army War College Strategic Studies Institute (SSI) offered this thought in the foreword to Harry Yarger's *Strategic theory for the 21st Century: The little Book on Big Strategy*: "Such casual use of the term [strategy] to describe nothing more than 'what we should do next' is inappropriate and belies the complexity of true strategy and strategic thinking. It reduces strategy to just a good idea without the necessary underlying thought or development."¹⁰⁸ Lovelace sought to highlight that the strategy, as a term, is often misused and creates confusion. These errors also lead to setting the wrong expectations. He argued that it was critically important for a nation to have a firm understanding of the concepts of strategy and strategic thought; otherwise a national strategy is nothing more than short-term planning without developing a long-term sustainable approach to dealing with an issue.

For the purpose of understanding *The CBRN Strategy of the GoC*, the definition that will be used is the one devised by Harry Yarger, "...strategy at all levels is the calculation of objectives, concepts, and resources within acceptable bounds of risk to create more favorable outcomes than might otherwise exist by chance or at the hands of

¹⁰⁷ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 3.

¹⁰⁸ Harry R. Yarger, *Strategic Theory for the 21st Century: The Little Book on Big Strategy* (Carlisle, PA: US Army War College Strategic Studies Institute, 2006), v.

others.”¹⁰⁹ Strategy is, therefore, about the ends, ways and means. The ends are also referred to as the goals, or aims, of the strategy. The ways are the methods that can be used to achieve the ends. The means are the resources that can be applied to achieving the aims.¹¹⁰ With the understanding of these three concepts, it becomes clear that a strategy is important because it brings together the concepts together into a unified whole.

The first concept for an effective strategy, which is shared with the GAO criteria in the analysis below, deals with the goals of the strategy. A good strategy must have goals that are clear, definable and attainable.¹¹¹ Although it may be relatively easy to define the goals in order to have the government and public understand, perhaps the most important aspect is ensuring that the goals are attainable. If the bar is set too high it may be impossible to achieve them for lack of resources or time. As well if it is set too high, or if it is set too low, then the wrong message could be sent to other states or adversaries thus creating a security dilemma.

The establishment of the goals is critical because the clear enunciation of these will define the ways or methods that the strategy can be achieved. The ways are often thought of as concepts and support the aim directly; if the goals are wrong then the ways will be wrong.¹¹² The third concept for the elaboration of a strategy is the means or

¹⁰⁹ Ibid., 1 The author goes on to put this definition in terms applicable to strategic thought and strategy at the nation-state level. “At these levels, strategy is the art and science of developing and using the political, economic, social-psychological, and military powers of the state in accordance with policy guidance to create effects that protect national interests relative to other states, actors, or circumstances.”

¹¹⁰ Sauter and Carafano, *Homeland Security: A Complete Guide to Understanding, Preventing and Surviving Terrorism.*, 238.

¹¹¹ D. Gouré, "Homeland Security" In *Attacking Terrorism: Elements of a Grand Strategy*, eds. A. K. Cronin and J. M. Ludes (Washington: Georgetown University Press, 2004), 263.

¹¹² Yarger, *Strategic Theory for the 21st Century: The Little Book on Big Strategy*, 58. The author further argued this point, “Good strategy is an integral whole of the right objectives [goals] pursued through

resources. When a government chooses its goals and ways it must be conscience of the means available, these are most often thought of as economic, diplomatic or military.¹¹³ The use of these resources needs to meet not only the aims of the strategy discussed but must also be balanced with the resources required to meet the objectives of other policies. Essentially the government is responsible to its citizens to ensure that it utilizes its resources efficiently across all of its policy areas, such as: health care; national defence; natural resources; and more.

Strategy is important because it serves as a blueprint for a government to address a problem, "...to bridge the gap between the realities of today and a desired future."¹¹⁴ Without a proper strategy a government will find itself always reacting to situations; crisis management will be the standard means of response. A proper strategy will permit a government be able to influence the future, and anticipate threats as they evolve. This, in turn, enhances the safety and security of its citizens. The importance of the strategy lies in the fact that a government can harness all of its elements of power to achieve its aims. A strategy, therefore, is about the ends, ways and means. Its importance lies in the fact that it maps the way ahead for a government. The characteristics developed by the GAO for evaluating US National Strategies reinforce this understanding.

So what should *The CBRN Strategy of the GoC* be and why is it important? It needs to be the continuation of the National Security Policy (NSP) because it builds upon it to ensure the safety and security of Canadians. It is important because the strategists

appropriate concepts [ways] and supported with the necessary resources [means]. Wrong objectives supported by brilliant concepts will not protect or advance national interests."

