

National strategy for countering weapons of mass destruction

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The utilization of Weapons of Mass Destruction (WMD) by terrorist groups and states alike will continue to threaten the U. S. Homeland and its interests abroad. The National Intelligence Council (NIC) provided the following estimate of this emerging threat in its December 2000 analysis of global trends through the year 2015 (Cordesman, 2002).

Strategic WMD threats, including nuclear missile threats in which (barring significant political or economic changes) Russia, China, most likely North Korea, probably Iran, and possibly Iraq have the capability to strike the United States, and the potential for unconventional delivery of WMD by both state or non-state actors also will grow (p. 3).

The NIC report additionally goes on to discuss the accessibility and advancement of technology for WMD will increase, saying: Prospects will grow that more sophisticated weaponry, including weapons of mass destruction--indigenously produced or externally acquired--will get into the hands of state and non-state belligerents, some hostile to the United States. The likelihood will increase over this period that WMD will be used either against the United States or its forces, facilities, and interests overseas (p.). For these and other reasons, individuals in the security and law enforcement profession need to continue to maintain their focus on the capabilities and the potentiality of WMD use by a variety of interests. I use this paper as an opportunity to further educate myself on the use of WMD by terrorist organizations. I do this by giving an overview of the many types of threats that fall into the category of WMD, to include chemical, biological, radiological, and nuclear.

I then continue my education by looking at the countries involved with WMD. I'll conclude the paper with looking specifically at some of Iraq's capabilities and programs. Chemical weapons pose significant threats to both the civilian populace and military organization. One of the biggest reason chemical weapons pose such a threat to both of these groups is the psychological effect caused by their use. Although chemical weapons are no more lethal than conventional weaponry, they cause great fear when even someone thinks of them being used.

The most common example would be the exploitations of the media and the footage seen of the Kurds in Iraq when Saddam Hussein used blister and nerve agents. Not only were there dead civilians laying in the streets, but gruesome pictures of the effect that these agents have on the body, both to those killed and survivors. " Chemical weapons are weapons of terror and intimidation as well as a means of producing casualties and physical destruction" (Cordesman, 2002, p. 101). In 2003 the Department of Defense (DoD) stated that most forms of CW are employed in the liquid form, called droplets.

Droplets make the substance more stable and easy for use in weaponry. The DoD also put chemical weapons into two categories, persistent and nonpersistent--persistent lasting for days, and nonpersistent only lasting from minutes to hours (Defenselink, 2003). The U. S. Centers for Disease Control (CDC) put CWs into a few distinct categories, these being; nerve agents such as VX, blood agents like hydrogen cyanide, blister agents like sulfur mustards, and pulmonary agents like chlorine. The latter are the more

commonly used and known, but there are also many more... specially the ones that fall into the commercial category, such as metals, pesticides, etc... (Kahn & Levitt, 2000). Most organizations wishing to use some type of WMD tend not to turn to chemicals as their primary weapon. There are many challenges facing someone that wants to effectively employing CWs. The DoD (Defenselink, 2003) lists a variety of issues concerning the factors that must be considered. These factors include; agent type, how it will be disseminated, amount available to be disseminated (droplet size), meteorological conditions, including temperature, wind speed and direction.

Without the right combination of all of these factors, the desired outcome will be greatly reduced. An additional challenge is that of actually acquiring and/or producing a chemical to be used as a weapon. The Gilmore Commission (1999) gives the following example for explaining just how difficult it would be. It has sometimes been claimed that producing sarin and other nerve agents is a relatively easy process, to the extent, according to one authority, that " ball-point pen ink is only one chemical step removed".

While sarin may be less complicated to synthesize than other nerve agents, the expertise required to produce it should not, however, be underestimated. The safety challenges involved would, at a minimum, require skill, training, and special equipment to overcome. For this reason, the level of competency required for producing sophisticated chemical nerve agents, including sarin, will likely be on the order of a graduate degree in organic chemistry and/or actual experience as a organic chemist--not simply a knowledge of college-level chemistry, as is sometimes alleges (p. 91).

