

Swarmdrones and teddy bears

Killer robots and the Rights of the Child



Illés László Katona

Budapest, Hungary, July 2020.

“They are not human. They worship guns. They don’t have sisters and brothers, they only have a gun.”

- Girls and young women, 14–17, Somalia

“It is, by notion, inconceivable to have a legal norm that regulates the affairs between an individual and an object.”

- Varga, Attila (2011): General Legal Theory. Scientia Press, Kolozsvár, p. 95

Contents:

Preface

Abstract

1. Acknowledgments

2. Introduction

2.1 About killer robots

2.2 About the rights of the child

3. The weapon and the child

3.1 The best interests of the child

3.2 The right to life and special protection

3.3 The right to health and education

3.4 Protection against exploitation

3.5 New perspective - the right to life of child soldiers

4. Summary

4.1 The precautionary principle

4.2 Conclusion

Preface

Killer robots and the rights of the child

The alliance formed in 2019 in the UN General Assembly, with the lead of Germany and France, has drawn the attention to the fact, that killer robots are to be classified as one of the six main ‘politically relevant’ questions (other examples being climate change, gender equality in education etc.). More and more politicians, scientists, dominant public figures, human rights activists call for the preparations of an international ban treaty, before we would finally cross a ‘moral and ethical Rubicon’, as a group of Nobel Laureates said. Killer robots can be seen as a special threat endangering our planet, which has so far not received the necessary attention, for example in Hungary.

Unfortunately, the prohibition of killer robots does not seem self-evident for everyone, and it would violate the interests of many.

One of the problems is that our emphasis is often not on preventing wars and peacefully settling disputes, but rather on the fear of losing human control after replacing human soldiers with these machines, and that they may ‘break loose’ when making decisions. Killer robots would decide who lives and who dies, and they are unable to exercise nuanced thinking and deliberation, being mere programmed machines. The threat of using them outside of combat also arises, for example in border control, law enforcement, crowd control repressing protests or political coups. It is not clear yet for all, that these weapons shall not be used in any circumstance, as the goal should be achieving a peaceful, nonviolent life, where battles are fought at the negotiating table.

Experts and companies pursuing technological developments rightly view the rise of artificial intelligence and robotics as a great challenge, as it is difficult for technologies serving good purposes not to be exploited for dehumanizing and dangerous goals, given the temptation and foreseeable personal profits.

It is also important to examine this question from a child rights perspective, even if some may see this as an insignificant issue at present. However, it is estimated that some 15,000 children under the age of 5 die every day, due to malnutrition, a shortage of clean drinking water or preventable diseases. Three million children die of hunger annually, 66 million children go to primary school hungry each day, just to mention some of the many problems children face. The basic principles of the rights of the child, however, clearly state that no

individual rights have priority over the others, they cannot be ‘pulled out’ from the context, as the articles in the Convention on the Rights of the Child form a whole, that is to be interpreted in a complex systematic manner, with a multidisciplinary approach.

In fact, killer robots raise many questions in direct connection with children and their families, and all of us. We should not react with delay, only to remediate after destruction; prevention and drawing the attention to threats and possible violations are of special importance.

The present study thoroughly analyses those fields where the rights of the child may be directly affected by the existence or use of killer robots. A thought-provokingly high number of aspects can help the reader to inform and formulate their personal opinions, given the novelty of the issue.

Taking into consideration the rights of the child in this context shall also focus on aspects that protect the survival, development, well-being of the child, and a childhood that is joyful, can fulfil one’s needs and provide safety and protection from violence. It may very well serve these goals if we consider and discuss the content of this study, and do everything we can to achieve a ban on killer robots, and to prevent violence, war, armed conflict in general. It is our task to tell our children that they can live in peace, resolving their conflicts in a way that everyone’s dignity, rights, physical and psychological health is preserved.

Dr. Mária Herczog

Former member of the UN Committee on the Rights of the Child

Abstract:

As we can see from the tendencies of military developments around the world, artificial intelligence is slowly taking over in numerous areas of life, including warfare. Killer robots, also called lethal autonomous weapons systems (LAWS) would be able to select and engage targets without human intervention. These weapons, although not being mass-produced or used frequently at the moment, already exist and are being developed by more countries.

After research, we may find a good amount of literature regarding potential human rights violations when applying killer robots on the battlefield, but not much about children specifically. The rights and the protection of children in war has now become a focus of international law, but in the case of autonomous weapons, there is a manifest shortage of child rights perspective. The merits of a child-based legal analysis on killer robots are not limited to invoking some basic principles in theory - the practical protection of their right to life, special protection, health, education and their best interests in general can all be relevant in the context of killer robots, especially when putting a special emphasis on children recruited to armed groups.

By carefully examining these rights one by one, we aim to provide a informed answer whether the development and use of killer robots are incompatible with the provisions of the Convention of the Rights of the Child, and if so, to make brief suggestions to states and relevant organizations in order to ensure the prevalence of all those rights mentioned throughout the paper.

1. Acknowledgments

As the author of this research, born in 2003, I have been working as a youth activist on the Campaign to Stop Killer Robots in Hungary since September 2019. My goal is to shape a better world with all my strength and aptitude, especially for those spending their daily lives in fear of the thunder of weapons and those who will live their lives in the decades and centuries to come. The goal of this research is to unfold some of the anomalies of a technology that many believe to be a truly humane invention of modern warfare, but one that poses tremendous dangers to human life in reality — from the perspective of my generation.

Throughout my research, I have carefully analyzed several legal resources, including treaties, written custom, commentaries and relevant professional literature, and I have also had discussions with legal experts of relevant fields. I would like to express my special gratitude to Dalma Bíró, the Hungarian activist coordinator of the Campaign to Stop Killer Robots, who has not only been my professional advocate throughout my work, but also a personal mentor up to this day. Without her constant advice and support, this research would have not been possible. I would like to thank Dr. Ágnes Lux and Dr. Réka Varga, experts of children's rights and humanitarian law, for guiding me in the labyrinth of legal interpretation and giving me perspective on which exact aspects of the topic to focus on. I am especially honored by and grateful for the insightful and constructive professional peer-review by Dr. Mária Herczog, an outstanding expert of child protection on a national and international level. I am also grateful for law students of the International Human Rights Clinic at Harvard Law School for a thorough grammatical peer-review of the English version of my research. Last but not least, I am thankful for my parents, teachers and fellow students for introducing me to the world of international law and serving as an encouraging force in creating this research.

Abbreviations

BIT - Beijing Institute of Technology

CCW - Convention of Certain Conventional Weapons & Committee on Certain Conventional Weapons

CRC - Committee on the Rights of the Child

CSKR - Campaign to Stop Killer Robots

GA - General Assembly

GC - Geneva Convention

GPSU - Guidelines for Protecting Schools and Universities from Military Use during Armed Conflict

HRC - Human Rights Council (formerly: Committee)

HRW - Human Rights Watch

ICCPR - International Covenant on Civil and Political Rights

ICRC - International Committee of the Red Cross

IHL - international humanitarian law

LAWS - lethal autonomous weapons system

SC - Security Council

SSD - Safe Schools Declaration

UN - United Nations

UNESCO - United Nations Educational, Scientific and Cultural Organization

UNICEF - United Nations Children's Fund

USA - United States of America

WHO - World Health Organisation

2. Introduction

The world around us is changing at an ever-increasing pace. The so far unprecedented advances in technology provide opportunities for humanity that we could have never dreamt of though this also gives place for new concerns. This is especially true in the context of war: looking at the tendencies of the last 100 years, only 5% of the casualties of World War I were civilian; 50% in World War II; during and after the Cold War era, the proportion of civilian deaths have been around 90-95% (Dupuy et al., 2010). These troublesome tendencies make it necessary to increasingly pay attention to making human rights prevail in war, and to ensure the maintenance of respect towards international law in times of crises as well.

And as we examine human rights in armed conflict, it is indispensable to take a closer look at children, who make up one-third of the total world population. The present research aims to look at one of the most recent global military advances - namely the emergence of lethal autonomous weapons systems – through a lens that international legal literature has so far never worn - the rights of the child.

2.1 On killer robots

There are numerous debates on the exact definition of weapons systems in question. Throughout this research, we refer to ‘killer robots’, ‘lethal autonomous weapons systems (LAWS)’ or shortly ‘autonomous weapons’ as set in the definition of Human Rights Watch, an international NGO protecting human rights, and one of those that has put a special focus on these weapons. In this sense, killer robots are *“fully autonomous weapons systems that select and engage targets without human intervention.”*¹ The content of this framework definition is in accordance with that of the UNCCW and other UN organs relevant to the question.

These systems are different from what are simply referred to as ‘drones’, since drones do not make decisions themselves, but are remotely commanded by a human operator, or only semi-autonomously engage targets fixed by a human. Autonomous weapons could physically appear as drones as well, but they would, in the end, pull the trigger themselves, from their own considerations based on built-in algorithms, applying information they have been pre-programmed with and that they have learnt previously (via machine learning) on the battlefield.

¹ Human Rights Watch (2012): Losing Humanity: The Case against Killer Robots. International Human Rights Clinic, USA, p. 1.

For autonomous arms technology any type of weaponry, including drones, aircrafts, cruise missiles, submarines, ships, tanks, ground vehicles, stationary weapons systems, could serve as hardware.

All of this may sound like pure science-fiction, but numerous arms and robotics experts believe such concepts could become a reality in 20-30 years (HRW, 2012). Developments in military technology clearly show the same pattern: The Pentagon, for example, has announced that the navy will spend 10 times as much money on unmanned systems in the upcoming years, reaching nearly 500 million dollars annually. All of this is part of a bigger, international arms race.²

Leading technology experts have long been addressing the question,³ but the topic first received widespread attention in 2012, when 7 NGOs founded the Campaign to Stop Killer Robots in New York. Their goal to reach a ban on killer robots by an international legal instrument among states is supported by 30 states⁴ and more than 140 NGOs; the Campaign is active in 64 states as of early 2020. Most of the UN Member States did not express such a polarizing opinion, however there is relatively wide consensus that further regulation on the application of artificial intelligence (AI) as a weapon is necessary. Since 2013, a Group of Governmental Experts of the CCW committee has held annual meetings for States to negotiate such a framework, so far without significant results - mainly due to the resistance of military powers (CSKR, 2018).

But why is the development of killer robots so heavily opposed? Or why is it supported? Support behind military developments like this is usually based on political interests such as decreasing the monetary costs of arms development and/or armed conflict and the dangers human soldiers of that given state may face (Andersson, 2014). Moreover, many claim that autonomous weapons would decrease the amount of war crimes committed and overall protect

2 <https://www.armscontrol.org/act/2019-04/news/pentagon-asks-more-autonomous-weapons> (03.09.2020)

3 See e.g. Sharkey, Noel (2007). <https://www.theguardian.com/commentisfree/2007/aug/18/comment.military> (03.07.2020)

4 Countries supporting a ban on killer robots are: Algeria, Argentina, Austria, Bolivia, Brazil, Chile, China*, Colombia, Costa Rica, Cuba, Djibouti, Ecuador, Egypt, El Salvador, Ghana, Guatemala, Holy See, Iraq, Jordan, Mexico, Morocco, Namibia, Nicaragua, Pakistan, Panama, Peru, State of Palestine, Uganda, Venezuela, Zimbabwe.

