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I would like to thank the Committee for inviting me to speak today about the importance of strengthening the international legal regime outlawing biological weapons, the cornerstone of which is the 1972 Biological and Toxin Weapons Convention. In my statement this morning, I would like to begin by considering the nature of the biological weapons threat to the United States. I would then like to discuss recent efforts to enhance compliance with the BWC, including the upcoming five-year review conference for the Convention.

The Nature of the Biological Weapons Threat

The biological weapons threat to the United States is fundamentally different today than in the period during and after the completion of the Biological and Toxin Weapons Convention. At that time, only four countries -- the Soviet Union, North Korea, Egypt, and probably Israel -- had biological weapons programs. Among those countries, the Soviet biological weapons program posed the most direct and serious threat to the security of the United States. Based on defector and other information, we now know that the Soviet program was the largest in the world, eventually employing upwards of 60,000 personnel. R&D and production of biological weapons was undertaken at secret facilities run by the Soviet military and, beginning in the 1970s, also at civilian facilities under the management of an organization known as Biopreparat. The Soviet program explored the full-spectrum of traditional biological agents, ranging from lethal agents such as anthrax, smallpox and plague to incapacitating agents such as tularemia, glanders and Venezuelan equine encephalitis. It also used genetic engineering techniques to modify traditional agents, for example by imparting antibiotic resistance, and to explore possible cocktails or combinations of agents.

Following the collapse of the Soviet Union, Russian President Boris Yeltsin ordered the termination of this illegal biological weapons program. In the years that followed, some research and production facilities were deactivated and many others underwent severe personnel and funding cuts. Although the U.S government continues to be concerned that some elements of the former Soviet program remain, it is difficult to imagine a scenario in which Russia would use this residual capability deliberately against the United States.

Today, the spread of biological weapons to countries outside of Europe has clearly displaced the Soviet Union as the dominant biological weapons threat to the United States. According to testimony by Secretary of Defense Rumsfeld before the Senate Armed Services Committee in June, at least thirteen countries are pursuing biological weapons of increasing sophistication and lethality. Some of these countries have been publicly identified in Congressional testimony or in publications such as the Pentagon's *Proliferation: Threat and Response* or the State Department's annual *Report on Compliance with Arms Control Agreements*. In addition to the countries listed above, Iran, Iraq, Libya, Syria, and China have also been said to be pursuing biological weapons programs. These programs are at various levels of maturity.

On one end of the spectrum is Iraq, whose biological weapons program first began in the mid-1970s and was restarted again in the 1980s, during the Iran-Iraq War. Although Baghdad repeatedly denied having a biological weapons program, following the defection of General Hussein Kamal in 1995, Iraq finally acknowledged having produced some 30,000 liters of concentrated BW agent, including anthrax and botulinum toxin, and filling it into missile warheads and bombs. Iraq also admitted to having conducted R&D on a range of other agents, including ricin, clostridium perfringens, which causes gas gangrene, T-2 toxins, and camelpox, which is in the same virus family as smallpox. There have been widespread reports in the press that Iraq has rebuilt some of the dual-use facilities used to develop and produce these agents. Iraq's expulsion of UNSCOM inspectors in December 1998 and its subsequent refusal to accept inspections from UNMOVIC, the UN follow-on organization, have precluded the international community from pursuing concerns about the status of the Iraqi program.

At the other end of the spectrum is Libya, which has not been able to move beyond the R&D phase in its biological weapons program, although it is seeking to acquire the capability to produce biological agents. In between are China, Iran and Syria. Prior to joining the BWC in 1984, China had an offensive program that included the development and production of biological agents. Iran's biological weapons program, which began in the 1980s, may have moved beyond the R&D stage to small-scale production of biological agents. In recent years, Iran has actively sought dual-use materials and expertise from institutes formally associated with the Soviet biological weapons program. Syria is believed to have a limited biological agent development program underway.

In addition to the threat from national biological weapons programs, we must also take seriously, in the aftermath of the September 11 attacks on the World Trade Center and Pentagon and subsequent anthrax incidents in Florida, New York and Washington, the risk of biological weapons in the hands of domestic or foreign terrorists. Before last month, no American had died as a consequence of a terrorist attack with biological agents, although some 750 people were poisoned in 1984 when the Rajneeshee cult sprinkled salmonella on salad bars in Oregon. Today four people are dead from inhalation anthrax in the United States. Six others are being treated for the inhalation form of the disease and another seven are recovering from the cutaneous or skin form. In addition, tens of thousands of media, postal and government employees have been prescribed powerful antibiotics prophylactically because of possible anthrax exposure. At the present time, we do not know who is behind these attacks, how they acquired the high quality anthrax found in the letter to Senate Majority Leader Daschle, or whether they have access to additional anthrax or other biological agents.