Although the Gilmore Commission points the necessity to have the required level of expertise for composing chemicals into weapons grade, there are many countries that already possess a vast array of CWs. Terrorist organizations without access to CWs or the expertise to produce them, resort to using resources they do have (normally money, but sometimes services) to exchange with countries that do have CWs. According to Cordesman (2002) the following countries are potential national threats because of their chemical weapons program: China, India, Iran, Iraq, Libya, North Korea, Pakistan, and Russia.

Russia has the largest stockpile, 40, 000 metric tons of chemical agents. Even more frightening is that reportedly some of this stockpile is comprised of "new agents". These new agents are designed to circumvent Western detection methods and can be hidden within commercial chemical plants. The employment challenges of CWs are far out-weighed by the vast capability to acquire them, and the terror effect they have. Biological Weapons (BW) pose a significant risk to U. S. interests for many reasons. There are a wide range of agents with many different effects and they offer a wide range of ways to attack American citizens, crops, and livestock" (Cordesman, 2002, p. 135). The World Health Organization (2000) explained the significance of BW and diseases by recounting history, pointing out Napoleon's devastating retreat from Moscow. This wasn't caused by the great Russian Army or even the cold temperatures of the Russian winter, but because of typhus, a louse-borne infection that reduced his army from 655, 000 to 93, 000.

Cordesman (2002) states that there are five categories: bacterial agents such as anthrax, rickettsial agents like the Rocky Mountain spotted fever, viral agents like small pox, toxins including botulinum, and fungal agents. The above agents are the major ones that would be used to pose a threat to humans, there are many others that would affect plant and animal life. The Center for Disease Control (Kahn & Levitt, 2000) further categorizes agents that are a threat to national security, labeling them "high priority". These high priority agents: "- can be disseminated or transmitted person-to-person cause high mortality, with potential for major public health impact - might cause public panic and social disruption; and - require special action for public health. " As with chemical weapons, biological weapons offer a psychological threat, but additionally the BWs bring a great deal of physiological issues. Much of the challenge with biological weapons occurs when trying to detect that one (or many) have been used. There are many ways that BWs could be used covertly, and the medical symptoms becoming visible long after the terrorist has departed.

The CDC (Kahn & Levitt, 2000) outlines this fact and emphasizing the importance of early detection by the public health infrastructure by giving this scenario: Only a short window of opportunity will exist between the time the first cases are identified and a second wave of the population becomes ill. During that brief period, public health officials will need to determine that an attack has occurred, identify the organism, and prevent more casualties through prevention strategies (e. g. , mass vaccination or prophylactic treatment).

As person-to-person contact continues, successive waves of transmission could carry infection to other worldwide localities. Another twist that a terrorist might use to inhibit the effective detection is to employ a variety of different BWs at the same time. Health care workers would potentially read the symptoms of only one of them used, while the other continues to grow, infect further, and kill. In addition to BWs being very opportunistic for covert use, the DoD (Defenselink, 2003) says that BWs are preferable to chemical or nuclear WMD because of being very compact and low in weight.

The DoD additionally went on to say that the "dissemination of infectious agents through aerosols, either as droplets from liquid suspensions or by small particles from dry powders, is by far the most efficient method" (Defenselink, 2003, p. 5). A Russian assessment of microbiological agents mostly likely to be used identified eleven. The top four were smallpox, plague, anthrax, and botulism. These were at the top because of the ability to be used as an aerosol, and their theoretical lethality rates being 30 percent to 80 percent and because of their capability to be mass produced (Henderson, 1999).

There are two countries besides the United States that are well known for their pursuit of weaponizing biological weapons, Iraq and the Soviet Union. In 1975 the Soviet Union used the biotechnology industry as a front for its weapons program, called Biopreparat". The program had the capability to mass thousands of tons of agents and distribute and store them strategically throughout the Soviet Union. The program also included the ability to rapidly produce these stored agents to weapons grade levels (Alibek, 1999).