*China states that its call is to ban the use of fully autonomous weapons, but not their development or production.

(Further information at: https://www.stopkillerrobots.org/wp-content/uploads/2019/10/KRC_CountryViews_25Oct2019rev.pdf. 06.02.2020)

human lives more effectively. However, for this statement to be true, autonomous weapons would have to be able not only to target more precisely (which they would, in fact), but also to possess human-like capabilities such as human judgement and the proper understanding of context, which opponents say they don't. They doubt whether a robot would comply with the principles of necessity, distinction and proportionality like a human soldier, or show any respect towards basic human rights. Though they acknowledge the quantitative advantages of robots, they believe that the amount of war crimes would actually increase due to misinterpretations of context or certain circumstances due to the lack of qualitative assessments. They also raise the question: who would be held responsible for unlawful acts committed by machines?

This inquiry is of key importance, and not only for international criminal law (since international criminal courts only have authority over natural persons), but also from the perspective of human rights law, as the International Covenant on Civil and Political Rights (ICCPR)⁵ prescribes that Member States shall grant an effective remedy to those whose rights have been blatantly violated - involving courts if necessary.⁶ (The prosecution of war criminals is further underlined several times in international law.⁷)

The Human Rights Committee (now called a Council) gives further comment on the right to remedy:

In general, the purposes of the Covenant would be defeated without an obligation integral to article 2 to take measures to prevent a recurrence of a violation of the Covenant. Accordingly, it has been a frequent practice of the Committee (...) to include in its Views the need for measures, beyond a victim-specific remedy, to be taken to avoid recurrence of the type of violation in question. Such measures may require changes in the State Party's laws or practices.⁸

The prosecution of criminals serves multiple goals, including prevention and a means of compensation for victims, confirming the existence, survival and consistent value of their rights (HRW, 2015). In the case of killer robots, it seems difficult to provide an effective remedy, since there are fundamental disagreement surrounding this question. The main source

5 <https://www.ohchr.org/en/professionalinterest/pages/ccpr.aspx> (06.02.2020)

6 ICCPR 2(3)

7 Their prosecution is prescribed in all of the Geneva Conventions (GC I. art. 49, GC II. art. 50, GC III. art. 129, GC IV. art. 146), in customary IHL codified by the ICRC (point 158), or article 14 of the 2nd Protocol of the CCW and article 9 of the Ottawa Treaty. For further information, please visit the database of the Red Cross:

https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule158 (06.02.2020)

8 HRC/GC/2004/31, para. 17

of uncertainty is that robots do not possess certain human qualities on which our current prosecution systems are built, i.e. they do not have the capacity to suffer (Sparrow, 2007). There is also a chance that the victim (or those inheriting the right to remedy e.g. their relatives) do not sufficiently receive the confirmation of the continued existence of their rights (in a sense that the perpetrator is given an appropriate sentence), since no actual person is brought before the court with the charge of murder. It is also questionable how much the prosecution of any affected party (i.e. the commander, the programmer, the developer, or any relevant person) would contribute to preventing the recurrence of that type of crime. Of course, programmers in this case would be obliged to make changes in the algorithm of that specific type of weapon software concerning its malfunctions. But the weapon would still make the next decision itself on the battlefield, involving the information ‘learned’ by that machine in previous actions, the exact outcomes remaining unknown for those who deploy it. It would still be incalculable, and therefore a gap between technical precision and lawful prosecution would remain. This gap most probably amounts to a violation to the right to remedy, applying to autonomous weapons as a type of weapon in general.

Numerous states and organizations have expressed concern regarding the moral aspects of killer robots: they think the final decision over life and death shall not be handed to a machine, as it cannot comprehend the value of human life, nor the significance of its loss (HRW, 2018). This idea is strongly connected to that of human dignity. If a robot cannot estimate such values then it will not understand what a human being is by essence, and thus it would target human beings (regardless of the legality of the act itself) not as humans, but as a conglomeration of numbers and data, depriving them of the human treatment that both civilians and soldiers deserve at all times. Authors on killer robots emphasize that, despite the lack of an explicit ban on LAWS, their use might still be contrary to IHL and its principles. As Krishnan puts it:

The obvious deficiencies of the law of armed conflict make it necessary to look more closely at the ethical questions connected with employing weapons that remove the human soldier from the battlefield and possibly exclude them (at least on a tactical level) from the decision-making.⁹

IHL actually has a recommendation for this. As a solution to a diplomatic dispute at the Hague Peace Conference, Fyodor Fyodorovich Martens (1845-1909) proposed a declaration

9 Krishnan, Armin (2009): Killer Robots. Ashgate Publishing Limited, Farnham, 118. o.

that was incorporated in the Hague Conventions¹⁰, and its content is mentioned in the Geneva Conventions as well. The so-called Martens-clause states that *“in cases not covered by this Protocol or by other international agreements, civilians and combatants remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience.”* The article reminds states that essential parts of IHL are established as custom and are generally binding (ICRC, 1997). These customs include taking the ‘principles of humanity’ and the ‘dictates of public conscience’ into consideration in non-regulated cases. This unquestionably excludes interpretations of IHL that are contrary to its spirit, object and purpose (Andersson, 2014). Some say that the article creates a unique source of law, and fully prohibits killer robots in itself.¹¹ Although this interpretation is disputable, it is generally agreed that:

The Martens clause embodies an open relation between the normative element of law on the one hand and positive law on the other. The clause makes specific notion of the role of conscience (dictates of public conscience), and the concept of humanity (principles of humanity). The clause embodies a mixture of positive law, natural law and normative elements.¹²

Accordingly, when examining humanitarian questions without clear and explicit provisions, it is necessary to rely on principles such as the protection of life, humane treatment and the opinion of those involved. Moral and legal considerations, therefore, shall not mutually exclude, but rather support and strengthen each other.

Taking a closer look at new weapons technologies is also implied in the clause. As a prominent Hungarian author puts it:

10 For a basic introduction, see: https://en.wikipedia.org/wiki/Hague_Conventions_of_1899_and_1907. (06.02.2020)

11 <https://blogs.icrc.org/law-and-policy/2017/11/14/ethics-source-law-martens-clause-autonomous-weapons> (03.01.2020)

12 <https://www.peacepalacelibrary.nl/library-special/the-martens-clause> (04.06.2020)

The development of humanitarian law could lead to the prohibition of new conventional weapons or even weapons of mass destruction. (...) There are many disagreements on what types of weapon may count as indiscriminate or one that causes unnecessary suffering and injuries. This is why, as a rework of the old Martens-clause, was born the regulation that in the study, development, use and production of new types of weapons or methods of warfare, states are obliged to examine, whether they fall, in all or some cases, under the prohibition of existing international law.¹³ (Own translation.)

As seen, the Martens-clause applies not only to weapons that are *per se* illegal, but also to those that pose a foreseeably significant threat, resulting from the character or certain properties of the weapon, to violate the law when applied. In this research, we will find out whether this threat appears in the case lethal autonomous weapons systems, especially in relation to the rights of the child.

The International Committee of the Red Cross (ICRC) emphasizes in its commentary that states shall examine the legality of the use of all weapons, and a failure to do so may invoke the legal responsibility for any violation of IHL caused by the use of that weapon (ICRC, 1987). As we have already referred to it, in the case of killer robots it is doubtful whether applicants can fully understand the decision-making mechanisms of that given robot, since their software is constantly learning and adopting, and thus parts of their command codes change over time. This may result in unexpected decisions made by the robot. According to Scharre:

“Autonomous” is often used to refer to systems sophisticated enough that their internal cognitive processes are less intelligible to the user, who understands the task the system is supposed to perform, but not necessarily how the system will perform that task. Researchers often refer to autonomous systems as being “goal-oriented.” That is to say, the human user specifies the goal, but the autonomous system has flexibility in how it achieves that goal.¹⁴

States would (or should) be aware of the hardships of precisely predicting outcomes of a robot attack. This means that, by applying killer robots, they wittingly ‘quit the decision-making loop’, and let the robot achieve the goal it is programmed to, using self-determined methods. Therefore, if the robot commits a war crime, then the state can be internationally

13 Dr. Almási, Ferenc (1990): A hadijogról. Zrínyi Katonai Kiadó, Budapest.

14 Scharre, Paul (2018): Army of None - Autonomous Weapons and the Future of War. W. W. Norton & Co., New York, p. 23

responsible for the violation, since they have not taken all necessary steps to ensure the compliance of the robot with IHL. This also applies to so-called ‘human on-the-loop’ weapons, where a human operator is passively observing the activities of a robot (or several robots), and is authorized to intervene in necessary cases, but is *de facto* unable to control the weapon, due to its overly rapid decision-making processes. In this case, the human is not effectively the one in control.

It is interesting that some compare killer robots to the behavior of children: they do have some clue regarding (and some autonomy over) a given situation, but they are not in full control of their ‘parents’, and cannot fully comprehend the weight of certain things they do (Sparrow, 2007). But how would this affect children?

2.2 On the rights of the child

Since the beginning of the 20th century, there has been increasing demand to legally attribute certain special protections for children. The first milestone was the 1924 Geneva Declaration of the Rights of the Child, well preceding the classical ‘canon’ of human rights. As it expired with the formulation of the League of Nations, the next important document was the 1948 Universal Declaration of Human Rights, as a follow-up to the horrific events of World War II, including numerous atrocities against children. Even though the Declaration itself was non-binding, many of its provisions have been implemented in later treaties or incorporated into customary international law (Hannum, 1998). Article 25 of the Declaration, primarily dealing with living conditions and healthcare, states that childhood, together with motherhood, entitles one to special protection and care in itself. The 1959 UN Declaration of the Rights of the Child reinforces and further specifies these rights on a level of recommendation. 20 years later, which was called at the time the ‘International Year of the Child’, the delegation of Poland, in cooperation with the General Assembly, made a first draft of the Convention on the Rights of the Child. The Convention was finally accepted by consensus in the GA after ten years of careful planning and negotiation, involving numerous states and UN organs. By the end of the next year, the Convention had 57 states parties. Nowadays the Convention on the Rights of the

Child¹⁵ is one of most widely ratified treaties in the world, with the USA being the one and only exception (as a signatory).¹⁶

As many of the provisions in the Convention represent a holistic and abstract sense of law, rather than a practical one, interpretations on certain points vary. The Committee on the Rights of the Child (CRC)¹⁷ has emphasized several times, that the *'review (of states' compliance with the Convention) needs to consider the Convention not only article by article, but also holistically, recognizing the interdependence and indivisibility of human rights.'*¹⁸ This means that the Convention is more than a list of individual provisions; it formulates an entire spirit of legal approach to questions in connection with children.