¹¹³ Gouré, *Homeland Security*, 264.

¹¹⁴ Yarger, *Strategic Theory for the 21st Century: The Little Book on Big Strategy*, 5. The author offers ten premises for a theory of strategy, which further explains the importance of strategies.

for the GoC have assessed the contemporary environment, identified a threat and developed a strategy that "...identifies objectives, concepts, and resources required to accomplish the goals established by policy."¹¹⁵ If the CBRN strategy does not achieve its aim, then it does not support the NSP which serves as Canada's grand strategy.

Assessing The Ntl CBRN Strategy of the GoC with the selected characteristics

The selected characteristics used by the GAO to evaluate national strategies have been used to review seven strategies released by the US Government in the period since September 2001. They were developed when the GAO came to the realization that in the US, "...national strategies are not required to address a single set of characteristics... There are no commonly accepted set of characteristics use for effective national strategy."¹¹⁶ The GAO set about to develop selected characteristics to measure the effectiveness of the strategies developed to defend Americans at home and abroad. To do so they consulted numerous sources to determine which characteristics against which the national strategies could be measured.¹¹⁷

The GAO firmly believes that an effective national strategy must contain all of these characteristics. It does concede that the agencies responsible for the strategies may address these in a different order, but argues that the characteristics flow naturally one

¹¹⁵ Ibid, 3.

¹¹⁶ United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism* (Washington: United States General Accounting Officer, 2004), <http://www.gao.gov/new.items/d04408t.pdf>; Internet, accessed 11 February 2008, 2.

¹¹⁷ Ibid., 1. The GAO concluded, "We believe these desirable characteristics would help shape the policies, programs, priorities, resource allocations, and standards that would enable federal agencies and other stakeholders to implement the strategies and achieve the identified results."

from another, from definition to implementation.¹¹⁸ Essentially the characteristics flow like the ends, ways and means. The analysis of *The CBRN Strategy of the GoC* identifies a number of significant shortfalls in the areas of: intelligence; departmental framework for synchronization; and budgeting. The shortfalls underscore the need for the Canadian Government to revitalize its interest in this strategy and to conduct a major review and audit of its content and direction.

Statement of purpose, scope, and methodology

The first desirable characteristic concerns itself with the reason for the strategy, its scope and how it was developed.¹¹⁹ This is vital and considered first because it is essential to understanding why a government would create a specific strategy. Equally it is important to understand the extent of the strategy or the scope, because this will impact the resource allocation later on in the process. How the strategy was developed is equally important because it will explain the conceptual foundations or principles that were used in its preparation.

In the case of *The CBRN Strategy of the GoC* the Canadian Government used the attacks of September 11th 2001 and the anthrax attacks of that Fall to emphasize that, “...no country is immune form the threat of terrorism and there is ongoing concern over the threat of chemical, biological, radiological and nuclear (CBRN) terrorism.”¹²⁰ The GoC goes on to define CBRN and CBRN incident, emphasizing that although the strategy was developed to deal with a CBRN terrorist incident it could apply to accidental

¹¹⁸ Ibid., 29.

¹¹⁹ Ibid., 31.

¹²⁰ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 2.

CBRN incidents. The strategy does not define the exact nature of the threat that should preoccupy Canadians. Without an understanding of the threat, as will later be seen, the GoC has in fact failed to clearly define the purpose of the strategy. The only linkage, to perhaps define purpose, is that the strategy was designed to support the National Security Policy and the Anti-Terrorism Action Plan.

The GoC has failed to identify the scope of *The CBRN Strategy of the GoC*. It has made the strategy an all-inclusive document, designed to cover intentional and accidental CBRN incidents, including incidents involving Dangerous Goods (DG) and Hazardous Materials (HAZMAT). “The range of scenarios which states might confront could vary considerably depending upon the agent used...states are going to have to analyze the whole range of potential scenarios and response measures.”¹²¹ Failure to define the scope has left the Federal departments and agencies with roles and responsibilities in the strategy to identify this on their own, and leaves synchronization up to the departments and agencies.

Similarly, the GoC has not defined the methodology of how it arrived at this strategy, its aim and strategic objectives. Normally these would be bound by theory or an explanation as to how they were developed. Again this is critical in order to minimize misunderstandings and different viewpoints from those with roles and responsibilities. The strategy, therefore, does not meet the requirements of this characteristic.¹²²

¹²¹ Gurr and Cole, *The New Face of Terrorism: Threats From Weapons of Mass Destruction*, 213.

¹²² United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, 13. However, if a comparison is drawn with the work done by the GAO only two of the seven strategies it reviewed addressed this criterion.