According to some intelligence analysis this program involved 60, 000 to 70, 000 personnel (Roberts, 2000). Even more alarming was that a vast amount of these were "infectious agents designed to follow up a strategic nuclear attack on the United States with contagious diseases designed to decimate the population (Alibek, 1999). Although the looming threat to the United States from the former Soviet Union isn't as prevalent with the ending of the Cold War, the possibility of these technologies and actual agents falling into the hands of rogue states or terrorists, is a very good possibility.

The General Accounting Office (GAO) (2000) states that in addition to the large collections of dangerous pathogens, there are also as many as 15, 000 underpaid scientists and researchers, and an additional vast amount of specialized equipment and facilities just waiting to be exploited. This concern, in addition to the many outlined above concretely justify the continued efforts by the United States to counter attacks to its interests through the use of biological weapons. The likelihood of a conventional explosive vehicle bomb like the one used in the Oklahoma City bombing by Timothy McVeigh still poses a serious risk.

Recently there has been a concern of these conventional vehicle bombs also including radioactive material. "Radiological weapons are generally felt to be suitable largely for terror, political, and area denial purposes, rather than mass killings" (Cordesman, 2002, p. 194). Cordesman (2002) further goes on to explain that as opposed to nuclear weapons, radioactive material poses such a great threat because of its contamination capability. Therefore,

radioactive weapons are best suited for use when wanting to deny accessibility of a specific area or building/s.

A Gilmore Commission Report (1999) explained that, A combination fertilizer truck bomb, if used together with radioactive material, for example, could not only have destroyed one of the New York World Trade Center's towers but might have rendered a considerable chunk of prime real estate in one of the world's financial nerve centers indefinitely unusable because of radioactive contamination. Radioactive weapons are designated into two categories, " radiological dispersal devices" (RDD) and " simple radiological dispersal devices" (simple RDD).

As Cordesman (2002) points out, the main difference between the two being that a RDD is designed to " include any explosive device utilized to spread radioactive material upon detonation", and the simple RDD " spreads the radioactive material without an explosion". There are a couple of different types of radioactive material that could be used as RDD or as simple RDDs. The list includes hospital radiation therapy, radiopharmaceuticals, nuclear power plant fuel rods, and universities, laboratories, radiography and gauging (Cordesman 2002).

The Gilmore Commission Report (1999) explains the harmful effects caused by radioactive material by saying, " Radiological weapons kill or injure by exposing people to radioactive materials, such as cesium-137, iridium-192, or cobalt-60. " The harm is caused by a variety of different ways including inhaling it, or ingesting it (contaminated food or water supply). The level of the harm caused is of course determinate of the amount of exposure to the

radioactive material, long periods or short periods. The difficult thing to assess initially is the level of exposure.

The U. S. Army (2002) explains that lethal and serious doses are very difficult to determine, even within the same geographical area. Additionally the U. S. Army (2002) points out that symptoms and effects are largely changed if someone has burns on their body or their body has been through physical trauma, which is almost certainly the case in most scenarios (except for maybe covertly) that would involve radiological contamination. For these reasons, early detection of decontamination is imperative.

The U. S. Army's USACHPPM report (2002) goes on to explain that once prompt detection has occurred, " about 95 percent of external agents can be removed by simply removing outer clothing and shoes". So where would a terrorist group most likely acquire radioactive material to be used as a WMD, and furthermore, what is the likelihood that they would choose radioactive material as their weapon as opposed to, let's say nuclear? The former Soviet Union poses a threat regarding the lack of control over its any radiological materials, especially the " accumulation of large quantities of plutonium from reactors that is intended for reprocessing and/or storage. " (Defenselink, 2002, p. 2). The DoD (Defenselink, 2002) also points out that Iraq and Chechnya have furthered their knowledge of radioactive weapons that could be used to contaminate water, food crops, and livestock. It further concludes that with many countries (Korea, etc...) advancing their nuclear power interests, radiological material will be tougher to monitor and control, and thus easier to acquire.

