

# Dual-use Objects under International Humanitarian Law: Towards a Paradigm Shift

Francesca Capone

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Francesca Capone  
DIRPOLIS Institute  
Sant' Anna School of Advanced Studies  
Pisa, Italy

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*To my mentor, Prof. Andrea de Guttry.  
I am immensely grateful for the guidance, the  
patience and the rewarding work that we did  
together.  
I hope to have learnt as much as possible  
from the “smartest guy in the room”.*

# Preface

The book examines a crucial and yet under-explored topic that has increasingly gained momentum during modern armed conflicts, i.e. dual-use objects under international humanitarian law (IHL). Dual-use objects, e.g. energy infrastructures, water installations and civilian means of transportation and communication *which could be used also* for military purposes, is a term that has entered the IHL jargon but has not attained the status of a legal concept. Dual-use objects are easily identifiable and yet remain difficult to pin down, in particular when it comes to separating them from military objectives and determining the applicable rules to enhance their protection. Therefore, this book pursues a twofold aim.

The book's first goal is to fill a significant gap in the IHL scholarship, whilst the second one is to introduce and promote a paradigm shift to make the approach to dual-use objects coherent with the IHL framework. Concerning the first goal, so far, the topic of dual-use objects has attracted scant attention, and it has been marginally considered by academics and practitioners. Through an exhaustive and multilayered study, the present work will shed light on some crucial aspects that have significant theoretical and practical implications. The starting point is the "mainstream approach" to dual-use objects, according to which those objects represent legitimate military targets, that this book openly challenges, and its genesis, which is grounded in well-known military theories. The most widely shared view on dual-use objects under IHL merely portrays them as military objectives and only occasionally evokes the fact that, more often than not, they mainly fulfil civilian functions. As the examples discussed in this book will show, the targeting of dual-use objects—including bridges, electrical power stations, oil refineries and radio and television stations—does not represent an exception in armed conflicts, but rather a common strategy of warfare. Regardless of its diffusion and extensive practice, resorting to this tactic has triggered widespread criticism and strong reactions from different commentators. The armed conflicts in Iraq, the Former Yugoslavia, Ethiopia/Eritrea, the Occupied Palestinian Territory (OPT), Yemen, Ukraine etc... have all been, and in some cases unfortunately still are, characterised by widespread attacks against dual-use objects that have an important, if not crucial, role in ensuring the survival of the civilian population. The ubiquitous condemnation, however, has never resulted in a thorough

examination of the issues at stake, which range from understanding “why” and “how” the mainstream approach has emerged to “who” is responsible and “what” can be done to reverse this tendency and start looking at dual-use objects from a different perspective.

With regard to the second goal of the book, which is promoting a much-needed paradigm shift, the rationale for this lies in the necessity to reconcile the notion of dual-use objects with the legal framework in force. To affirm that a concept is not legally defined does not mean that it can be erased, nor ignored. The reality is that attacks against dual-use objects have proved to be lethal and irreversible, in the short- and even more so in the long-term. It would be interesting to point out the shortcomings of the existing set of norms and suggest amendments and changes that are unlikely to take place, but it would also be pointless. The only way to provide a, hopefully, useful contribution is to offer a reading of the applicable *corpus juris* that is in line with the key tenets of IHL and that places enough emphasis on the civilian function of dual-use objects and the role that individual actors, i.e. those who plan, order and execute attacks against dual-use objects, ultimately play in each and every armed conflict. This is the essence of the paradigm shift.

The book is composed of six chapters, leading up to a new paradigm to deal with dual-use objects. The analysis carried out first covers the identification of the relevant concepts and definitions, which are introduced in Chap. 1 alongside the key elements of the paradigm shift. This introductory chapter also provides an overview of the existing scholarship, explaining the limitations of the state of the art and of the previous attempts to strengthen the protection of dual-use objects in armed conflicts. Chapter 2 retraces how the predominant approach to dual-use objects has come to light, what are the theoretical foundations, and the underlying reasons. Chapter 3 discusses the definition of military objectives and its shortcomings, which obviously have severe repercussions also in its application. To set apart dual-use objects from military objectives, the inquiry first reflects on the two-pronged test that lies at the heart of the definition and then it focuses on two important notions, that of military advantage and of “attack as a whole”, which are increasingly subject to interpretations that are at odds with the principle of distinction and should be consistently rebutted. On the purpose of drawing a neater line between dual-use objects and military objectives and of filling a conceptual gap, the chapter ends with the drafting of a “working definition” of the former.