Nonetheless, the GoC needs to consider the importance of this characteristic and must develop a clear purpose, scope and methodology.

To properly define the purpose of *The CBRN Strategy of the GoC* the Canadian Government needs to have a better understanding of the threat and what it wants to accomplish with this strategy with regards to the NSP. As for the scope, the GoC has recognized that threat is multi-faceted, but it needs to clarify how it will counter them. Finally for methodology the GoC should consult with other governments to determine how they developed their national strategies to counter the terrorist CBRN threat. It also needs to establish a consultative process whereby the departments with roles and responsibilities are involved to determine whether or not what is being asked of them is achievable.

Problem definition and risk assessment

The second characteristic, "...addresses the particular national problems and threats the strategy is directed towards."¹²³ The GAO identified that it is important for the government to provide a detailed definition of the problem and its causes, where applicable. This is vitally important because without a firm understanding of the nature of the threat, agencies mandated by the strategy may be ill-prepared for the threat. The GAO recommended that along with the threat a detailed risk assessment needs to be completed and provided with the strategy. Should the analysis of the threat be classified, an unclassified one needs to be made available for those agencies mandated by the strategy to ensure they are prepared for the threat.

¹²³ Ibid., 33.

The CBRN Strategy of the GoC emphasizes that there was no specific CBRN threat to Canada, but that it, "...has acted decisively to address the CBRN issue...and provides an over-arching framework to enhance the country's readiness..."¹²⁴ It does not cite previous work by CSIS that identified that a CBRN threat exists to Canadians, nor does it more specifically define the threat. Without a clear understanding of the threat, federal departments and agencies cannot effectively prepare themselves to respond nor can indicators for intelligence gathering be prepared, and intelligence is the key when estimating the CBRN threat. "An efficient and effective intelligence system will allow first the preventions of an attack and if not prevention, then mitigation of the attack's consequences."¹²⁵

The GoC has, therefore, not only failed to properly define the threat but has also not provided a risk assessment for Canadians to understand where they are vulnerable at home and abroad. The *Roundtable on Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Terrorism: Progress, Challenges & Priorities for Action* concluded that, "...a fundamental starting point is a basic risk assessment and the adoption of a standard approach for building up CBRNE capabilities across the country."¹²⁶ The participants of this conference recognized and emphasized this as one of their major conclusions. A common risk assessment system would permit the national government,

¹²⁴ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 2.

¹²⁵ Major B. J. Brister and P. Taillon, *The Viability of the Canadian Anti and Counter Terrorist Response in the Shadow of the Millennium*, (Conference of Defence Associations, 1998), www.cda-cdai.ca/symposia/1998/98brister.htm; Internet; accessed 17 February 2008, 11.

¹²⁶ Science and Technology Division and Public Safety Canada, *Roundtable on Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Terrorism: Progress, Challenges & Priorities for Action* (Ottawa: Public Safety Canada, 2007); Internet; accessed 3 February 2008.

its departments and agencies to balance the use of its precious resources. The GoC has not met this criterion.¹²⁷

Goals, subordinate objectives, activities, and performance measures

The third characteristic concerns the aim of the strategy in question, any objectives and measures of effectiveness (MOE).¹²⁸ Like the second characteristic, agencies mandated by the strategy need these details in order to align their departments with the overall aim. The GAO insists that this should also include any priorities, timelines or MOE. *The CBRN Strategy of the GoC* has a clear aim emphasizing prevention, mitigation and effective response.¹²⁹ It also provides the key elements of the strategy as to how it contributes to the protection of Canadians and its key assumptions in the development of the document. In this respect the strategy addresses this characteristic. Had the government better defined the threat, the aim of the strategy and its strategic objectives could be more refined. However, the strategy does not possess any milestones or MOE.

The issue of milestones is critical. The PSEPC funded *Roundtable* concluded this when discussing policy and governance, claiming that it is essential for the GoC to identify their exact expectations or deliverables and a timeline for implementation of the

¹²⁷ United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, 15. Although it appears disconcerting that the Canadian CBRN Strategy does not meet the criterion, neither does the *National Strategy to Combat Weapons of Mass Destruction*.

¹²⁸ *Ibid.*, 34.

¹²⁹ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 3.

strategy.¹³⁰ A strategy is ultimately guided by the resources available to execute, and generally governments will balance the risk with resources available in order to achieve a proper balance so as to provide protection for its citizens without jeopardizing other programs, such as: public health, national defence, and more. In this case the GoC has not identified the required resources, it has not identified by when certain measures have to be in place nor has it identified response times. The complexity of the CBRN threat requires that first responders be prepared to treat victims immediately for some agents, yet there could be a delay without endangering Canadians for other agents. If first responders and the departments that will augment the municipalities are unaware of required response times there may be gaps when no life-saving assistance is present, thus endangering Canadians.