One of our biggest threats may not be from a conventional weapon with radioactive material, or even the contamination of water or food, but direct contamination through the exploitation of a nuclear power plant right here in the United States. Even though an attack on a nuclear power plant would have to take a great deal of timing during the planning phase, it could produce very effective results. " The possible venting or overload of a reactor could then act as a radiological weapon, and cover hundreds of square kilometers as well as have a major potential affect on regional power supplies (Cordesman, 2002, p. 97). " Some theorize that the method of using an existing nuclear power plant would elevate the hazards that go along with acquiring radioactive material. The Gilmore Commission Report (1999) points out that spent fuel rods are very hot, heavy and thus hard to handle. Cordesman (2002, p. 197) concurs with the Gilmore Commission stating, " A seizure of spent fuel would be particularly dangerous during the first 150 days after the downloading because iodine-131, and iodine-123 are present, which are extremely volatile, and affect the thyroid".

There is still a great deal to be learned about the potential loss and employment of radiological materials, and ultimately the use of it by a terrorist or state would have on a population or army. When it comes to the use of nuclear weapons of mass destruction, the retaliatory consequences of their use would probably discourage the would be state or terrorist to use them. There are many other reasons that would prohibit a terrorist group from having the capability to do so, but as some experts have argued, when it comes to the homeland defense, security planners must look at a time-frame twenty five years from now (Cordesman, 2002).

The DoD (Defenselink, 2002) makes the point by explaining that no one foresaw the Cold War ending so quickly, or that twenty five years ago the Persian Gulf War would have happened... thus the need for such long range planning, and more importantly looking at what the capabilities could be out there, and the United States vulnerabilities to them. A great deal of the threat would come from countries that currently have nuclear programs, whether directly, or indirectly through the proliferation of technical expertise and equipment.

Thus, we must look at these countries, and gain a firm understanding of their current programs. The DoD (OSD, 2001) gave the following overview in explaining the states with a potential nuclear threat to the United States. - Iran: Iran is currently actively pursuing the acquiring of fissile material and technology for nuclear weapons development. They are doing this by an elaborate system of military and civilian organizations. Iran's claim is that these elaborate systems are for the development of a civilian energy program--the DoD thinks otherwise. Much of the success of Iran's attempts will depend on Russia and China.

Russia is currently in a mutual partnership with Iran to build a 1, 000 megawatt power reactor. Iran is using this product to both acquire sensitive nuclear technologies, along with weapons-usable fissile material. China on the other hand ended its nuclear projects with Iran in 1997. Additionally, in 1998 China created new export controls over dual-use nuclear equipment... it seems they're living up to their 1997 commitment. - North Korea: In 1994

an agreement between the United States and North Korea ended nuclear weapons material production at two of its facilities.

In question, is whether North Korea was able to divert enough plutonium to make a nuclear weapon, the United States thinks it did. Also in question is the spent fuel from one of these reactors that was also removed in 1994. If this fuel was reprocessed it could've produced several nuclear weapons. -

Pakistan: In response to India's testing, Pakistan tested six devices in 1998.

Pakistan has a very good infrastructure to support a nuclear weapons program, especially facilities that allow for uranium conversion and enrichment.

Much of the foreign assistance received by Pakistan was from China. The Pakistan's military government has been and will be for the foreseeable future be in control of its countries nuclear resources, to include research, and wartime command and control. Much of Pakistan's program is designed to deter the threat from India. Pakistan has publicly stated that it will not assemble or deploy its nuclear warheads, nor will it resume testing unless India does so first. - Syria: Syria has no current capability, but does have a small (China supplied) research reactor.