Armed conflicts violate most of children's rights in themselves. Here are some statistics: between 2000 and 2010, 20 million children were forced to leave their homes due to armed conflicts. This number grew to 31 million by 2018. These children are often deprived of their basic needs such as education, family, safe environment or even water. In 2018, 12,000 children died as a direct consequence of armed conflicts, and this number has been increasing in the last decade. Even though the number of captured and forcefully recruited children has decreased, some 7,000 children are still put into the frontline, in servitude of state and non-state armed groups, with 933 children raped, and 2,500 kidnapped. In 795 cases they were deprived of humanitarian aid.¹⁹ Therefore, the maintenance of humanitarian programs is crucial to protect children in the long-term. In the light of these statistics, it may seem rather pointless to conduct research in the context of the rights of the child in wartime. However, the Convention prescribes that states have to take all measures in their power to decrease the number and the intensity of violations. In an armed conflict, it is inevitable that the best interests of the child are violated, but it is still important to pay attention to children's rights as much as possible. The question of legal responsibility depends on whether states are proactively committed and acting to minimize harmful effects or not.

15 <https://www.ohchr.org/en/professionalinterest/pages/crc.aspx> (06.02.2020)

16 For further information, please visit: <https://www.unicef.org/child-rights-convention/history-child-rights> (04.07.2020)

17 <https://www.ohchr.org/en/hrbodies/crc/pages/crcindex.aspx> (06.02.2020)

18 CRC/GC/2003/5, para. 18

19 <https://childrenandarmedconflict.un.org/record-number-of-children-killed-and-maimed-in-2018-urgent-to-put-in-place-measures-to-prevent-violations> (04.10.2020)

Contemporary international law requires a child-centered approach in war. For instance, the UN Security Council²⁰ urges “*concerned Member States, when undertaking security sector reforms, to mainstream child protection...*”²¹ Moreover, article 4 of the Convention provides that “*States Parties shall undertake all appropriate legislative, administrative, and other measures for the implementation of the rights recognized in the present Convention.*” This means that states take responsibility for the protection of children’s rights, and thus they are to provide an effective remedy in case of a violation. Another point worth mentioning is that the UN General Assembly expresses its condemnation towards attacks on the civilian population, especially on women and children that inflict incalculable suffering, and states that such acts shall be prohibited.²²

The stance of the UN in connection with children is worth mentioning due to their overlap with the anticipated risks of applying autonomous weapons systems in the future. In this research, we examine the unique nature of killer robots that may have a positive or negative effect on certain rights of the child - more specifically in the context of armed conflict. (These violations may also occur in times of peace, if killer robots were applied as tools of law enforcement. This could also lead to certain violations of child rights e.g. in the case of peaceful student protests, but these rights are common and mainly equal to those adults have. War, as the main platform in the emergence of killer robots, seems sufficient for us to point out the unique characteristics of children’s rights in connection with autonomous weapons, and also to make our points as brief as possible.) Our main pathways will be the provisions of the Convention on the Rights of the Child, and also some other legal instruments that have a close connection to the Convention and its provisions. Before turning to our first legal analysis in detail, let us discuss two short, relevant case studies, serving the purpose of introduction and putting our topic in context.

The first story begins in the Persian Gulf, on 3 July 1998, above the coastal line of the Islamic Republic of Iran. Civil aircraft 655 has departed and is now flying to Dubai, with 290 passengers on board. The anti-aircraft ship USS Vincennes of the US Navy is floating in the Strait of Hormuz, equipped with missiles, looking for hostile units with the help of the semi-autonomous computer system, Aegis. The radar shows a unit, identified as war-plane F-14

20 <https://www.un.org/securitycouncil/> (06.02.2020)

21 SC/RES/2143/13

22 Declaration on the Protection of Women and Children in Emergency and Armed Conflict, para. 1, GA/RES/3318/1

Tomcat, and the system suggests an instant missile attack on the target - which is actually civil aircraft 655, twice the size of an F-14. The soldiers supervising the system believe the system without a doubt, authorized it to shoot. All passengers died, including 66 children. Even though the USA has provided a significant amount of financial compensation to Iran, and expressed deep regret before the ICJ for the tragedy, they never acknowledged their legal responsibility.²³

The second case study is based on a currently running technological education project in China, led by the Beijing Institute of Technology (BIT)²⁴. In 2018, the Institute recruited, from a pool of 5000, 31 talented young applicants to a project aiming to develop AI-controlled weapons for the state with the help of children. All participants were/are under the age of 18. At first, they received two mentors, one from the world of technology, one from the defense industry. After completing a brief course, the children could specialize in areas of development, such as mechanical engineering, electronics or overall weapon design. A professor from BIT, asking not to be named, said that *“These kids are all exceptionally bright, but being bright is not enough (...) We are looking for other qualities such as creative thinking, willingness to fight, a persistence when facing challenges (...) A passion for developing new weapons is a must ... and they must also be patriots.”* Eleonore Pauwels, a fellow in emerging cybertechnologies at the Centre for Policy Research, United Nations University in New York has expressed concern regarding the project. *“This is the first university program in the world designed to aggressively and strategically encourage the next generation to think, design and deploy AI for military research and use (...) This concept is both extremely powerful and troubling.”* She added: *“you could envision students starting to think about how to harness the convergence of AI and genetics systems to design and deploy powerful combinations of weapons that can target, with surgical precision, specific populations.”*²⁵

From a legal perspective, the question may arise if taking part in these developments could amount to direct participation in hostilities, given the fact that *“any labor or support that gives effect to, or helps maintain operations in a conflict constitute[s] active participation.”*²⁶

23 Chantal, Grut: The Challenge of Lethal Autonomous Robotics to International Humanitarian Law, Journal of Conflict & Security Law, Vol. 18, No. 1, 2013, p. 5-23

24 <http://english.bit.edu.cn/> (06.02.2020)

25 <https://www.scmp.com/news/china/science/article/2172141/chinas-brightest-children-are-being-recruited-develop-ai-killer> (04.10.2020)

26 Prosecutor v Samuel Hinga Norman et al. case. The Appeals Chamber of the SCSL (May 2004). Cited at Grover (2012), p. 38.

However, the opinion of the ICRC nuances the matter, as *“direct causation should be understood as meaning that the harm in question must be brought about in one causal step. Therefore, individual conduct that merely builds up or maintains the capacity of a party to harm its adversary, or which otherwise only indirectly causes harm, is excluded from the concept of direct participation in hostilities.”*²⁷ We conclude that, since partially building or programming a weapon does not fall within the framework of ‘one casual step’ from shooting, they cannot be seen as soldiers, nor agents of war, even though they are taking part in hostilities indirectly in an influential way.

However, the ‘civil’ rights of these child participants might still be violated. Under article 36 of the Convention, it is worth considering if using children for such purposes could amount to their exploitation, since many of them may not be fully aware of the consequences of their work - namely, they may not fully comprehend the fact that works of their hands may kill people, possibly even innocent people in the future. If this occurs, these children might be exposed to partial responsibility for the robot’s actions as programmers or designers, which could be in further contradiction with articles 32(1) and 40.

In connection with education, article 29 provides that education shall be directed to, together with the *“development of the child's personality, talents and mental and physical abilities to their fullest potential”*, also in point d) the *“preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance (...) and friendship...”* It seems difficult to maintain that expecting and increasing ‘the willingness to fight’ would comply with the latter requirement, since ‘fight’ in this context most probably does not refer to any human virtue, but actual fighting in war. Encouraging children to develop weapons with lethal capacities could amount to an intentional and grave violation of article 29. It is true, that participation (in life and in society) is one of the four main principles of the Convention, but this right can (and should) be limited for the purposes of the child’s protection, as well as *“the protection of national security or of public order (ordre public), or of public health or morals.”*²⁸

The maintenance of this project by the BIT most likely violates the bests interests of the child, both in the holistic sense of the Convention and the text of the articles themselves. It is

27 Melzer, Nils (2009): Interpretive Guidance on the Notion of Direct Participation in Hostilities under International Humanitarian Law. ICRC, Genf, p. 53.

28 CRC, art. 13(b)

simply unfortunate to involve children in the ever-going machinery of war, from both a moral and legal perspective.

3. The weapon and the child

The fact that children are endangered by armed conflict is not new. The concept of war itself is in contradiction with the goals of the Convention, however, this does not mean that all wars and military actions are illegal. And if it is not illegal, the question arises whether we should (or could) take into consideration the rights of the child in times of war, or if they are automatically invalidated and replaced only by humanitarian provisions in times of war. Is the Convention in force in war and to what extent? This question is of key importance to our research, since it fundamentally determines the relevance of our future arguments.

After having conversations with legal experts about the question, it became obvious that views significantly vary. Some say that human rights have no legal force during an armed conflict, as they are effectively replaced by IHL. However, it is important to highlight that, from an aspect of origin, HRL and IHL are two separate *corpora juris* with their own history and philosophy (Doswald-Beck et al., 1993). Perspectives on their subjects also differ, since human rights law primarily describes the relation of individuals to states or other individuals, whereas humanitarian law is merely based on the conflict of states or other organizations, where people are categorized purely as civilians and combatants, and the latter are entitled to certain privileges not deriving from their nature as persons, but as agents of the state or armed group. To give an early example, article 22 of the Lieber Code of 1863²⁹, aiming to set rules for the conduct of the American Civil War, and which reflects legal customs from that time³⁰, refers to the principle of distinction as *'the distinction between the private individual belonging to a hostile country and the hostile country itself, with its men in arms.'* The Code views combatants - contrary to the civilian population - as part of the state apparatus, not as private individuals.

While the two branches have a different origin, they are not fully independent from one another - they were partly driven by the same considerations, such as the protection of life and property. Furthermore, IHL as we know it today was already formulating in the second half of the 19th century, and thus had a large influence on the formulation of modern human rights principles later, which were merely on a level of philosophical and moral theory at the time. Due to their common features, many view IHL as incorporated into the 'canon' of IHRL as the human rights component of war (Buergenthal, 2001). However, in 1968 in Tehran, the UN

29 https://avalon.law.yale.edu/19th_century/lieber.asp (06.02.2020)

30 Doswald-Beck et al., 1993.

General Assembly implemented resolution 3102³¹ *'Respect for human rights in armed conflicts'*, which further nuances the question. It is important to highlight that human rights in this context, and the context of war in general, are not equal to humanitarian law (Noëlle, 2008). Humanitarian law therefore does not replace human rights, but outlines a path of protecting them.