“Strategy is about relating ends and means. The ways and means are related through a strategic plan. Plans must have measures of effectiveness (MOEs) – ways of assessing progress towards objectives.”¹³¹ The issue of MOE is critical, and is intrinsically linked to the threat. How is the GoC to know if it prepared to face the threat if it cannot confirm its success through valid MOE? The MOE could be a series of semi-annual or annual exercises challenging those with roles and responsibilities in the CBRN strategy to ensure they are prepared to face the different threats. This criterion, therefore, is partially covered because of the failure to provide a proper timeline for implementation

¹³⁰ Science and Technology Division and Public Safety Canada, *Roundtable on Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Terrorism: Progress, Challenges & Priorities for Action*, 46.

¹³¹ Gouré, *Homeland Security*, 263.

and MOE.¹³² A proper GoC review of its strategy would also determine this, as well as the timeline, are critical.

Resources, investments, and risk management

The fourth characteristic concerns itself with the means, or resources, needed to fulfill the strategy.¹³³ A national government can call upon its sources of power to address the threat identified in the second characteristic. But the decision to determine which of its resources to apply has to be managed carefully weighing the risk of what to use and when. This risk assessment is critical to provide further guidance to the federal agencies and to develop a holistic approach to meet the threat.

“When considering a prudent level of investment...the balance between the costs and effectiveness of different programmes becomes important.”¹³⁴ This characteristic is about the cost of a strategy. The sources of national power (economic, military, social, public security and diplomatic) can be leveraged to address the threat, and in this case the Canadian Government has not identified the resources necessary for dealing with the CRBN threat. The strategy document makes no mention of financing and risk management.¹³⁵

¹³² United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, 19. “We believe a better identification of priorities, milestones, and performance measures would aid implementing parties in achieving results in specific timeframes – and would enable more effective oversight and accountability.” The GAO concluded that all of the strategies it reviewed partially addressed this characteristic, but all failed to have proper timelines and MOE.

¹³³ *Ibid.*, 36.

¹³⁴ Gurr and Cole, *The New Face of Terrorism: Threats Form Weapons of Mass Destruction*, 230.

¹³⁵ United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, 21. The GAO assessment of the US National Strategies indicated that three did not address this characteristic, including the *National Strategy to Combat Weapons of Mass Destruction*.

The PSEPC sponsored *Roundtable* found 91 gaps in *The CBRN Strategy of the GoC* and regrouped many under the theme of funding: “A prerequisite for coherence is sustainable CBRNE capabilities, which in turn requires stable funding to achieve a long term legacy.”¹³⁶ The GoC, therefore, has not met this criterion. The GoC has determined the safety and security of Canadians with regards to the CBRN terrorist threat merits a strategy of its own. It, therefore, needs to fund PSEPC to manage the strategy effectively. The solution does not rest in requiring federal departments, provinces and municipalities to accomplish their responsibilities within their own budgets, separate funds with prioritized spending determined by PSEPC is required. Funding is of such importance that it will become clear to the Canadian Government that it has not properly budgeted to support its objectives, when it completes the audit of the strategy. For this reason funding has been recognized as one of the major shortfalls.

Organizational roles, responsibilities and coordination

These agencies will find their detailed roles and responsibilities in the fifth characteristic.¹³⁷ Along with coordinating measures for the work of the federal departments, this characteristic is about the means that the government will apply to the threat. It addresses the roles of the different departments and agencies to achieve the objectives. In *The CBRN Strategy of the GoC*, the Government does provide a detailed list of roles and responsibilities for the federal departments and agencies, provinces, municipalities, first responders and others. The strategy also details PSEPC as the lead

¹³⁶ Science and Technology Division and Public Safety Canada, *Roundtable on Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Terrorism: Progress, Challenges & Priorities for Action*, 10 & 47.

¹³⁷ United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, 38.

department to coordinate the implementation of the strategy.¹³⁸ The strategy also provides an oversight framework through the Assistant Deputy Minister (ADM) Public Safety Committee.

The one area of improvement for the Canadian Government with this characteristic is under the strategic objective of prevention and mitigation. Canada is signatory and member to a number of international treaties, programs and organizations that address the CBRN threat. These are currently controlled by DFAIT and they support the NSP. However, *The CBRN Strategy of the GoC* needs to highlight the linkage between DFAIT and PSEPC. The strategy does cover two of its strategic objectives: preparedness and recovery. These require an effective federal organization with a strong relationship between all levels of government during crisis and consequence management.¹³⁹ The Canadian Government has opted for an approach whereby the municipality is initially responsible for these objectives but has provided them and the provinces with recourse for additional assistance as required. Based on this, the criterion has been met.

