

CONTENTS

FOREWORD	i
CONTENTS.....	iii
ACKNOWLEDGEMENTS	vii
ABBREVIATIONS	viii
CHAPTER I. INTRODUCTION.....	1
1.1 Opening Remarks	1
1.2 Normative Frameworks Relating to Computer Network Attacks	3
1.3 Normative Framework of the Report	7
1.4 On the Sources.....	10
1.5 On the Structure.....	12
CHAPTER II. COMPUTER NETWORK ATTACKS IN THE CONTEXT OF INFORMATION WARFARE	15
2.1 Constructing the Paradigm of War	15
2.1.1 Metaphors that Describe the Changes in Warfare.....	16
2.1.2 The Change in the Western Picture of War in the Post-Cold War Period.....	18
2.1.3 Revolution in Military Affairs.....	20
2.2 The Emergence of the Concept of Information Warfare	22
CHAPTER III. THE CHARACTERIZATION OF COMPUTER NETWORK ATTACKS	27
3.1 What is a Computer Network Attack – Defining Computer Network Attacks.....	27
3.1.1 Computer Network Attacks and Computer Network Exploitation	28
3.1.2 Case Study of Computer Network Exploitation - Case of GhostNet	29
3.2. Characterization of Computer Network Attacks	31
3.2.1 Challenges Represented by Computer Network Attacks	35
3.2.2 Case Studies of Cyber Incidents	36
CHAPTER IV. APPLICABILITY OF THE LAW OF ARMED CONFLICT TO COMPUTER NETWORK ATTACKS.....	47
4.1 The Codified Existing Law of Armed Conflict Regulation	47
4.1.1 The Hague Law	47

4.1.2 The Geneva Law	50
4.1.3 The United Nations Law	51
4.1.4 Assimilation of Traditions	52
4.2 War between Law or Law between War?	54
4.3 Computer Network Attacks in the Context of the Laws of Armed Conflict	56
4.3.1 The Martens Clause.....	57
4.3.2 The Effect of Technological Novelties to the Application of the Law of Armed Conflict.....	58
4.4 The Scope of Applicability of the Law of Armed Conflict.....	60
4.4.1 Material Scope of Applicability: International and Non-International Armed Conflicts.....	60
4.4.2 The Precondition and Definition of an 'Armed conflict'.....	62
4.4.3 When do Computer Network Attacks Constitute an Armed Conflict?	68
4.4.4 The Personal, Spatial and Temporal Scope of Applicability.....	70
4.5 Concluding Thoughts	72
CHAPTER V. APPLICABLE LAWS OF ARMED CONFLICT TO COMPUTER NETWORK ATTACKS	75
5.1. The Fundamental Principles of International Humanitarian Law	75
5.1.1 Principle of Humanity	77
5.1.2 Principle of Military Necessity	78
5.1.3 Principle of Proportionality and Indiscriminate Attacks.....	78
5.1.4 Principle of Distinction	80
5.2 Common Article 3 of the Geneva Conventions.....	80
5.3 The Importance of the Fundamental Principles of International Humanitarian Law in the Context of Computer Network Attacks	81
CHAPTER VI. THE QUESTION OF ACTORS IN THE CONTEXT OF COMPUTER NETWORK ATTACKS AND THE LAW OF ARMED CONFLICT	85
6.1 The Principle of Distinction	85
6.2 Definition of Armed Forces and Combatants	85
6.3 The Relevance of the Distinction to Combatants and Civilians.....	87
6.4 Non-Combatants.....	89
6.4.1 Medical and Religious Personnel.....	89
6.4.2 Non-Combatant Members of the Armed Forces	90
6.4.3 Persons Accompanying the Armed Forces.....	91
6.5 Civilian Participation in Hostilities	92

6.5.1. Civilian Participation in Hostilities in Treaty Law and Cases	92
6.5.2 The ICRC Clarification Process of the Notion of 'Direct Participation in Hostilities'	97
6.5.3 'Direct Participation in Hostilities' in Light of the ICRC Interpretive Guidance: The Recommendations and Elements of the Notion.....	100
6.5.4 The Temporal Scope of 'Direct Participation in Hostilities'	106
6.6 Privatization of Armed Forces: The Status Determination of Civilian Contractors	109
6.6.1 Private Contractors in the Context of the Status Groupings of the Geneva Conventions	109
6.6.2 The Montreux Document	113
6.7 Concluding Thoughts on the Question of Actors of Computer Network Attacks in the Context of the Law of Armed Conflict	114
CHAPTER VII. COMPUTER NETWORK ATTACKS IN THE CONTEXT OF MILITARY OBJECTIVES.....	117
7.1 The Notion of 'Attack' in the Law of Armed Conflict	117
7.1.1 The Definition of 'Attack' in the Law of Armed Conflict.....	117
7.1.2 The Notion of Attack in Regard to Computer Network Attacks	118
7.2 What Can be Attacked under the Law of Armed Conflict?	121
7.2.1 The Legitimate Targets and Protection of Civilian Objectives in the Law of Armed Conflict.....	121
7.2.2 The Notion of 'Military Objectives'	122
7.2.3 The Definition of Military Objectives.....	123
7.2.4 Dual-Use Objects	126
7.2.5 Case of NATO Bombing of a TV Station during Operation Allied Force.....	127
7.2.6 Specifically Protected Objects in Laws of Armed Conflict.....	130
7.2.7 Objects Indispensable to the Survival of the Civilian Population..	130
7.2.8 Protection of Works and Installations Containing Dangerous Forces	131
7.2.9 What Can be the Object of Computer Network Attacks under the Law of Armed Conflict?.....	132
7.3 The Conduct of Attacks under the Law of Armed Conflict.....	134
7.3.1 The Principle of Proportionality.....	134
7.3.2 Precautions in Attacks	136
7.3.3 Indiscriminate Attacks.....	137
7.3.4 The Conduct of Attacks in the Context of Computer Network Attacks.....	138

7.4 Concluding Thoughts	140
CHAPTER VIII. THE WAY AHEAD.....	143
CHAPTER IX. CONCLUDING REMARKS	147
CHAPTER X. POLICY RECOMMENDATIONS.....	155
XI. BIBLIOGRAPHY.....	157
1. Treaties, Conventions and Multinational Political Documents	157
2. Jurisprudence	163
3. United Nations Documents.....	167
4. Publications	168
5. Military Manuals and Documents Related to National Security.....	179
6. Studies, Reports, Working Papers, and Other Published Materials.....	180
7. Unpublished Materials.....	183
8. Interviews	184
9. News	184
10. Others	185