Consequently, human rights regulations are applicable in peace and war (ICRC, 2010). The two regimes must not mutually exclude, but rather support one another (HRW, 2018). It is also important to note that human rights treaties are in some cases reliant on IHL, due to the fact that the two share basic values in different contexts, as already mentioned. In connection with the ICCPR, for instance, the International Court of Justice says:

"The protection of the International Covenant of Civil and Political Rights does not cease in times of war, except by operation of Article 4 of the Covenant whereby certain provisions may be derogated from in a time of national emergency. Respect for the right to life is not, however, such a provision. In principle, the right not arbitrarily to be deprived of one's life applies also in hostilities. The test of what is an arbitrary deprivation of life, however, then falls to be determined by the applicable *lex specialis*, namely, the law applicable in armed conflict which is designed to regulate the conduct of hostilities. Thus whether a particular loss of life, through the use of a certain weapon in warfare, is to be considered an arbitrary deprivation of life contrary to Article 6 of the Covenant, can only be decided by reference to the law applicable in armed conflict and not deduced from the terms of the Covenant itself."³²

The Court did not consider human rights as invalid in war, and interpreted humanitarian law in a sense that it serves the protection of human rights, implicitly acknowledging that human rights may impose even stricter obligations than humanitarian ones (Noëlle, 2008). However, in the case of the ICCPR, the Court ruled that in times of war, the arbitrary nature of killing is determined primarily by IHL - in cases where IHL is able to do so. In cases not covered by IHL, supposedly, the Martens Clause and human rights standards shall prevail.

As mentioned above, the ICCPR has got a reference within article 4 to the case of national emergency, but it does not directly refer to its connection to humanitarian law, and this

31 <https://unispal.un.org/DPA/DPR/unispal.nsf/0/19643531603D59A98525694B006E943B> (06.02.2020)

32 Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, p. 240, International Court of Justice (ICJ), 8 July 1996, available at: <https://www.refworld.org/cases,ICJ,4b2913d62.html> [accessed 20 April 2020]

is why the Court found that the arbitrary nature of killing shall be determined by IHL in its entirety. The Convention on the Rights of the Child, however, provides in article 38(1) that *'States Parties undertake to respect and to ensure respect for rules of international humanitarian law applicable to them in armed conflicts which are relevant to the child.'* To put this to context, the *"Committee on the Rights of the Child has emphasized that States should take measures to secure the rights of all children within their jurisdiction in times of armed conflict and that the principles of the Convention are not subject to derogation in times of armed conflict."*³³ This means that IHL in connection with the rights of the child does not prevail independently or is superior, but is an integral part of and in compliance with the principles of the Convention.

Of course, the Convention does not require every single right to fully prevail at all times, as it seems impracticable, especially in situations like armed conflicts. Taking a close look at the wording of the Convention, we may observe expressions like *'to the maximum extent possible'*, *'all feasible measures'* etc. The Convention does not leave space for derogation, but does not expect full prevalence either - it requires States to do *everything in their power* to protect and proactively ensure the rights of the child. This can also be reversed: if States refuse to take all possible measures to do so, they expressly violate the provisions of the Convention, and bear legal responsibility, be it peace or war. Recognizing this will be key throughout our journey to analyze the legal effect of killer robots.

3.1 The best interests of the child

Our first analysis leads us to a rather theoretical field of law, which, however, will prove to be invaluable when talking about the rights of the child. Article 3(1) of the Convention provides that in *"all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration."* This article is to be interpreted as a general 'umbrella provision' determining the guiding principle for all important decisions concerning children (UNICEF, 1996). The Committee on the Rights of the Child views the article as a threefold concept: a matter of substantive law, an interpretative basic principle and

33 UNICEF (2007): Implementation Handbook for the Convention on the Rights of the Child: Fully Revised Third Edition. UNICEF Regional Office for Europe, Geneva, p. 573.

a rule of procedure (more on this later)³⁴. It (viz. the Committee) has further emphasized that the *'assessment of the child's best interests must also include consideration of the child's safety, that is, the right of the child to protection against all forms of physical or mental violence, injury or abuse (...) armed conflict, etc.'*³⁵ The latter does not only provide taking into account their best interests in the view of *jus ad bellum* (meaning that war is not in the best interests of the child), but they also have to be protected *at war*, when it is already happening.

The Committee suggests that State parties should develop an entire methodology for decision-making mechanisms in connection with children, assessing their best interests in detail. However, it also emphasizes that *"people who make decisions concerning children on a daily basis (e.g. parents, guardians, teachers, etc.) are not expected to follow strictly this two-step procedure, even though decisions made in everyday life must also respect and reflect the child's best interests."*³⁶ Furthermore, it states that *"all actions taken by a State affect children in one way or another. This does not mean that every action taken by the State needs to incorporate a full and formal process of assessing and determining the best interests of the child. However, where a decision will have a major impact on a child or children, a greater level of protection and detailed procedures to consider their best interests is appropriate."*³⁷

Considering the aforementioned parts of the commentary, we can conclude that there are two notable cases in the context of war: one is the decision made by a human soldier on the battlefield. A human soldier, so to say, may be categorized as making decisions on a daily basis, since it is not rare to encounter children in a war, either as ordinary civilians or soldiers. Human soldiers are making these decisions without the help of artificially developed mechanisms; rather, they decide partly unconsciously, based on their legal knowledge, experience and inner ethical drives, on what actions to take. The other case is quite different - when armed forces make long-term strategic decisions, such as implementing new methods of warfare - under which the development of killer robots can be categorized - they are making a onefold decision that definitely will have a 'major impact' on children, and therefore a more detailed examination of whether the decision serves the best interests of the child is necessary. Since the introduction of autonomous weapons is likely to vastly change warfare as we know it, it will most likely have a tremendous effect on how children are treated in war, either positively or negatively.

34 CRC/C/GC/14, para. 6

35 Ibid., para. 73

36 Ibid., para. 86

37 Ibid., para. 20

But since no such legal considerations have been made publicly by any actor, this research aims to fill this important and urgent gap.

As we have discussed in the introduction earlier, the use of killer robots is not subject to any prohibition or specific regulation, but some humanitarian provisions may be viewed as such from a certain perspective. As this duality is not quite unknown in the field of international law, the Committee considered that *“If a legal provision is open to more than one interpretation, the interpretation which most effectively serves the child’s best interests should be chosen.”*³⁸ Therefore, determining whether killer robots are in compliance with a child rights perspective, we shall explore if it serves their interests.

The question may be best unfolded in two parts. The first part asks: does deploying killer robots in itself serve the prevalence of the best interests? In an armed conflict, the interests of the child apparently, in the spirit of the Convention, are their survival and personal security, that are to be protected to the greatest extent possible by responsible authorities. In case of an attack that slightly damages a school, for example, children are negatively affected, thus these principles do not fully prevail. It is important, however, that the Convention leaves room for this - the best interests of the child are not the ultimate consideration, only *a* primary one, and thus certain ‘reasons of a higher order’ may sometimes overwrite them. However, *“if the decision differs from the views of the child, the reason for that should be clearly stated. If, exceptionally, the solution chosen is not in the best interests of the child, the grounds for this must be set out in order to show that the child’s best interests were a primary consideration despite the result.”*³⁹ Actors that do not decide according to the principle should give proper legal reasoning for doing so - otherwise the decision is simply unlawful. We should note that it is hard to imagine a reason to lawfully overwrite the best interests principle - especially in the context of war, where the right to life of the child is in question - other than the immediate and proportionate protection of the right to life of another person: self-defense.

Since it is hard to accurately trace the decision-making process of a robot posterior to an act with a lethal outcome, the deploying state or armed group may not be able to justify the actions of the machine, thus may become responsible itself for the arbitrary killing. The reason for this is the lack of justification for the omission of the best interests principle. Remember that disputed international regulations shall be interpreted in a way that complies the most with

38 Ibid., para. 6(b)

39 Ibid., para. 97

the principle. Article 3 therefore expects States to interpret IHL in a manner that deems the use (and possibly the development) of killer robots as unlawful.

This argument is, however, only valid if the answer to the second part of the question is positive: does the robot even have to take the best interests of the child into account? A human soldier, most probably, does make such considerations, not led by legal, but rather moral imperatives - a robot fundamentally lacks such human virtue. Machines, as we know it today, cannot have inner moral drives and values on a level that humans do, and it is also hard for them to interpret qualitative legal provisions such as the best interests principle. As the Special Rapporteur of the Human Rights Council puts it: “*while robots are especially effective at dealing with quantitative issues, they have limited abilities to make the qualitative assessments that are often called for when dealing with human life*⁴⁰” Heyns concludes that this deficit of human comprehension may easily lead to difficulties in interpreting certain situations and therefore malfunctioning and mistakes.

The fact that robots are more prone to errors in certain situations does not only blur the exact reasons for a given act, but also creates difficulties in determining responsibility. For reasons mentioned in the introduction part, it is hard to imagine a robot as the sole defendant before a war tribunal, and shared responsibility is subject to heated debate. In a case where the actual perpetrator is not the only affected party, the responsibility may automatically be inherited by the person or entity authorizing the device that committed the unlawful act.⁴¹ To be more specific, article 3 of the Convention heavily relies on “*public or private social welfare institutions, courts of law, administrative authorities or legislative bodies*” in the prevalence of the best interests principle. The list aims, other than specifying state bodies most relevant for the article, to cover the entirety of the state, as “*acts of civil administration, law enforcement bodies or the army may equally invoke the responsibility of the state*⁴²” (Own translation.) If decision-makers apply killer robots in the future, they will have to be very well aware of the possible consequences, and the fact that they are not fully in control of a given armed conflict anymore. Thus, if killer robots would arbitrarily violate certain rights of the child, states could

40 A/HRC/23/47, para. 55

41 To give an example, international criminal law usually delegates responsibility for the commander of a given unit, if that unit committed war crimes that the commander knew, or should have known about, and it did not do everything feasible to prevent such an illegal act (Rome Statute, art. 28).

42 Kovács, Péter (2016): Public International Law. Osiris Kiadó, Budapest, 545. o.

be held internationally responsible for violating the Convention, regardless of any further actions tribunals may take on individuals or groups.

We can conclude that assessing the best interests of the child by autonomous weapons seems problematic in many aspects. As we cannot fully trace the cycle of decision-making, any individual action taken by a robot affecting children may raise the question of legality in itself. Therefore, states using or developing such technologies do not take all feasible measures to protect the best interests of the child, as they are not able to fully control and justify their acts of war, nor can they effectively prosecute violators. However, this might not be the only way LAWS disrespect the best interests of the child. In the upcoming chapters, we take a closer look at further violations.

3.2 The right to life and special protection

The next key point in the Convention, article 6 provides that *“every child has the inherent right to life. States Parties shall ensure to the maximum extent possible the survival and development of the child.”* Furthermore, the preamble recalls the former Declaration, stating that *“the child, by reason of his physical and mental immaturity, needs special safeguards and care, including appropriate legal protection, before as well as after birth.”* The right to life constitutes one of the four core principles of the Convention, as provided by the Committee, being the most important provision of the entire instrument. The Committee interprets this right widely, as a positive obligation, meaning that states do not only have to protect the right, but also proactively ensure and promote it in circumstances that are best for the physical and psychological development of the child.