Integration and implementation

Finally, a strategy ideally would have identified how the different elements of the strategy will be integrated and implemented. The sixth desirable characteristic, "...addresses both how a national strategy relates to other strategies' goals, objectives, and activities...and subordinate levels of government and other organizations and their

¹³⁸ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 7-10

¹³⁹ F. J. Cilluffo, S. L. Cardash and G. N. Lederman, *Combating Chemical, Biological, Radiological and Nuclear Terrorism: A Comprehensive Strategy* (Washington: Center for Strategic and International Studies, 2000), viii.

plans to implement the strategy...”¹⁴⁰ The GAO indicated that this characteristic emphasizes the linkages between the strategy in question with other policies, strategies and international commitments. Therefore, the six characteristics provide a detailed means of assessing national strategies.

The CBRN Strategy of the GoC deals very little with integration and like the lack of a timeline, has no mention of an implementation plan. In this case the strategy is subservient to the NSP and its objectives must align with it. There is also mention of the relationship between the strategy and other GoC initiatives, such as: the *Global Partnership Program*, the *Emergency Preparedness Act*, and the *Comprehensive Test Ban Treaty*.¹⁴¹ Many other GoC programs and initiatives exist and the linkages already made.¹⁴² These are important in order to avoid one act taking precedence over the other. It is also very important to ensure an integration of all these DFAIT managed initiatives.

The implementation of the strategy is worrisome. Although PSEPC was given the mandate for its implementation, no allusion is made as to how it will be done. This in turn has created some confusion. The PSEPC *Roundtable* noted, “A standard response model, or concept of operations, needs to be developed to ensure that the federal, provincial/territorial and municipal pieces work together during a major incident.”¹⁴³

¹⁴⁰ United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, 39.

¹⁴¹ Public Safety Canada, *The Chemical, Biological, Radiological and Nuclear Strategy of the Government of Canada*, 7-10.

¹⁴² M. Crenshaw, "Terrorism Strategies, and Grand Strategies" In *Attacking Terrorism: Elements of a Grand Strategy*, eds. A. K. Cronin and J. M. Ludes (Washington: Georgetown University Press, 2004), 75-76.

¹⁴³ Science and Technology Division and Public Safety Canada, *Roundtable on Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Terrorism: Progress, Challenges & Priorities for Action*, 19.

Without a plan for implementing the strategy, much like the timeline, how can PSEPC possibly hope to develop a “whole-of-government approach” and coordinate a federal response to ensure the safety and security of Canadians? The GoC has taken positive steps towards integration but has not properly identified in the strategy the implementation process and, therefore, this criterion is only partially fulfilled.¹⁴⁴ However, the GoC will need to revisit this characteristic when it reviews the strategy.

Major Shortfalls

The analysis of *The CBRN Strategy of the GoC* has demonstrated that the strategy fails to meet three of the characteristics, partially addresses two and meets the intent of only one characteristic as outlined by the GOA as desirable. The problems found with the Strategy can be grouped into three major shortfalls that need to be reemphasized. If nothing else, by pragmatically addressing these three issues the strategy can be greatly improved.

The first major shortfall is intelligence. “The principle means for preventing terrorist attacks taking place are intelligence and good police work...”¹⁴⁵ CBRN Terrorism will require a firm understanding of the threat and how to identify it. First, the GoC must come to grips with terrorism in general and, second, be able to understand the technical indicators to a CBRN attack. Intelligence is of such importance because it helps identify the purpose, problem definition, risk assessment and the implementation of the strategy. Although some of the intelligence has to be classified to protect sources and

¹⁴⁴ United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, 25. The GAO concluded the US *National strategy to Combat Weapons of Mass Destruction* does not address implementation or detailed guidance to its implementation.

¹⁴⁵ Gurr and Cole, *The New Face of Terrorism: Threats From Weapons of Mass Destruction*, 213.

deny the terrorists that the Government is fully aware of the threat, an unclassified version of the threat needs to be made available. Canadians need to know the threat they face and that the GoC has a plan to deal with it.