Chapter 4 delves into the paradigm shift by outlining the civilian function of dual-use objects, rendering this characteristic no longer just an “ex-post concern”, but a prism through which to reconsider several relevant IHL rules and the key IHL principles. Chapter 5 places the role of individual actors under the spotlight and it does so by focussing on the notion of “reasonableness”, which doubles as a theoretical concept and as a legal standard that can be applied in practical contexts, including situations of armed conflict. The central argument advanced is that targeting decisions, including those that concern attacks against dual-use objects, are taken by individual actors that must act in accordance with certain rules and standards. The standard of the “reasonable military commander” serves as the touchstone for determining the appropriate application of specific targeting rules and for assessing the lawfulness of

action after the fact. Although the standard has been mainly applied to proportionality assessments, and only sporadically to other settings, the present work claims that it should be regarded as transversally applicable to all the IHL principles, i.e. distinction, precautions, proportionality, military necessity and humanity. Furthermore, the analysis provides a “sliding scale” of reasonableness, reconstructing what is the threshold that must be met for each principle. Affirming in general terms that the “reasonable military commander” shall be able to anticipate the expected consequences of an attack carried out against water installations, and/or to stop an attack against a bridge because it violates the principle of proportionality or the prohibition on indiscriminate attacks, is not enough. It is necessary to identify how the standard unfolds in each specific circumstance and what is required of the actor(s) called to implement it. Finally, Chap. 6 contains some concluding observations that aim both at summarising the main findings of the book and at pointing to the ramifications of this inquiry, by introducing the new paradigm’s application to new weapons and technologies.

Whereas the rationale, the goal, the methodology and the structure of the book are outlined in the introductory chapter, I believe that it is important also to dwell on the personal motivations behind this work. As an academic who spends a lot of her time explaining to talented and motivated students the nuts and bolts of IHL, over the years I started to notice that there is a widespread and profound sense of uneasiness towards certain topics. I understand that and I deeply share the frustration. For this reason, I started to be more and more drawn to researching topics that are not only stimulating from an intellectual perspective, but that could also trigger concrete changes in the society in which we live and interact with one another. The thought of the Ukrainian population dealing with yet another freezing winter because of Russia’s claim that it is “usual business in warfare” to destroy the power infrastructures of its enemy is unbearable. The same goes for the civilians affected by the many, and often forgotten, armed conflicts fought in other regions of the world. It is not acceptable to worry about the consequences of attacks against critical infrastructures only after the event has taken place or in the aftermath of the conflict. Civilians and civilian objects must be protected, this is the bottom line of IHL, this is the first sentence that comes out of my mouth when I welcome the students to my IHL course. This is an imperative rule and a moral obligation, this is the reason why this book was written.

Although all errors and mistakes in the book remain mine, this work has seen the light thanks to the support and friendship of many people. It is simply impossible to name everyone, but I would like to start by thanking my colleagues at Sant’Anna School of Advanced Studies, in particular Andrea de Guttry, Emanuele Sommario and Lorenzo Gasbarri for the many inspiring exchanges of views and ideas. I wish to express my gratitude to my “younger” colleagues Alessandro Mario Amoroso, Marta Stroppa, Francesco Paolo Levantino and Matteo Colorio, and to my student, Matilde Bufano, who assisted me with the editing of this book. A heartfelt “thank you” obviously goes to Frank Bakker and the amazing T.M.C. Asser Press team, in particular the irreplaceable Kiki van Gurp, who has a very keen eye and the kindest heart. Working with you all is a privilege and I cannot wait for our next project!

I am grateful to my amazing family, and to all my friends, near and far, academics or not, for their guidance in life and endless affection. Last, but not least, I am indebted to my two favourite persons in the whole world, Daniele and Filippo, who are funny, loud and very opinionated. I love you more than words can express, thank you for making every day special (and messy) despite my clumsy attempts to keep everything under control!