We know well, however, that war in itself is harmful to these rights, as it is obviously not in the best interests of children to be exposed to constant existential threat and danger, and not fully receiving the necessary resources for their survival and development. Of course, war in itself is not always illegal - that is to be determined by the criteria of *jus ad bellum* - but states do have the obligation, in accordance with the spirit of the Convention and general human rights⁴³ - to prevent and avoid taking part in armed conflict to the greatest extent possible. Throughout history, technological revolutions of warfare mostly did not facilitate the prevention of wars, but rather brutalized it. Although nuclear weapons partly seem to be an

43 As *“it is the supreme duty of States to prevent wars.”* (HRC, 1984)

exception due to their politically stabilizing power of deterrence, their proliferation has so far remained a huge issue to be tackled, and their very existence poses a threat to the entirety of humanity. In the case of killer robots, motives behind developments include decreasing monetary costs and threat to human soldiers of that state. The concept is as troublesome as humane it may seem at first glance - if the costs and threats are lower, the threshold for undertaking armed conflicts is also lower, and the burden of war is shifted onto civilians.⁴⁴ As more wars take the lives of more children on a statistical basis, the development of killer robots may be *ab ovo* illegal in sense that their development induces the death of children, blatantly violating what the Convention stands for. This may only not be the case if the use of killer robots would particularly decrease the average number of child victims in armed conflict, especially those arbitrarily deprived of their lives. Let us take a closer look at this question in the next few pages.

Human Rights Watch sets three criteria for lawfully depriving one from the right to life, in accordance with the spirit of human rights and humanitarian law as well, be it child or adult: the act is necessary, constitutes a last resort, and is applied in a proportionate manner (HRW, 2014). The question arises whether killer robots would be able to effectively evaluate the joint presence of these criteria in a given context. As robots do not have a legal person, they are to no degree endowed with the right of self-defense, however they still may serve the purpose of protecting human life, if they comply with the laws of IHL and HRL (i.e. they do not specifically target people under special protection, such as children, gain military advantage proportionate to the caused damage etc.)

There is yet to be a consensus on the possible effects of killer robots on the right to life in general. Many believe autonomous weapons would never be able to comply with human rights and humanitarian standards, as they lack human-like conscience and cognition; others think it is (or would be) downright a moral transgression not to develop them, as they could save many human soldiers (HRC, 2013). However, it is important to note that many weapons today are remotely controlled by soldiers thousands of miles away, or functioning semi-autonomously, far from the state of autonomy, protecting soldiers and maintaining meaningful human control at the same time (Strawser, 2010). It is also commonly argued that robots target more efficiently in a sense that they mishit much less frequently, and thus maim less and cause less unnecessary suffering - and this is most likely true. This argument is also heavily linked to

44 <https://www.stopkillerrobots.org/2014/06/nobelpeace/> (03.09.2020.)

the question of children, as UN Security Council Resolution 1261, specifying the six grave violations against children in war⁴⁵, places killing and maiming inside the same category, corresponding with the principles of IHL, which, unlike killing, criminalizes inflicting unnecessary suffering at all times. This argument, therefore, gives one huge point to killer robots, at least from a legal point of view.

Let us move further into the question. The inherent right to life takes a special place in the system of children's rights, mainly because it is prerequisite to any other right, including one's human dignity (HRC, 2018). If someone violates the right to life of a child, in a sense, they violate all of his/her rights - how can we provide security, education, playtime or rest for a child who has been deprived of his/her life? As Nowak puts it:

"(T)he inherent character of the right to life can be interpreted as an indicator for the non-derogable nature of this right even in times of war and public emergencies threatening the life of the nation, and as an indicator for its recognition as *jus cogens* under international law."⁴⁶

The Convention itself does not contain any specific textual reference for derogations in the right to life, it would be hard to maintain that inevitable and proportionate self-defense would amount to a violation. In this research, we will rely on the premise that *non-arbitrary* deprivations are allowed under the convention, given that very few actual cases may count as non-arbitrary, in accordance with the holistic manner of interpretation - self-defense might be the only legitimate reason.

First and foremost, an agent that makes decisions about children shall be able to recognize them. Without it, the best interests principle and the right to special protection have no chance to even partially prevail. Constant advances in facial recognition technology have proved to be sufficient, in most cases, to recognize not only the child character of a person, but also the identity of one.⁴⁷ Of course the most advanced technologies may make mistakes that humans wouldn't, mainly due to extraordinary weather circumstances or visibility (e.g. fog, dust, rain), unusual physical appearance (e.g. height, facial structure) or clothing (e.g. poorly

45 <http://unscr.com/en/resolutions/doc/1261> (06.02.2020)

46 Nowak, Manfred (2015): A Commentary on the United Nations Convention on the Rights of the Child: Article 6 - The Right to Life, Survival and Development. Martinus Nijhoff Publishers, Leiden, para. 23

47 In China, public surveillance systems are able to recognise the face of disappeared children with higher than 99,8% certainty after 10 years of disappearance.

(<https://www.telegraph.co.uk/peoples-daily-online/science/china-facial-recognition-missing-persons/>) (03.08.2020)

sized or strangely patterned dress).⁴⁸ If a robot targets a child unaware of the special rights entitled to them, article 3 of the Convention is very likely to be violated by fact, as their best interests are in no way taken into account. Similar dilemmas occur if a robot faces a pregnant woman, enjoying the same level of humanitarian protection as an already born child, as it is hard to categorize them merely as women with ‘big belly’. Such personal discrimination may unintentionally result in the death of two persons.⁴⁹ All of this may seem like casuistry, but the holistic approach required by the Convention requires making such considerations, especially when we are talking about the life of numerous children in the future. If these questions are not properly assessed, respect for individual provisions of the Convention decreases, endangering its very object and purpose in the long term.

The number of scenarios in today’s complex battlefields and set of actors are infinite. This means that robots cannot be programmed to learn each case individually, but machine learning and AI pattern recognition software need to be developed instead. Machine learning inevitably brings with itself the quantitative analysis of dilemmas of a qualitative nature, which necessarily results in simplification of the incoming information and their network. When facing children, this can be even more problematic than in the case of adults, since children are not in full possession of their intellectual and physical maturity - in brief, they often behave or react in a way that might be unusual or meaningless in the eyes of adults in a given situation. Furthermore, smaller children may not fully understand what an armed conflict or a weapon really is, and may not appropriately perceive the danger coming with them. The best instances are landmines, which are, by design, quite different from a gun, and thus children may not recognize their hostile nature. One iconic type of mine, the Soviet PFM-1 butterfly-shaped warhead has caused numerous deaths of small children, who confused these weapons with toys, and intentionally came in physical contact with them (Csapó, 2011). With that being said, the question arises how children would react if a small-sized autonomously rolling ground vehicle or a buzzing drone would pass near them. Would they run? Or would they try to catch it? Which of these would cause algorithms in the robot to anticipate threat and shoot?

Let us make a thought experiment. An autonomous surveillance drone equipped with lethal capacities is flying over the outskirts of a city in hostile territory, around 15 meters above

48 To give an example for visual conditions, graphical recognition system GoogLeNet confused a formerly analysed panda for a gibbon with 99.3% certainty, after blurring the very same picture by a fraction of 0.007% (Goodfellow et al., 2015).

49 The threat of discrimination by robots has been a topic for years in technological science (see Sharkey, 2019).

the ground. Adult citizens, noticing the drone instinctively suppose that neutral behavior should not attract the drone, and proceed with their daily activities. The system categorizes them as civilians, and flies over them. At one corner, a small child is left alone by heedless parents, playing and repeatedly jumping with a plaything in his hand. The robot, looking for hostile military units observes the unusual movements, and slowly descends to gain further information. Since the child is moving intensely, some dust is floating in the air, making it hard to appropriately gain visual information by the drone's camera, so it moves even closer. The child is now alarmed by the unfamiliar sound of small propellers, and tries to hit into the air in the direction of the drone with his toy and then starts to run. The system is now certain about hostile aggression and threat - it shoots the child.

The case may seem extreme, but we should not forget about precedents such as Iran Air Flight 655 or the Stanislav Petrov incident of semi-autonomous false nuclear alarms⁵⁰, where machines made mistakes of such a tremendous scale in real life. In this example, the cause of the accident was that the child did not anticipate the threat in time and in a manner that would have most likely been appropriate to the situation. If the child remained calm and 'calculating', the robot would have simply flown over him. However, it is not the responsibility of the child to behave in a way that does not provoke the robot, but the robot is obliged to properly assess the situation in order to protect the right to life of the child. If such incidents would happen in real life, it would be an unfortunate example of arbitrary killing.

Another factor that may play an important role is (the lack of) emotions. Even though law is never based on human emotion, it may be a useful feature when protecting certain rights, especially when the existence of these rights trace back to human ethics (which is often the case). In some ways, the lack of emotion may be useful in many situations of armed conflict, e.g. a robot does not feel any sort of vindictiveness or intention to kill from anger. However, human soldiers mostly connect the feelings of empathy and mercy to situations where children stand in the crossed hairs. A robot would lack any such emotion or instinct, and even if it recognized a child, it would not relate to the child character of that individual in any way. In the eyes of a machine, a child is not a human, not a child, but an organized number of pixels and numbers, without any rights or dignity. This may easily lead to an increased number of

50 In 1983, newly adopted Soviet nuclear radar gave numerous false alarms of incoming US attacks, and recommended immediate nuclear response. Stanislav Petrov, the responsible officer, however, considered the alarms false by instinct and saved humanity from nuclear war (CSKR, 2019). Many consider this to be a historical warning that autonomy in warfare should not be relied on for a too large extent.

arbitrary killings en masse. Of course, all programmers would abstain from planting codes that limit or reduce attacks to special groups in a weapon, as it could induce significant strategic disadvantages on the battlefield.

Noel Sharkey, a noted expert in robotics, co-founder of the international campaign, has been dealing with the question of discrimination and technical flaws for a while. He notes with some irony: *“You can automate building my car with no trouble, but please don't automate killing my children.”*⁵¹ He often details in his speeches and presentations his pessimist and slightly exaggerated but still notable visions on technology turning against humans; visions such as *“a child with a toy gone running out in front a soldier, his mother screaming at him to come back.”* He adds: *“a soldier would understand the setting, a robot wouldn't - it would think: ‘oh, there's something happening’ and shoot the child. I could see children just wounded like that.”*⁵² A few years earlier, he already imagined *“a little girl being zapped because she points her ice cream at a robot to share.”*⁵³ His words, indeed, should be interpreted with moderate skepticism, but as coming from an expert of robotics and future technologies analyzing the topic for years, these warnings shall not be disregarded either.

Let us also not forget about the dangers posed by malicious hacking. As a first note, we need to mention that non-state armed groups show an overall smaller tendency in complying with certain parts of IHL, as they have never taken part in formulating and accepting these regulations, and violating certain provisions may often provide them a significant amount of strategic advantage (Heffes, 2019).