The second major shortfall is establishing a framework for synchronization. The Canadian Government needs to ask itself the fundamental strategic questions, as the US Government did for Homeland security, "...how does the nation make rational, reasonably objective choices about where, how thoroughly, and how fast to build specific capabilities and mitigate specific vulnerabilities..."¹⁴⁶ To do so the GoC needs to grasp three issues: understand the threat; prioritize the vulnerabilities; and budgeting. The importance of intelligence clearly explains the importance of the threat. A proper risk assessment will determine the vulnerabilities and prioritize them. Budgeting will determine resource allocation. By grasping these three variables, the GoC will be able to develop a framework for synchronization.

The final major shortfall is budgeting. The funding, or budgeting, of *The Ntl CBRN Strategy of the GoC* is the first and most important of the six themes identified by the PSEPC *Roundtable*. Their vision is that the federal and provincial governments need to agree to a national CBRNE program so as to get and maintain funding.¹⁴⁷ The need is not just to do an initial injection of funds to acquire the strategy and its programs, such as the CRTI, but maintain sustained funding to continue the training of those involved,

¹⁴⁶ C. Hornbarger, "National Strategy: Building Capability for the Long Haul" In *Homeland Security and Terrorism: Readings and Interpretations*, eds. R. Howard, J. Forest and J. Moore (New York: McGraw-Hill, 2006), 275. The question continues, "...given that we cannot possibly build all needed capabilities and mitigate all vulnerabilities, everywhere to 100 percent, at the same time?"

¹⁴⁷ Science and Technology Division and Public Safety Canada, *Roundtable on Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Terrorism: Progress, Challenges & Priorities for Action*, 39.

purchase equipment and prepare all levels of government to ensure the security and safety of Canadians. The Federation of Canadian Municipalities in its 2005 report *Emergency: Municipalities missing from disaster planning* noted, “Public Safety Canada must go beyond pronouncements [funding] and explain clearly and candidly to municipal governments how, where and in what amounts, security funding has contributed to security.”¹⁴⁸ The municipal governments concern stems from the fact that they control most of the first responders and in the eventuality of an attack would lead the initial crisis response.

The three major shortfalls are significant. The lack of a proper definition of threat in the strategy affects almost every aspect of the strategy itself. Unless the threat is defined and presented in the strategy, it is unlikely that the other two major shortfalls will be addressed. The second issue, a framework for departmental synchronization, is fundamental. This will not only established how the strategy will be implemented, but also when and will provide MOE. The criteria used for the analysis are critical of this. It is akin to the expression of ‘holding a person’s feet to the fire’. Finally the issue of funding is critical. Without sustained funding, all departments and levels of government (federal/provincial/municipal) will not be able to ensure the appropriate levels of preparedness.

Conclusion

The analysis of *The CBRN Strategy of the GoC*, focused on the issues of: sufficiency and capacity. The assessment of the strategy with the six desirable characteristics developed by the GAO suggests that the strategy meets neither. From the

¹⁴⁸ National Security Group, *Emergency: Municipalities Missing from Disaster Planning*, 39.

perspective of sufficiency, the strategy document does not contain enough information to guide governmental actions, federal and federal/provincial/municipal, to properly achieve its aim. From the perspective of capacity, despite its strategic objectives, the strategy does not sufficiently define the expectations to deal with the threat. The Canadian Government has not adequately defined the threat or adequately prepared its strategy for the threat.

The questions of what is strategy and what does it mean are important as *The CBRN Strategy of the GoC*, was the first time the Canadian Government used the word strategy when developing its action plan to deal with an issue. In the past the GoC has used terms such as policy, program, plan and initiative. Clearly strategy is much more, “Ends, ways, and means lead to the achievement of the desired end state within acceptable bounds of feasibility, suitability, acceptability, and risk...”¹⁴⁹ The evidence presented suggests the strategy is not acceptable because the three major shortfalls identified are examples of how the GoC has not gone beyond defining its strategic concept. They are also part of the PSEPC *Roundtable*.¹⁵⁰ These recommendations for priorities were made as a means to improve the strategy. The GoC needs to revitalize its interest in its strategy to address these shortfalls and in turn will address these priorities.

¹⁴⁹ Yarger, *Strategic Theory for the 21st Century: The Little Book on Big Strategy*, 71.

¹⁵⁰ Science and Technology Division and Public Safety Canada, *Roundtable on Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Terrorism: Progress, Challenges & Priorities for Action*, 2. Recommendations from the Roundtable include: (1) Creation of a CBRNE Working Group within the Senior Officials Responsible for Emergency Management (SOREM) Structure; (2) Renewal and nationalization of the Government of Canada CBRN(E) Strategy; (3) Assessment of base-line response capabilities across the country; (4) Completion of the National Response Structure; (5) Examination of new funding options to train and equip first responders; and (6) Ensuring congruence of CBRNE-specific efforts with broader emergency management initiatives.

