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HOTZONE'99

ADVANCED TECHNOLOGY NEEDS FOR CONSEQUENCE MANAGEMENT OF BIOLOGICAL TERRORISM

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The conclusions of this study are our own and do not necessarily represent the views of the sponsors or participants.

Table of Contents

Preface	ii
Background	4
Pre-Game Activities	5
Seminar Game Play	8
Major Findings Concerning Consequence Management	10
Conclusion	19
Priority List and Example Technology Approaches	20
Appendices	
Appendix A: Project Background Briefing	
Appendix B: Example Consequence Management Issues Briefing	
Appendix C: Notes from Technology Working Group	
Appendix D: Technology Resource Guide	
Appendix E: Gamebook for <i>HotZone '99</i>	
Appendix F: Scenario Briefing	
Appendix G: Anthrax Agent Briefing	
Appendix H: BW Improved Response Program Briefing	
Appendix I: Defense Threat Reduction Agency Capabilities	
Appendix J: Bio 911 Advanced Concept Technology Demonstration	
Appendix K: Operational Challenges Identified by Working Groups	
Appendix L: Technology Recommendations by Working Groups	
Appendix M: Acronym Listing	

PREFACE

The study on which this book is based took the form of independent research and a series of meetings. The research focused on whether advanced technologies were needed to adequately perform biological terrorism consequence management, and if so, which ones. The study culminated in a seminar wargame conducted in cooperation with the National Defense University's Center for Counterproliferation Research (the Center). Findings and conclusions from that seminar wargame make up the bulk of this final report. Appendix A: *Project Background* provides information on the project and what we hoped to accomplish in it. Appendix B: *Example Issues* identifies some issues that might be expected to arise in managing the consequences of a significant anthrax release. Anthrax is one of the most common biological threat agents. It is infectious but not contagious, and has a high lethality rate once infection takes hold.

As part of the knowledge discovery process to identify promising new technologies, the Potomac Institute for Policy Studies (the Institute) and the Center convened a meeting of leading government developers of relevant technologies. Notes from this meeting are included in Appendix C: *Notes from the Technology Working Group*. This workshop was useful in identifying leading technologies and existing gaps in capabilities as well. The Institute went on to collect information on existing and developmental technologies that are applicable to advanced consequence management. These are listed in Appendix D: *Technology Resource Guide*. This guide, or technology matrix, was made available to participants during the seminar game so that they could be familiar with existing and developmental approaches to advanced consequence management.

The Institute and the Center convened a two-day seminar wargame with operational users of biological terrorism consequence management equipment, along with subject matter experts, in order to verify what they considered their most important operational needs, as well as the types of technologies that showed the most promise. Appendix E is the *Gamebook* for the *HotZone'99* seminar game. It provided background on the project, process and objectives to the participants. Appendix F: *Scenario Briefing* for the game is a downscoped version of a scenario that was prepared for the National Guard report on Weapons of Mass Destruction. (Our fictional location, Central City, is ten percent the size of the National Guard's location. Although the events are the same as the Guard's, the number of casualties at any given point was reduced by a factor of ten). Briefings to the Game participants are provided in Appendices G through J. They include background on anthrax as a weapon; the Army Soldier Biological Chemical Defense Command's BW Improved Response Program, a method to reduce civilian casualties; information on the Defense Threat Reduction Agency's support

capabilities, using the NATO 50th event as an example; and the BIO 911 field test of existing technology for biological terrorism consequence management.

The products of the seminar wargame are found in Appendices K and L. Participants in the seminar game were divided into three groups: Medical; Public Safety/Emergency Management; and Senior Policy. Appendix K reports the results of the groups' first day's deliberations, in which the operators were asked to identify and prioritize their operational challenges for consequence management. The appendix also includes comments noted for the record in their discussions on the Group Systems software. Appendix L includes the operators' recommendations for technology approaches that appear promising to them to address the operational needs they identified. At the end of Appendix L is the prioritized list of perceived needs of the operators. These have been consolidated in Table 1, page 17 in the main report. In this Table, the Institute has listed promising candidates that may meet the technology needs the operators identified. Finally, Appendix M: *Acronym Listing* provides some terms that we hope will prove helpful.

BACKGROUND

This study sought to identify and prioritize advanced technology needs for the consequence management of biological terrorism. For the past two years, the Potomac Institute for Policy Studies (the Institute) has intensively examined biological terrorism and is extremely concerned about its potential for devastation. The Institute believes that a more effective approach must be taken to prevent or mitigate the impact of a biological attack on the U.S. and/or American interests. As the sole remaining super power, the U.S. creates an unintended incentive for its opponents to challenge it in an unconventional manner, rather than trying to match the U.S. tank for tank or plane for plane in an overt challenge. Of the various different means for unconventional attack, the Institute is particularly concerned about biological weapons, because they have lethality comparable to some nuclear weapons, while being much more accessible to rogue states and even subnational actors. In addition, because of the delay in the onset of their effects and the ready possibilities for their covert dissemination, biological weapons may recommend themselves to those who wish to make a clandestine attack on the American people. Prevention of a biological attack is the most desirable approach, but may not always be possible.

Biological weapons can be made in relatively small and primitive places without a great deal of specialized equipment. Even a sizable biological weapons program may escape detection by outsiders, as is obvious from the experience with Iraq. The limiting factor appears to be expertise of the would-be perpetrator (rather than technical means), but such expertise is becoming increasingly widespread. Biological weapons have very limited signatures detectable by remote sensors, and the technology for their production is dual use, that is, it has important legitimate uses, as well as destructive ones.

Our first awareness of an act of biological terrorism may be after the fact, when we need to rapidly and effectively manage its consequences. It is during the consequence management stage that the most progress is needed in increasing U.S. capabilities, and where there are opportunities available that may limit U.S. vulnerability through advanced technology.¹ The Institute chose to focus its study on the consequence management phase of a biological emergency because it seemed to call for solutions that are quite different from those required by other threats. Furthermore, there appeared to be significant emerging advanced tools for advanced consequence management capabilities. Preparedness against deliberate releases may also help to prepare us for natural biological outbreaks such as emerging and reemerging disease, and multi-drug resistant infections.

¹ *Countering Biological Terrorism in the United States: An Understanding of Issues and Status*, Potomac Institute for Policy Studies Panel. Dobbs Ferry, NY. Oceana Publications, Inc., 1999.

One of the main opportunities identified in our initial study is the potential of advanced technologies to mitigate the threat posed by biological weapons. There are a multitude of development programs being implemented. The Institute wanted to survey the most promising applicable technologies, and then establish a dialogue between technology developers and real world operators who might be called upon to use them in a crisis. This is the concept for the present study, which culminated in a seminar wargame called *HotZone'99*, in which users identified their needs to manage the consequences of biological terrorism, and then evaluated the role of potential technologies to give them significantly increased capabilities.