HRC specifically warns states⁵⁴ in connection with the right to life to prevent weapons with lethal effects to get into the hands of unauthorized persons. Scharre's words best draw the attention to similar dangers in connection with autonomous weapons:

51 Sharkey, 2019

52 Sharkey, 2013

53 Sharkey, 2007

54 CCPR/C/GC/36, para. 21

“Fully autonomous weapons would be a fundamental paradigm shift in warfare. In deploying fully autonomous weapons, militaries would be introducing onto the battlefield a highly lethal system that they cannot control or recall once launched. They would be sending this weapon into an environment that they do not control where it is subject to enemy hacking and manipulation. In the event of failures, the damage fully autonomous weapons could cause would be limited only by the weapons’ range, endurance, ability to sense targets, and magazine capacity.”⁵⁵

Non-state actors often disregard the principles of necessity and proportionality, and they do not even consider human rights factors, meaning an increased threat to children. Furthermore, if a group with developed-enough equipment hacks and expropriates a weapon, it may even be troublesome to decide which party to the conflict is applying the robot in a battle, since it is the sole representative of that given force on the battlefield. This gives space for abuse the general accountability gap killer robots generate, leading to a point where crimes against children cannot be investigated.

However, children are not only endangered by bullets - statistics show that most children die due to the indirect effects of war (Dupuy et al., 2010). IHL prescribes a wide variety of protective measures to be taken, that are especially important for their survival and healthy development. In connection with killer robots, we will focus now on the questions of certain resources and critical infrastructures. (Education and healthcare deserve their own chapter, see point 3.3.)

For example, drinking water is essential and its resources therefore enjoy humanitarian protection. Using the example of landmines once more, it was (is) a frequent practice of non-state armed groups to place mines around waters wells and springs, making it harder for civilians to access drinking water (Csapó, 2011). Although mines are different from LAWS in some points (mainly their ability to select their targets), the effectiveness of the strategy lies within the fact that no human presence or involvement whatsoever is needed for the permanent ‘supervision’ of a given area. Let us imagine how effective it would be to deploy one single autonomous ground vehicle expropriated from state arms, instead of 30 mines to supervise a water resource. Its costs are minimal, their mission does not pose a threat to members of the group, does not get exhausted or make mistakes in a strategic sense. The same applies to an autonomous drone circulating above a road connecting a large city with rural areas, that may

⁵⁵ Scharre, Paul (2019): *Army of None - Autonomous Weapons and the Future of War*. W. W. Norton & Company, New York, p. 138.

eliminate any vehicle it considers hostile, including the transportation of humanitarian aid - again having tremendously negative effects on the life of children. A human soldier is obliged to - both inside and from outside - to deny executing a mission contrary to humanitarian principles, and humans motivated by honor often do so. A robot would not care about honor, and as a mere military object, it would execute any order programmed to by its owners.

Children pay a heavy price for military agents violating IHL.

As a conclusion, we need to highlight that if states apply a technology presumably leading to serious violations of the right to life and special protection of the child, they bare direct legal responsibility for grave breaches the Convention, as they do not only fail to take all feasible measures to protect children, but consciously and intentionally use technologies posing a special threat to them.

3.3 The right to education and health

Once again, the fact that the rights of the child are *ipso facto* violated in war does not mean that authorities should not use the best interests principle and the right implied therein, as such legal considerations provide shelter to at least some degree. If we observe children's rights even in fundamentally hostile situations, we have a great chance to protect them from the full extent of the utter monstrosity and inhumanity of armed conflicts. As paradoxical as it may seem, if humanity is taken into consideration in a basically inhumane situation, frameworks can be set for brutality. This premise is one that we should primarily keep in mind when talking about children's right to education and health in the context of autonomous weapons - if these two sectors are destroyed or significantly damaged, the indirect effects of war are multiplied for generations to come.

Article 28 of the Convention provides in its paragraphs that states "*recognize the right of the child to education (...) make them available and accessible to every child (...) take measures to encourage regular attendance at schools and the reduction of drop-out rates (...) promote and encourage international cooperation in matters relating to education...*" The Committee has also emphasized numerous times that education shall be maintained in times of war, especially because of its significant role in peacemaking (CRC, 2002). Still, 27 million

children worldwide are out of primary school due to armed conflicts.⁵⁶ As much as education contributes to peace, the lack thereof seems to be a primary reason for voluntarily joining armed groups as child soldiers (Dupuy et al., 2010).

Not only shooting down schools or hospitals may damage these sectors. Let us take proliferation as an example: calculations of the UNESCO show that if developed states would spend six days of their arms expenses for the cause of supporting education worldwide, every single child could attend primary school (Cervantes-Duarte et al., 2016). Those states that would access the technology of autonomous weapons - exactly those who have now access for limited autonomous functions such as departing and landing, and those that are at the forefront of civilian AI development - could actually decrease their spending on arms and further invest in these technologies. On the other hand, many states, especially regional powers and those affected by international political or armed conflicts, would seek to catch up at least on a smaller scale to possess such technologies, and would most likely cut investments from sectors such as education or healthcare, which could only be partially replaced by further international aid, resulting in higher inequality and dependence from major powers. Fundamentally, the most vulnerable ones, such as children, would carry the burden of these political games.

Not only are education and healthcare critical infrastructures that would require higher focus in financing, but they also enjoy special protection under IHL. Facilities such as schools and hospitals shall not be directly targeted. (The only exception is when, for example, a school building is overrun by armed forces, as that given building will then lose its protected status and count as a military object that can be lawfully attacked for the time of its military use.) Practices harmful to education have been condemned by the Security Council many times.⁵⁷ The first step to ensure the protection of education and health facilities is to visually recognize and differentiate them from their environment. In the case of killer robots, this might be sometimes problematic⁵⁸, especially in special weather and vision conditions. We do not state, however, that it is impossible. The quality of visual recognition is constantly improving, and buildings are relatively easy to recognize - in most cases, a robot may even have a better eyesight, or rather ‘camera-sight’ to notice buildings from afar. Rather it is a question of whether they could confidently identify their protected status (i.e. being a school or a hospital) as these buildings, especially when built long ago or being only a temporarily functioning

56 <https://www.unicef.org/education> (05.21.2020)

57 SC/RES/2143/17, SC/RES/1998/4

58 As Noel Sharkey says “they can barely tell the difference between a car and a human” (Sharkey, 2013).

facility, do not necessarily have a humanitarian distinctive sign (i.e. red cross) on their surface, or any sign or visible inscription whatsoever. Again, the understanding of context is crucial (e.g. location, general design, children entering or leaving, ambulance cars parking nearby). Another situation where robots may face problems in properly protecting these building may occur when military objects (e.g. military bases or vehicles) are located near them, and attacking the latter could cause damage to them as well. In this case, the robot would have to decide whether the advantages are proportionate and(!) necessary compared to the damage, again a typical case of qualitative decision-making.

States dedicated to safer education drafted joint Guidelines for Protecting Schools and Universities from Military Use during Armed Conflict (GPSU) within a Safe Schools Declaration (SSD) initiated by the Ministry of Foreign Affairs of Norway in 2015.⁵⁹ The Guidelines include a wide variety of non-binding commitments for protecting education, many of which are incorporated into the national laws of endorsing states. Key points like providing assistance to victims or applying conflict-sensitive approaches reflect a comprehensive approach amongst states endorsing the declaration, the number of whom rose above 100 in 2019.⁶⁰ Let us briefly discuss whether the use of killer robots would fit into such an education-friendly approach, with the example of some specific points.

In the second principle endorsing states undertake to make *“every effort at a national level to collect reliable relevant data on attacks on educational facilities, on the victims of attacks, and on military use of schools and universities during armed conflict...”* This point can actually be interpreted in a way that is in favor of developing autonomous weapons. Robots may be equipped with cameras that could continuously send visual and audio data to the deploying army, that may be stored by computers, and serve as evidence in case of a future investigation. This is, however, a quality that can be used with semi-autonomous weapons, in the case of which the question of the accountability gap is not that significant. The question of accountability in the case of killer robots is important in this context, as another guideline provides that states *“Investigate allegations of violations of applicable national and international law and, where appropriate, duly prosecute perpetrators.”* Even if robots record

59 The Declaration is accessible online here:

https://www.regjeringen.no/globalassets/departementene/ud/vedlegg/utvikling/safe_schools_declaration.pdf

. For further information, please visit: <http://www.protectingeducation.org/safeschoolsdeclaration>.

(05.23.2020)

60 <https://ssd.protectingeducation.org/endorsement> (05.23.2020)

what exactly happened during a fight, who would be duly prosecuted for the robot shooting at a school and how?

Furthermore, as the autonomous character of weapons currently in question includes that they can function without remote communication with a commander, it is unlikely that each individual weapon would send records to its base, since it would increase monetary and technological costs. In another context, however, the development of killer robots may be harmful to education in itself, and involve students in war - see the Chinese example detailed in the Introduction part. PAX for Peace, a Dutch NGO has specifically drawn the attention to the possible involvement of universities in developing killer robots through research in AI and hardware design.⁶¹ Such links would amount to the ‘military use of schools and universities’, that is inconsistent with the spirit of the Declaration.

Let us move to actual scenarios where killer robots may raise concerns. In order to realize education, both students and teachers need to be safe. Teachers, however, are an especially endangered group, as they are often viewed as ‘agents of the enemy’.⁶² The appearance of highly effective artificial units would make missions of a genocidal or discriminatory character much easier to execute. In case of a terrorist group, for instance, one hacked or homemade drone could murder each and every teacher in a school, if programmed to target all ‘adult-looking’ targets. Maybe some children would fall victim to the action as well, but this would not change its strategic efficiency - cheap, fast, risk-free. While this may sound as dystopian science-fiction, scholars have already emphasized the threat of killer robot being used for targeted killings (Krishnan, 2009). Once started, only the pace of technological development would set boundaries to targeting specific groups with lethal autonomous weapons.

The biggest enemy of education is fear. In states affected by armed conflict, especially in large cities, education is often suspended even if school buildings remain untouched - teachers are simply afraid to go to work, and parents do not allow their children to go, as they are all afraid of hostile military presence (Cervantes-Duarte et al., 2016). The same problem arises as in the case of natural resources, namely that armed groups could maintain a general

61 PAX (2020): Action kit: Save your university from killer robots. Accessible at: <https://www.paxforpeace.nl/publications/all-publications/action-kit-save-your-university-from-killer-robots> (05.23.2020)

62 In Cambodia, the infamous Red Khmers mercilessly slayed many thousand teachers and intellectuals between 1975-1979, as they viewed them as enemies to the maoist revolution.

state of fear amongst the public in territories occupied, including by patrolling near schools. With robot weapons, it would be much easier to realize armed control 24/7. Constant fear is the best recipe for destroying education.

Similar concerns may be raised for healthcare. Conflicting parties may not only force health professionals to give priority for their wounded (which is explicitly banned under IHL due to frequent practice), but also simply execute them to prevent enemy forces and/or civilians to be treated. With autonomous weapons, not only more aggressive attacks would become possible, but also less aggressive ones. This is not necessary good - if a watch drone is preventing all the wounded from being transported to hospitals all day long by circulating nearby, healthcare systems may collapse without one shot.

