

Contents

Preface	ix
Acknowledgements	x
Contributors	xi
Introduction	xiii

Chapter 1

CATASTROPHIC TERRORISM: RISK ASSESSMENT OF THE NEW THREATS TO FIRST RESPONDERS.....1

1.1	The new situation for First Responders since 9/11/2001	1
1.2	Lessons learned from past terror attacks	5
1.2.1	Sarin attacks in Japan	5
1.2.2	Terror attacks with civilian aircraft as guided missiles in New York City and Washington, D.C.	8

Chapter 2

CURRENT THREATS TO FIRST RESPONDERS.....11

2.1	Threats to First Responders due to radioactive materials	11
2.2	Threats to First Responders due to biological materials	22
2.3	Threats to First Responders due to chemical materials	25

Chapter 3

CURRENT DETECTION CAPABILITIES AND THEIR LIMITATIONS.....33

3.1	Radiation detection: the challenge due to alpha emitters	33
3.2	Chemical detection: assessment of the hardware capability	39
3.2.1	Oxygen sensors	40
3.2.2	Combustible gas sensors	41
3.2.3	Electrochemical toxic gas sensors	42
3.2.4	Colorimetric tubes	42
3.2.5	Choosing between electrochemical sensors and tubes	43
3.2.6	Gas Chromatography/Mass Spectrometry (GC/MS)	43
3.2.7	Photo-ionization Detectors (PIDs)	44
3.2.8	Strategies for integrating chemical detection techniques in WMD response	45

Chapter 4

**CURRENT CAPABILITIES OF FIRST RESPONDERS IN
DIFFERENT COUNTRIES 48**

4.1	Austria	48
4.1.1	Operational logistics	48
4.1.2	National constraints	49
4.2	Israel	50
4.2.1	Security threats	50
4.2.2	Integrated countermeasures	53
4.3	Russia	57
4.3.1	Counter-terrorism logistics	57
4.3.2	Countering radiological and nuclear terrorism	60
4.4	Slovenia	64
4.4.1	Past events	64
4.4.2	National response	67
4.5	United States of America	68
4.5.1	Past and present threats	68
4.5.2	Lessons (to be) learned	71
4.6	Italy	75
4.6.1	Background	75
4.6.2	Response capability based on uniform systems and equipment	76
4.6.3	Eight steps to CBRNE emergency response	78
4.6.4	Possible model for E.U. development	80

Chapter 5

**FUTURE REQUIREMENTS OF THE FIRST RESPONDER
COMMUNITY 82**

5.1	Potential legal aspects relative to First Responders	82
5.1.1	The presumption of response to terrorism	85
5.1.2	Anticipation of <i>Samaritanism</i>	89
5.2	First Responder needs in the U.S	96
5.2.1	Regulatory approach	96
5.2.2	CBRNE preparedness	99

Chapter 6

**EU/US PUBLIC-PRIVATE PARTNERSHIPS IN
DEVELOPING PROTECTIVE COUNTERMEASURES 118**

6.1	The role of the business sector in homeland security	118
6.2	Cooperation between the business sector, government and First Responders	126

Chapter 7

THE WAY FORWARD.....	133
7.1 Outlook: Where do we go from here?	133
7.1.1 Capabilities	133
7.1.2 Research	138
7.1.3 Procurement	141
7.1.4 Training	142
7.2 Fifty actions recommended	143
7.3 Conclusions	160
 APPENDICES	 162
Appendix 1: List of Participants	163
Appendix 2: Lessons Learned in the US	169
 REFERENCES	 183
 TABLES	 202
 FIGURES	 203
 INDEX	 205