Pisa, Italy

Francesca Capone



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## About the Author

**Prof. Dr. Francesca Capone** is Associate Professor of International Law at Sant'Anna School of Advanced Studies and Co-Director of the Master's Degree in International Security Studies (MISS). Prior to being appointed as Associate Professor in 2021, she served as Assistant Professor (tenure track), Senior Research Fellow and Coordinator of the Master in Human Rights and Conflict Management at the same academic institution (2014–2021). In 2012–2013, she worked as Research Fellow in public international law at the British Institute of International and Comparative Law in London, UK. She holds a joint Ph.D. in international law from Sant'Anna School of Advanced Studies and Tilburg University, earned in 2013. She has been a visiting fellow and a guest lecturer at several academic institutions across Europe, including Leiden University, Tilburg University and the Max Planck Institute for Comparative Public Law and International Law and beyond Europe. She has undertaken research on a wide range of topics, focusing in particular on international humanitarian law and counterterrorism. She co-edited, together with Dr. Christophe Paulussen and Prof. Andrea de Guttry, the volume *Foreign Fighters under International Law and Beyond* (T.M.C. Asser Press/Springer 2016); as well as the follow up volume *Returning Foreign Fighters: Responses, Legal Challenges and Ways Forward* (T.M.C. Asser Press/Springer 2023), co-edited with Dr. Christophe Paulussen and Dr Rebecca Mignot-Mahdavi. Both volumes have been well received, becoming pivotal academic contributions in the field. Prof. Capone's book *Reparations for Child Victims of Armed Conflict: State of the Field and Current Challenges* (Intersentia 2017) won the 2018 Ciardi Prize for the best book in the field of international humanitarian law.

# Abbreviations

ABiH	Army of Bosnia Herzegovina
AI	Artificial Intelligence
AOAV	Action on Armed Violence
API	Additional Protocol I
APII	Additional Protocol II
AWS	Autonomous Weapons Systems
C2	Command and Control
CCC	Command, Control, and Communication Sites
CCW	Convention on Certain Conventional Weapon
CENTCOM	US Central Command
CHMR-AP	Civilian Harm Mitigation and Response Action Plan
DIB	Defense Industrial Base
DSS	Decision Support Systems
EECC	Eritrea-Ethiopia Claims Commission
ELN	Ejército de Liberación Nacional
ELSI	Concerning Elettronica Sicala S.p.A
ERW	Explosive Remnants of War
FRY	Federal Republic of Yugoslavia
GCIII	Third Geneva Convention
GGE	Group of Governmental Experts
HPCR Manual	Harvard Air and Missile Warfare Manual issued by the Program on Humanitarian Policy and Conflict Research at Harvard University
HPS	Hirgigo Power Station
HRW	Human Rights Watch
HVO	(Hrvatsko vijeće obrane) Croatian Defence Council
IAC	International Armed Conflict
ICC	International Criminal Court
ICJ	International Court of Justice
ICRC	International Committee of the Red Cross
ICTY	International Criminal Tribunal for the Former Yugoslavia
IDF	Israeli Defense Forces

IHL	International Humanitarian Law
IAs	International Investment Agreements
ILA	International Law Association
ILA-SG	International Law Association Study Group
ILC	International Law Commission
INEW	International Network on Explosive Weapons
ISR	Surveillance and Renaissance
ITLOS	International Tribunal for the Law of the Sea
JAG	Judge Advocate General's Corps, also called JAG Corps
JFACC	Joint Forces Air Component Commander
KTO	Kuwaiti Theatre of Operations
LAWS	Lethal Autonomous Weapons Systems
LOAC	Law of Armed Conflict
MHC	Meaningful Human Control
MS	Military support, production, and research facility
N	Naval ports and facilities
NATO	North Atlantic Treaty Organisation
NBC	Nuclear, Biological, and Chemical
NIAC	Non-International Armed Conflict
OAU	Organisation of African Unity
PCIJ	Permanent Court of International Justice
PGM	Precision Guided Munitions
PI	Positive Identification
POL	Petroleum, Oil, and Lubricants
POW	Prisoner of War
PTSD	Post Traumatic Stress Disorder
R&D	Research and Development
RAF	Royal Air Force
RG	Republican Guards
RMA	Revolution in Military Affairs
RoE	Rules of Engagement
RR	Railroads and Bridges
RTS	Radio Television of Serbia
SAD	Strategic Air Defenses
SC	Scud missile facilities/sites
UAV	Unmanned Aerial Vehicle
UCAV	Unmanned Combat Air Vehicle
UNCLOS	United Nations Convention on the Law of the Sea
US DOD	United States Department of Defense
VCLT	Vienna Convention on the Law of Treaties
WFP	United Nations World Food Programme
WSO	Weapon System Officer
WWI	World War I
WWII	World War II