We need to remember that thought-experiments and scenarios mentioned in the current chapter are ‘only’ speculations, and these do not amount to an instant base for the illegality of killer robots in general. However, the increased potential for inhumane acts - that human soldiers would refuse to do, or could only perform with placing their lives or freedom in extreme risk - calls for preliminary precautions before developing weapons with this level of autonomy. Again, if robots would be capable of destroying infrastructures critical for the healthy development of children, the interpretational imperative of the best interests principle shall be invoked, further strengthening our points in former chapters.

3.4 Protection against exploitation

We have so far proposed numerous arguments pointing towards the illegality (and the subtle unethicity) of killer robots in a child rights perspective. We should, however, not forget to examine cases where these weapons could actually be helpful in promoting the prevalence of certain rights. In this chapter, we will briefly discuss two of them, to which we collectively refer under the right to ‘protection against exploitation’. The first argument may come as nothing new: robots do not rape.

Sexual violence is not only a consequence of the disruption of law and order as a spontaneous decision of men in arms - it is a genuine tool of war (UNICEF, 2009). In the Middle Ages, it was custom that if a hostile city was ordered to surrender but refused to do so, any of its women might have been raped by soldiers without retaliation (Frederick et al., 2001). Rape was a form of expressing the inability of the enemy to defend its own people and ensure their

safety. This kind of abuse, even with all the changes in the culture of warfare, still creates a general sphere of fear amongst the population that is exposed, which puts significant psychological pressure on both civilians and armed forces. It is also common that children fall victim to such practices, often enslaved as ‘child soldiers’, effectively turned into sex objects. Rape is considered as a crime against humanity by the Rome Statute of the International Criminal Court, and there is an increasing tendency towards viewing it as a war crime, mostly due to its plural origin - momentary physical incentives and conscious fear mongering. Robots would fully lack the former, and also partially the latter motivation. They would not have an evolutionary motive to sexual intercourse, be it consensual or non-consensual, as they would not have any particular motive whatsoever (Purves et al., 2015). Also, especially in the cases of state armed forces, the terroristic character of rape is mostly not thoroughly planned, but rather a tactical inspiration of soldiers or units, and based on a universal human code that understands the effects of mass sexual violence as well as their victims. Due to the fact that robots would lack any human code - unless having them specifically programmed or recognized by deep learning after carefully analyzing numerous situations - robots could only rape if explicitly programmed to, and equipped with proper technology, which is - at present - unlikely from any developer to experiment with. To conclude, by deploying killer robots instead of human soldiers, the rate of child rape could dramatically decrease.

Another harmful practice under the term ‘exploitation’ is the use of children as labor force for direct participation in armed conflict, or shortly child soldier recruitment. The development of autonomous weapons could potentially fill certain gaps of demand in armed forces that serve as a strong incentive for recruiting children. It is important to mention that children who lost their homes, parents of hope often decide to voluntarily join armed groups, however, the voluntary character of such a decision by a child is, in most cases, debatable. (It would be hard to maintain that children who join due to a lack of alternatives or to familiar order, and not any patriotic or tribal dedication can be considered volunteers, although they are not effectively forced either.) There are also many cases where children are forcibly recruited, often accompanied by horrific practices (Singer, 2015). Non-state groups, relying on limited financial and human resources, often welcome children with open arms as practical tools of war, requiring less money, supplies and easily being intimidated or indoctrinated, while having extraordinary fighting attributes (small size, quickness, indiscernibility) at the same time.

A properly built robot would possess many of these features. Modern technology is ever improving, and machines require less and less energy or other resources for functioning over

time. Also, robots do not need to be indoctrinated or commanded in a way humans do, as they would not hesitate executing orders they are programmed to on a moral basis. As we have highlighted before, this ability affects children's rights in a detrimental way within a systematic approach, but is, in fact, useful for decreasing the demand for child soldiers. Investing in lethal autonomous technologies therefore may contribute to repel the exploitation of children in armed conflicts in many ways. It is, however, still a matter of question how overall benefits and disadvantages scale. Let us move on to the next point to see the bigger picture.

3.5 Child soldiers - new perspective on the right to life

The last chapter before our conclusion undertakes to give an introduction on a long debated legal dilemma that may not seem to be tightly connected to our topic at first sight, but which is key to our current research. The question is simple, but not quite easy to answer: can a robot shoot down a child soldier, and if so, then in which cases?

Some experts on IHL reading the current research may wonder what relevance the question has in case of human beings bearing arms, whereas human rights advocates may get horrified simply by thinking about such a scenario. Scharre, having great expertise in the topic of killer robots and coming from a military background, considers such a step rather immoral but something a robot would feel legal to take, as anyone may be targeted who actively takes part in hostilities (Scharre, 2019). He considers there is nothing unlawful about killing a child on an observatory mission of the Taliban herding goats, visibly without bearing any arms.

From the perspective of humanitarian law, one qualifies as a legitimate target of any age, if one has a combatant status. ICRC-codified customary IHL states that a combatant is necessarily member to an armed group (excluding medical and religious personnel).⁶³ In the case of state armed forces it is relatively easy to determine who counts as a member - not so much in often unorganized rebel groups, in which we can find most of the underage soldiers. The ICRC advises it is best in a legal sense to consider one without a clearly established status to be viewed as civilian (Dénéreaz, 1998).

Geneva Convention III sets out the following criteria for combatants: they are commanded by a responsible superior, can be recognized from afar, bear arms openly and acts

⁶³ ICRC, 2005, para. 3.

according to the laws and customs of armed conflict. If at least one of these criteria is not fulfilled, the combatant status of that person is at least doubtful. From a humanitarian perspective, children to which all presumptions apply can be targeted with no deliberation (Csapó, 2011). It is rather uncertain what to do if individual points are not clear, but the intention and role of a child (or a person in general) of a military character is obvious. Given the fact that recruiting child soldiers is customarily illegal in some degree (and in many countries all forms is illegal thereof), it is also worth mentioning that:

“If members of an armed group permanently disregard provisions of humanitarian law, and do not prosecute persons of such behavior, it signals that this group cannot be included within the notion of ‘armed forces’ (...) and their members should not be viewed as combatants.”⁶⁴ (Own translation)

All in all, children should, in many cases, be viewed as civilians rather than combatants. Of course, this does not exempt them from the rules of IHL, as civilians temporarily taking a direct part in hostilities lose their protected status for that period.⁶⁵ The ICRC confirms this position, claiming that children lose their protected status for as long as they take a direct part, given that they immediately regain it thereafter (Melzer, 2009). This only slightly changes our main point, but provides legal shelter against, for example, children being attacked on military bases while they are out of the fight.

Now let us take a look at what the Convention has to say on the matter. And then, we should discuss whether the Convention has validity over IHL, should there be any controversy. As we have mentioned earlier, certain provisions of IHL, that are focusing on protecting children in armed conflict, have been integrated to the text of the Convention through an explicit reference in article 38(1). It would therefore be impossible to invoke humanitarian law to overwrite or go against the requirements of the rights of the child, as parts of it are consciously highlighted and preferred. The Committee has emphasized in its general comment that *“there is no hierarchy of rights in the Convention; all the rights provided for therein are in the “child's best interests” and no right could be compromised by a negative interpretation of the child's best interests.”*⁶⁶ This means that the reference to IHL in the Convention ensures that it can

64 Gutman, Roy & Rieff, David (2002): Háborús bűnök. Zrínyi kiadó, Budapest, p. 153. Translated version of: Gutman, Roy & Rieff, David (1999): Crimes of War - What the Public Should Know. W. W. Norton & Company, New York.

65 ICRC, 2005, para. 6.

66 CRC/C/GC/14, para. 4.

only be invoked in a manner that is consistent with the purpose and provision, otherwise they cannot be viewed as a part of children's rights as specific rules replacing general ones (*lex specialis*), but - unlike the case of the ICCPR - they are simply in a legal contrast with the Convention, and thus are the two conflicting obligations. International legal contradictions are often resolved through the general law of treaties, providing that if two treaties conflict with each other, the former in time may only prevail to the extent that it does not conflict with the latter one. In our topic, this means that if (written) IHL does not serve the prevalence of the rights of the child, then the provisions of the Convention shall prevail.⁶⁷ In the case of customary law (which is a huge source of IHL), the question is a bit more complicated. We can suppose that if countries decide to partially change legal customs (of a rather dispositive nature) to stricter obligations in form of a treaty, the treaty may overrule customs in the relations between parties to it. This is even more so in case of near-universal instruments such as the CRC. Of course, we should not think that the Convention now prohibits war in all scenarios, as it actually prescribes actions to be taken in war - the Convention only expects states to take all feasible measures to protect children, and the lack of these measures themselves may count as more direct violations than the failure to perform an obligation itself. Under the convention, states take all feasible measures to protect the life of children in each and every case, including in armed conflicts where children are recruited as soldiers.

Grover, an outstanding advocate of children's rights affected by armed conflict, believes that the child is entitled to a special, privileged status as a particularly vulnerable member of the society (Grover, 2012). As controversial as it may seem, this view corresponds with the intention of the drafters of the Convention, or even the ICCPR, namely that children should receive protectionary measures to a higher extent than adults do (Lawson, 1996). In this sense, the act of recruiting children into armed forces is *ab ovo* of an illegal nature, and thus cannot change the protected legal status of a child. (Recruiting child soldiers is prohibited under the age of 15 under the Convention, but several other rules make this age limit stricter in the relations of numerous states who are party to them, including Optional Protocol II to the Convention, or Convention No. 182 of the International Labour Organization. Some even say, including the Committee, that the spirit of the Convention does not allow for recruitment of children at any age, which is subject to debate.) Grover concludes in her analysis that protecting the right to life of the child in wartime, reflecting the historical development of the norm, is of a *jus cogens* nature, given the near-universal validity of the Convention and also basic

67 1969 Vienna Convention on the Law of Treaties, article 30(3)(4).

humanitarian considerations evolving throughout history. However, she is not the only one indicating such trends in international law (see Nowak at page 26). Nowak also states that:

“Taking the recent trend in international law against the recruitment and use of child soldiers into account as well as the need to interpret the CRC in a holistic and systematic manner, including the principle of the best interests of the child, it seems difficult to maintain that the intentional killing of child soldiers in combat could be considered as a death ‘resulting from lawful acts of war’ (...) The recruitment of child soldiers, their direct or indirect participation in armed conflicts, and at least the intentional killing of child soldiers during combat must, therefore, be considered as an arbitrary deprivation of their right to life in Article 6 of the CCPR and a violation of the right of every child to life, survival and development under Article 6 of the CRC.”⁶⁸

Of course, the rightful practice of self-defense can be seen as an exception, to which Nowak’s wording implicitly refers as ‘not intentional’. Even Grover acknowledges that adult soldiers may lawfully defend themselves in lack of alternatives, if they are directly(!) threatened by a child (i.e. pointing their weapon towards them, ready to shoot). The basic values and the purpose of human rights would be defeated if children could take lives without victims defending themselves. It would also defeat the purpose of IHL, as if combatants may not have the privilege to attack one directly targeting them, the party recruiting more child soldiers would basically have the overall advantage and practical victory over the other party. (It would be defeated, just as much as if protected persons may be shot at any time, after some persons forcefully dressed them in a military uniform and killed their families.) And this is where our first question of the chapter comes into play: human soldiers (who are natural persons at the same time, in a sense of human rights law) have the right to self-defense, whereas exanimate military objects do not.