The analysis of *The CBRN Strategy of the GoC* with the desirable characteristics developed by the GAO indicates that the strategy does not adequately address. The strategy does not address: purpose, scope and methodology; problem definition and risk assessment; and resources, investments and risk management. It only addresses in full the criteria of organizational roles, responsibilities and coordination. When the GAO set to define these characteristics it was to help the government in, "...further developing and implementing strategies – and to enhance their usefulness in resource and policy decisions and to better assure accountability."¹⁵¹ The analysis with the characteristics has identified that the strategy has some major shortfalls and that the GoC needs to conduct an audit of its strategy to confirm whether or not it should continue to pursue the aim and strategic objectives it had set for itself.

At the outset of the analysis it was identified that evaluations of strategies are generally done in two areas: sufficiency and capacity. On the issue of sufficiency, *The CBRN Strategy of the GoC* does not provide sufficient guidance to achieve its aim and fulfill its strategic objectives. The issue of capacity and whether or not the CBRN strategy has the ability to counter the terrorist CBRN threat is also bleak. Without having properly defined the threat, it is possible that the GoC has prepared the strategy on faulty assumptions. These faulty assumptions directly affect the effectiveness of the strategy and the determination that the strategy does not have the capacity to counter CBRN terrorism. The Canadian Government needs to review its strategy to cover these shortcomings.

¹⁵¹ United States of America, General Accounting Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, introduction.

The review of *The CBRN Strategy of the GoC* has indicated that it is incomplete and needs to be reexamined. The Canadian Government set itself the aim of protecting Canada and Canadians. This is vitally important, but producing a ten page document that does not properly identify the goals, ways and means does not suffice. It must conduct a comprehensive review of the strategy to ensure that it achieves the objectives it set for itself.

CONCLUSION

The attacks on the World Trade Center on September 11th 2001 and the subsequent Anthrax letters that same Fall served as a catalyst to governments around the world to review their preparedness for terrorist attacks, and in particular the CBRN terrorist threat. The GoC was no different. It passed anti-terrorism legislation within months of the attack and reorganized OCIEP into PSEPC, broadening its mandate and responsibilities, to include: emergency management; national security; crime prevention; law enforcement policy and corrections policy.¹⁵² In March 2005 it released *The CBRN Strategy of the GoC* in support of the NSP, to protect Canadians and enhance preparedness to face a terrorist CBRN attack. This was only the second time that the GoC produced such an over-arching directive, and the first designed to counter a particular threat. However, the analysis of the strategy itself has revealed that its design will not permit the GoC of achieving its aim. The GoC must commit energy and resources to review its strategy if it is to better protect its citizens.

The terrorist threat to Canada is real and the threat of CBRN terrorism has not been exaggerated. The analysis of the threat demonstrated that CSIS confirmed three CBRN incidents were averted between 1993 and 1998. It also demonstrated that CSIS maintains CBRN terrorism as one of its top three priorities, because the terrorists can be home-grown and targeted against Canadians, transiting through Canada to target the US, or targeting Canada because of its international policy. The analysis concluded the Canadian government needs to develop intelligence on terrorists. “The breadth, depth,

¹⁵² Public Safety Canada. *What we do*. Ottawa: Public Safety Canada, <http://www.ps-sp.gc.ca/abt/wwd/index-eng.aspx>; Internet; accessed 22 April 2008.

and uncertainty of CBRN threats demands significant investment, coordination, and retooling of the intelligence process across the board...”¹⁵³ The GoC must therefore enhance its intelligence capabilities if it is to enhance its CBRN strategy.

Prior to the release of *The CBRN Strategy of the GoC* in 2005, the Canadian Government had no over-arching philosophy to counter the CBRN terrorist threat. The Auditor General of Canada noted in the 2004 review of the 2001 Anti-Terrorism Initiative that the GoC dealt with security issues in an ad hoc manner, there was no consolidated plan and priorities were established in a time sensitive fashion.¹⁵⁴ Furthermore, four shortfalls were identified throughout the review of the programs before 2005. First, there was a lack of synchronization between the different federal programs and departments. The efforts of the different initiatives should be complimentary but the GoC has not created links between them. Second, there is a lack of intelligence to support the GoC in its efforts. Because many of the programs are reactionary, such as the NCTP, intelligence is required to put the GoC resources at the right place, at the right time in order to fulfil the mandate in the fight against CBRN terrorism. Third is the lack of funding. In particular, the programs that deal with emergency management, first responders and municipalities require sustained budgets to acquire equipment and conduct training. Finally, the report noted that the GoC needs to have one body

¹⁵³ Cilluffo, Cardash and Lederman, *Combating Chemical, Biological, Radiological and Nuclear Terrorism: A Comprehensive Strategy*, iv. The authors of the Center for Strategic and International Studies (CSIS) CBRN Terrorism Task Force Report suggested that it impossible to predict the exact type of CBRN threat that the United States (an by extension Canada) faces, but that without bolstering national intelligence capabilities the US would not be able to prevent or respond to a CBRN attack.