Both the recent anthrax incidents and any future terrorist effort to use biological weapons could, of course, be the product of a homegrown effort, what White House press secretary Ari Fleischer has described as "a PhD microbiologist" with a "well-equipped microbiology lab." Both the materials and the equipment needed to make biological agents are publicly available. Seed cultures of biological pathogens can be purchased from among the more than 1500 culture collections around the world operated by commercial enterprises and research institutions. Both the nutrient media in which the pathogens are grown and the fermenters or bioreactors in which the production process occurs also are widely available, owing to their role in legitimate research and commercial activities. Finally, equipment to transform the liquid agent into a dry powder of the optimal particle size for inhalation into the lungs is also available in the pharmaceutical and other industries. That said, knowing what is needed to make a biological agent is not the same as knowing how to do it, as was demonstrated by the Aum Shinrikyo's experience in the early 1990s. Despite ample financial and

technical resources, including a Ph.D. microbiologist, the Aum's repeated attempts to use biological agents, including anthrax and botulinum toxin, failed to produce a single casualty.

Because of the technical and operational difficulties associated with developing and disseminating biological agents, especially on a large-scale, many experts believe that terrorists are more likely to seek assistance from a country with experience in making biological weapons. One possible source of both technical and material assistance is the former Soviet biological weapons program. Another possible source is countries that are both state sponsors of international terrorism and that have indigenous biological weapons programs. Secretary Rumsfeld has emphasized this possibility, noting during an appearance on "Meet the Press" on September 30 that several nations that support international terrorists are also trying to acquire chemical, biological or nuclear weapons, and that "it doesn't take a leap of imagination to expect that at some point those nations will work with those networks and assist them in achieving and obtaining those kinds of capabilities." Although Rumsfeld did not name names, the key countries that have been publicly identified by the U.S. Government as both state-sponsors of international terrorism and biological weapons proliferation concerns are Iraq, Iran, North Korea, Syria and Libya. Except for Syria, all of these countries are Parties to the BWC.

Strengthening the International Regime

Because of concerns about both the Soviet biological weapons program and about reports of broader biological weapons proliferation, BWC States Parties began to pursue a number of initiatives to help make up for the absence of enforcement provisions in the Convention itself. In 1986, States Parties decided to establish annual information exchanges on certain activities or facilities that could be of relevance to biological weapons activities, such as unusual disease outbreaks or high biological containment facilities. At the 1991 review conference, these so-called confidence building measures (CBMs) were expanded to include past offensive and defensive biological weapons programs, vaccine production facilities, and certain other relevant biological activities and facilities. However, because of the poor record of participation in the CBMs and because of ongoing concerns about compliance, BWC Parties also decided to establish an Ad Hoc Group of Government Experts to examine possible verification measures for the BWC. This process produced a positive report and ultimately led, in 1994, to the creation of a new Ad Hoc Group charged by BWC States Parties with responsibility for drafting a legally-binding protocol to strengthen the effectiveness of and improve compliance with the Convention.

Following six years of multilateral negotiations, a compromise protocol text was put forward by the Chairman of the Ad Hoc Group in April 2001. This text contained a number of critical elements, including:

- mandatory declarations of facilities and activities that could most easily be misused to develop biological weapons;
- consultation procedures to clarify questions that might arise from these declarations, including the possibility of an on-site visit;
- randomly selected transparency visits to promote accurate declarations; and,
- challenge investigations to pursue concerns that a country is developing, producing or using biological weapons.

Throughout the negotiations, the Clinton Administration recognized that a BWC protocol would not solve the biological weapons problem. But such a protocol would establish legally binding procedures for pursuing evidence that others were developing or producing biological weapons, something we lack today. It would also provide new data that would enhance our ability to detect and respond to foreign biological weapons program, and thus complement and help target the other elements of our biological weapons nonproliferation policy. Moreover, because of the various protections being built into the protocol, including procedures that previous U.S. administrations deemed effective for protecting sensitive information under the Chemical Weapons Convention, we were convinced that the protocol could achieve these important objectives without jeopardizing our commercial or military interests.

The Bush Administration, however, had a very different position. In July, the Administration announced its opposition not only to the compromise text but to any subsequent protocol effort, arguing that such an approach was both too weak and too strong – too weak to catch cheaters; too strong to avoid putting at risk sensitive U.S. trade secrets or biological defense activities.