Additionally, in 1999 Syria signed an agreement with Russian to build another research reactor. Although it has an interest in nuclear technology, it just doesn't have enough expertise and infrastructure to develop nuclear weapons, and therefore they are not pursuing it. Even though most believe that the retaliatory consequences of using a nuclear weapon would prohibit their use, there are still too many vulnerabilities to the United States which

warrant careful consideration and homeland defense planning. One of these vulnerabilities is our communications and intelligence satellites.

A nuclear weapon launched to a very high altitude would destroy the DoD's communications and intelligence satellites from the Electromagnet Pulse. We all know the significance of these satellites for the United States' war-fighting capability. Another vulnerability is the contamination of primary facilities, like ports and airfields. Both airfields and ports played an integral part of the success during Operation Desert Storm. The U. S. Air Forces' superiority over Iraq during the Gulf War would not have been as quick and extensive if it had to deal with contaminated and/or destroyed airfields. (Defenselink, 2002). With Iraq being the major threat to the United States, both directly and indirectly (support of terrorist groups), Iraq's Weapons of Mass Destruction capabilities are addressed completely separate from the rest of this research. Laqueur (1999) noted that a great deal of Iraq's WMD program was unknown to the United States and world prior to the Gulf War, even though they had used it during the war with Iran and on the Kurds in their own country. Prior to the Gulf War, Iraq admitted to having 2, 850 tons of mustard gas, 790 tons of sarin. Additionally, when the Gulf War began, Iraq had fifty missile warheads with chemical weapons. These figures were from Iraq, so the actual extent of their program was unknown (Laqueur, 1999). In October, 2002 the Central Intelligence Agency issued a report outlining its concerns for Iraq's continued development of WMD. Some of the conclusions made by the CIA (2002) include; - Iraq acquiring its first nuclear weapon will depend mostly on its ability to acquire fissile-material.

Once this is done it could have a nuclear weapon within one year. Additionally, Iraq has made an effort to purchase high-strength aluminum tubes that could be used for conventional weapons, but most conclude that it is for the nuclear centrifuge enrichment process. - It is believed that Iraq has stocked a few hundred metric tons of chemical agents, mostly consisting of mustard, sarin, and VX. - Efforts in the biological weapon program are very active and larger than prior to the Gulf War. Iraq still has a small missile force to include Short Range Ballistic Missiles with ranges of 650-900 km. Additionally, extensive research and tests have been done with unmanned aerial vehicles, most likely to be used for delivery biological warfare agents. Concluding this review of Weapons of Mass Destruction, as the information provided above points out, there is an obvious threat to the United States' homeland and interests abroad from the use of WMD. Significant differences between nuclear and chemical or biological WMD exist.

All three types of weapons can kill or injure personnel and spread contamination over broad areas, only nuclear weapons can destroy equipment and facilities. " (Defenselink, 2002) This of course has a cost factor. Many civilian chemical and biological production facilities can easily be turned into a weapons program, where a nuclear program would cost a great deal more. Henderson (2001, p. 29) makes the point about the attitude of 21st century terrorists by stating, " Weapons of mass destruction are becoming more accessible to terrorists.

They appeal most to " new terrorist" who seek total destruction for symbolic reasons. " From a military standpoint, a great deal more emphasis must be

placed on the policy makers and planners for DoD doctrine that applies to chemical, biological, radiological, and nuclear threats. As technology and capable means of proliferation of these threats, so will the use of them against us. Much of this planning as been done in the past, but we have only begun to prepare ourselves for the terrorist or state that is likely to use Weapons of Mass Destruction.

Further emphasizing the importance of this issue, the Center for Strategic and International Studies in May of 2001 concluded, " There is no way to predict the nature of the WMD threat to the U. S. homeland in the near or long term. The U. S. military superiority in itself is no longer sufficient to ensure the safety of the United States. National security planning must be broadened to encompass WMD counterterrorism. " (Cilluffo, Cardash, & Lederman, 2001, p. 9). Only a few months later on September 11, 2001 there point was further made.