¹⁵⁴ Office of the Auditor General of Canada, *Report of the Auditor General of Canada to the House of Commons*, 4. The Prime Minister directed the establishment of the As Hoc Cabinet Committee on Public Safety and Anti-Terrorism in later September 2001. This committee was to review policies and legislation and its recommendations eventually led to the creation of the PSEPC.

responsible to provide direction or oversight on CBRN matters. The GoC would make this determination and address the shortfalls through a review of this national security issue.

Finally the analysis of *The CBRN Strategy of the GoC* through the use of the desirable characteristics for assessing national strategies developed by the GAO demonstrated that the GoC strategy is lacking on many fronts. Of the six characteristics mentioned by the GOA, the GoC strategy only addressed the organizational roles, responsibilities and coordination. It failed to address three characteristics: purpose, scope and methodology; problem definition and risk assessment; and resources, investments, and risk management. The strategy partially addressed the other two characteristics: goals, subordinate objectives, activities, and performance measures; and integration and implementation. Throughout the analysis three major shortfalls were identified: framework for synchronization; intelligence; and budgeting. These shortfalls, together with those identified during the analysis of the threat and GoC approach to CBRN before 2005, identify the major shortfalls the Canadian Government must rectify with its review of its CBRN strategy.

Major Shortfalls: Justifying the need for a review of *The CBRN Strategy of the GoC*

The first major shortfall is the need to establish a framework for inter-departmental synchronization. This is critical and it would permit the GoC to align the parts contained within the strategy in terms of standards and timelines. It would permit the GoC to coordinate the efforts of its various departments and programs, “...governments are pursuing a multi-layered, integrated strategy of policy responses [to combat CBRN terrorism] at national, bilateral, multilateral and global level. Each

level...contributing to strengthening this regime.”¹⁵⁵ Therefore, DFAIT and PSEPC could ensure that international initiative and national programs compliment each other, thus further enhancing the safety and security of Canadians.

The second major shortfall is the critical requirement for timely and accurate intelligence of the threat. CBRN terrorism is highly technical and of such a risk that the GoC must have an understanding of how the threat is evolving and where the next attack can come from. The Auditor General of Canada emphasized the importance of intelligence in her March 2004 Report. While assessing national security in Canada the report concludes that, “Intelligence information is also needed so limited resources can be focussed selectively and precisely on the greatest threats.”¹⁵⁶

The third major shortfall identified throughout the analysis was funding. The PSEPC *Roundtable* and the FCM highlighted this in their reports. To establish any security framework is expensive, to implement one to deal with CBRN incidents is even more so. The technological aspects of CBRN (types of threat, delivery systems, detection and decontamination) require equipment that is specialized and expensive. The training required of first responders and federal agencies to this threat is also very specialized. Without sustained funding it can be expected that the level of readiness, in equipment and personnel, will potentially reduce the safety and security of Canadians.

Although not highlighted as a shortfall, the unifying theme of the three shortfalls is that the GoC needs to not only appoint PSEPC as the lead agency for the implementation of the strategy, but needs to provide more detailed instruction to the other

¹⁵⁵ Gurr and Cole, *The New Face of Terrorism: Threats From Weapons of Mass Destruction*, 212.

¹⁵⁶ Office of the Auditor General of Canada, *Report of the Auditor General of Canada to the House of Commons*, 13.

federal departments, agencies, provinces and municipalities. The major shortfalls: lack of a framework for inter-departmental synchronization; lack of intelligence; and the lack of proper funding, are significant when considering that the safety and security of Canadians is at risk.

In conclusion, the GoC must conduct a review of *The CBRN Strategy of the GoC*. It is recommended that the GoC, through the PSEPC, revitalize its interest and conduct an audit of this strategy, based on a system similar to the desirable characteristics identified by the US General Accounting Officer. This assessment would permit PSEPC to confirm that the strategy has the sufficiency and capacity to achieve its aim and strategic objectives. The analysis would indeed confirm that despite having produced the strategy to counter CBRN terrorism, the GoC has not created the conditions for success to allow a more concerted and better organized campaign to counter the threat. PSEPC needs to ensure that the strategy clearly identifies the goals, ways and means to protect Canadians against a CBRN threat.

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