At the BWC review conference next week, the United States is expected to propose an "alternatives package" meant to replace the protocol it rejected in July. Most of the items in the package are likely to take the form of recommendations for national measures to be enacted by individual States Parties to the BWC. These measures are aimed at increasing national controls over activities that could be misused by individuals or subnational groups, including terrorists, on their territory. These recommendations are a useful first step toward erecting stronger barriers against terrorist acquisition or use of biological agents. They include:

- national criminal legislation against prohibited biological weapons activities, with strong extradition requirements;
- national standards for safeguarding dangerous pathogens, and for reporting internationally any adverse events that could harm other countries;
- national oversight of high-risk genetic engineering experiments;
- a national professional code of conduct for scientists working with dangerous organisms;
- national biosafety standards;
- national support for the World Health Organization's global infectious disease surveillance and response activities, and advance commitment to provide specific forms of assistance, if requested, in case of a serious disease outbreak.

The United States is also expected to propose international mechanisms for clarifying and resolving compliance concerns and for investigating suspicious disease outbreaks and alleged use of biological weapons. These are critical issues that need to be addressed in order to prevent the deterioration of international confidence in the BWC, threatened as it is by a major breach of the norm against the possession and use of biological weapons here at home and the failure of recent international efforts to conclude a BWC compliance protocol. Unfortunately, this part of the alternatives package falls seriously short of what is needed.

For clarifying compliance concerns the United States will likely propose a voluntary cooperative mechanism, including exchanges of information or visits by mutual consent. However, this proposal will not significantly advance the existing consultative mechanism in the Convention itself.

According to Article V of the BWC, States Parties undertake to consult one another and to cooperate in solving any problems. Consultative procedures related to this provision were elaborated at previous BWC review conferences.

For investigating suspicious outbreaks or alleged use of biological weapons, the United States is expected to call for investigation by international experts upon determination by the UN Secretary General. This proposal also offers little improvement over existing mechanisms. In 1987, the UN General Assembly called upon the UN Secretary General to carry out investigations in response to reports by any Member State concerning the use of chemical or biological weapons that may constitute a violation of the 1925 Geneva Protocol or other relevant rules of customary international law. The Secretary General was requested by the relevant UNGA Resolution (42/37) to convene a group of qualified experts and to develop technical guidelines and procedures for such investigations. These preparations were completed in 1989.

Given the very real potential for national biological weapons programs to be a source of technical and material assistance to aspiring biological terrorists, stronger international measures clearly are required. Any state willing to support terrorist efforts to acquire biological weapons will not take criminal action against terrorists or enforce national regulations. Voluntary international clarification efforts, based on mutual consent, are sure to be frustrated by such states. And investigations by the UN Secretary-General would only take place *after* a disaster -- use or release of biological weapons -- has occurred.

The BWC, on the other hand, was negotiated to *prevent* the use or release of biological weapons by prohibiting their existence. The Geneva Protocol had already prohibited their use. Strengthening the BWC, which is the goal of the review conference about to take place, means increasing the effectiveness of the total ban on biological weapons.

Given the importance of a more effective biological weapons ban to U.S. national security, we should view the BWC review conference as a beginning, not an end. Armed with the national measures proposed by the United States and with various other proposals for international measures, BWC States Parties must make provision at the review conference to continue their efforts toward a more effective regime. Clearly, this matter cannot wait for the next review conference in five years. Some form of ongoing discussion among all Parties is essential to avoid weakening the norm against biological weapons still further and signaling to potential proliferators that the international community lacks the will to enforce the BWC.

The U.S. proposals will likely be reflected in the Final Declaration of the review conference. Ultimately, however, a more effective regime must be embodied in a legally binding form. Politically binding measures, represented by the annual confidence-building information exchange, have been tested for 14 years and found wanting. Further, to make sure that legally binding measures are implemented, institutional arrangements will be needed. This, too, is evident from the experience of the BWC confidence-building measures, which lack follow-up and review and are widely ignored.

Although the anthrax incidents have shown how much needs to be done to improve our public health system, our law enforcement capabilities and our intelligence collection and analysis, it would be a grave mistake to stop there. The catastrophic potential of biological weapons in the hands of national or sub-national groups is so great that the goal must be prevention. To approach that goal will require the development of effective measures for enforcing the BWC's prohibitions on the

development and possession of biological weapons. To this end, a variety of legally binding declaration and international on-site measures, including inspections of sites suspected of harboring biological weapons development and production efforts, will surely be required. The minimum that we should demand from the review conference is an ongoing forum at which all possibilities can be discussed so that an acceptable solution can evolve over time.

Americans expect their government to do all it can to protect them against this newly perceived threat to civilians. But the United States cannot cut off the sources of the threat by acting alone. We must continue to work with the international community if we want to prevent future exploitation of disease as a weapon of war or terror.

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