Let us return to our thought-experiment with a lethal autonomous drone, deployed by state forces, flying above the outskirts of a war-torn city. The drone takes notice of a child rebel around the age of 14, pointing its gun towards it while desperately trying to hide behind the corner of a house block. Now the robot has two options: either eliminate or be eliminated. If it chooses the latter option, the robot acts in an ethically correct way, but again, refuses to pursue the lawful purpose of war, namely to defeat enemy forces, and gives advantage to rebels who

⁶⁸ Nowak, Manfred (2015): A Commentary on the United Nations Convention on the Rights of the Child: Article 6 - The Right to Life, Survival and Development. Martinus Nijhoff Publishers, Leiden, para. 34.

most probably commit numerous crimes throughout their existence.⁶⁹ If it chooses the former option, however, then it takes the life of an underage person with a special protected status, who is most likely mercilessly forced into this situation. No life in particular is protected, and close to no military advantage is acquired.

Scharre concludes in his aforementioned analogy that a human would simply refuse to kill a child spy without any arms - for moral reasons, as he proposes - but a robot would most probably shoot. The dilemma on a legal level is that either way serious violations of international law occur when a killer robot faces a child soldier, as either the purpose of the Convention or general IHL is defeated, and it is hardly possible to pick one over the other; if such a decision is challenging even for a human, how much chance do we have that a robot without any human conscience would make the best choice possible?

The best legal solution seems to be avoiding the use of autonomous weapons, especially in conflicts where the recruitment of child soldiers by hostile forces is of high probability. Using killer robots in these places would seem as a conscious violation of the best interests principle and the right to life of the child, which amounts to blatantly violating the Convention.

69 The same dilemma has been raised by Armin Krishnan, who warns that robots refusing to shoot child soldiers give free rein for further recruitment (Krishnan, 2009, p. 110).

4. Summary

We have thoroughly looked at the most important questions of lethal autonomous weapons systems concerning the international rights of the child, including general principles and possible scenarios that may occur when deploying these systems, and which would most probably be contrary to the requirements of the Convention on the Rights of the Child. Before our last words, let us briefly digress to summarize and illustrate our thoughts by invoking a prominent principle of international law that can be very well applied in our topic. After that, we will make our suggestion to solve legal dilemmas mentioned throughout the paper.

4.1 The precautionary principle

The precautionary principle originates from international environmental law, and was clearly outlined in the 1970s (European Parliament, 2015). It suggests that *“states, for the sake of protecting the environment, do their best to widely strive for precaution. Where there is a threat of significant and irreversible damage, the lack of full scientific certainty may not be used as an excuse for delaying effective measures preventing environmental degradation.”*⁷⁰ (Own translation.) The principle can be found, with corresponding wording, in international agreements such as the Rio Declaration, the Treaty of Maastricht or its successor, the Treaty of Amsterdam.

In the core of the principle lies the concept that, for example in climate change, opinions vary on the severity, or even the existence of possible harmful effects of certain long-term processes, but many scientists warn unforeseeable consequences, which calls for decision-makers to prepare for these challenges despite the uncertainty on their exact degree. Decision-makers are required to take into consideration the widest variety of scientific resources, and take precautionary steps based on them, regardless of the lack of foreseeability of some effects. The principle serves the best interests of the child, as the complicated and reciprocal changes in the biosphere and their socio-economic consequences (e.g. increased dangers on health) will affect future generations, and many times children specifically (WHO, 2004). However, the principle bears universal values and imperatives, even outside the topic of climate change: if

⁷⁰ Dr. Sziebig, Orsolya Johanna: Environment protection in international law, part 2. http://eta.bibl.u-szeged.hu/1932/6/EFOP343_AP6_NET_Nemzetk%C3%B6zjogi_k%C3%B6nyvezetv%C3%A9delmijog_2.r%C3%A9sz_SziebigOJ_2019.pdf (05.31.2020)

advances in our world or our technology threaten us with irreversible damages, the best interests of the child calls for responsible decision-makers to take effective precautionary measures.

More concretely, the principle is also applicable to killer robots (HRW, 2014). Although climate change and the rise of AI weapons technologies are quite different topics, the effects of technological advances on a global scale are similarly incalculable. Experts are divided over the question of autonomous weapons: some say it would make war more humane, others warn a possible robot apocalypse. Future of Life Institute, an NGO concerned with the dangers of technology, launched a petition in 2017, calling for leading developers and CEOs to pledge to refrain from any contribution to lethal autonomous technologies. From over 110 CEOs, iconic figures such as Elon Musk and Mustafa Suleyman joined the pledge.

Throughout this research, we paid special attention to possible scenarios where the rights of the child may be violated to the extreme, including unexpected child behavior, damaging critical infrastructures or mass execution of child soldiers. These are the most iconic ones, but just a small portion of overall possible violations in war that can be specifically attributed to killer robots. Considering these examples, and also the holistic approach of the Convention and the relevance of the precautionary principle, we can observe that states and individuals leading the development of weapons systems and artificial intelligence shall take appropriate precautionary measures to ensure the safety and the prevalence of rights of children around the globe.

4.2 Conclusion

After careful considerations, we may come to a conclusion that, even though the use of lethal autonomous weapons could significantly contribute to protecting children from maiming and certain types of exploitation, the numerous disadvantages deriving from their use outweighs the possible benefits. Properly assessing the best interests of the child and making it prevail is always a rightful demand of international law, and the inherent right to life and special protection are of a higher order, as a prerequisite to the practice of any other right, and the protection of which killer robots would only negatively impact.

Analyzing the Convention on a level of principles and smaller details may seem idealistic in the context of war, where their rights are constantly violated. But the goal of human rights is protecting humans, and the goal of children's rights is to protect children as much as

possible. These goals cannot be pursued with a minimalist approach towards interpretation, or if we forget about the core principles guiding these regulations, from which they emerged in the first place. Humanitarian law is also based on the concept of protecting the life of those who are especially endangered by the brutality of armed conflicts. While combatants, adults who serve a given purpose with their lives, shall have the privilege to fight, those who are not devoted for that purpose, or are vulnerable, shall be kept as far away from war as possible. Even if war is inhumane by concept, it is necessary to set boundaries to it by abiding by humanitarian, and also human rights regulations. Good practices help to preserve humanity in humans, and maybe even a spirit of childhood in children.

In an armed conflict, parties are unable to fully comply with human rights standards that have been set in peacetime, but this does not mean that any actors may refrain from trying to do so. It is a duty of all actors to make these rights prevail to the highest extent possible, and the lack of intent arises legal responsibility, even more than the case of non-compliance itself. Introducing killer robots on the battlefield would launch tendencies towards wars without any compassion, moral or legal judgement, degrading human life, and especially children's life to something that can be systematically taken by an organized aggregation of inorganic matter and calculations. This would demolish the noble goal that drafters of international treaties and preservers of legal customs intended to serve. The key dilemma on a legal level is not of occasional casualties itself; it is rather the intentional and conscious intention to apply a technology that lacks human control and a solid basis to protect the rights of the child. Taking the life of a child without properly understanding what a child is and what scale such a decision has is inconsistent with the principles and rules of the Convention.

The only effective tool for preventing such violations seems to be a *comprehensive instrument of prohibition* on killer robots. Many of the dilemmas raised in the current research cannot be solved by any form of compromise regulations due to their basic character that derive from the existence of killer robots themselves, rather than specific conditions. The chance of these violations would be high in many circumstances; therefore the protection of children can be most effectively realized by a ban on killer robots.

If decision-makers may not find these principles and written clauses as a sufficient basis for preventing these violations to happen by banning killer robots, we need to inquire if it makes any sense to talk about a child rights context at all. For how is it possible to protect the rights of the most vulnerable of human beings - inhumanely?

Bibliography:

- Andersson, Cecilia (2014): *Killer Robots - Autonomous Weapons and Their Compliance with IHL*. Lund University, Lund.
- Arnold, Roberta & Quéniwet, Noëlle (editor) (2008): *International Humanitarian Law and Human Rights Law: Towards a New Merger in International Law*. Koninklijke Brill NV, Leiden.
- Buerghenthal, Thomas (2001): *Nemzetközi emberi jogok*. Helikon Kiadó, Budapest.
- Csapó, Zsuzsanna (2011): *Weapons in Front, Weapons in Hand: International Law for the Protection of Children Affected by Armed Conflict*. STUDIA EUROPAEA, Pécs
- Doswald-Beck, Louise & Vité, Sylvain (1993): *International Humanitarian Law and Human Rights Law*. 30-04-1993 Article, *International Review of the Red Cross*.
- Dr. Almási, Ferenc (1990): *On Humanitarian Law*. Zrínyi Military Press, Budapest.
- Dupuy, Kendra E. & Peters, Krijn (2010): *War and Children: A Reference Handbook*. Praeger Security International, Oxford.
- Goodfellow, Ian J. & Shlens, Jonathon & Szegedy, Christian (2015): *Explaining and Harnessing Adversarial Examples*. Google Inc., Mountain View.
- Frederick, Sharon (2001): *Rape: Weapon of Terror*. Global Publishing, Jacksonville.
- Grover, Sonja C. (2012): *Child Soldier Victims of Genocidal Forcible Transfer: Exonerating Child Soldiers Charged With Grave Conflict-related International Crimes*. Springer, Heidelberg.
- Gutman, Roy & Rieff, David (2002, translated): *Crimes of War*. Zrínyi kiadó, Budapest.
- Hannum, Hurst (1998): *The UDHR in National and International Law*. *Health and Human Rights Journal*, 1998;3(2):144-158. o.
- Human Rights Watch (2012): *Losing Humanity: The Case against Killer Robots*. International Human Rights Clinic, USA.
- Human Rights Watch (2014): *Shaking the Foundations: The Human Rights Implications of Killer Robots*. International Human Rights Clinic, USA.
- Human Rights Watch (2015): *Mind the Gap: The Lack of Accountability for Killer Robots*. International Human Rights Clinic, USA.
- Kovács, Péter (2016): *Public International Law*. Osiris Press, Budapest.
- Krishnan, Armin (2009): *Killer Robots*. Ashgate Publishing Limited, Farnham.
- Lawson, Edward (1996): *Encyclopedia of Human Rights, Second Edition*. Taylor & Francis, Washington DC.

Melzer, Nils (2009): Interpretive Guidance on the Notion of Direct Participation in Hostilities under International Humanitarian Law. ICRC, Genf.

Nowak, Manfred (2015): A Commentary on the United Nations Convention on the Rights of the Child: Article 6 - The Right to Life, Survival and Development. Martinus Nijhoff Publishers, Leiden.

Purves, Duncan & Jenkins, Ryan & Strawser, Bradley J. (2015): Autonomous Machines, Moral Judgment, and Acting for the Right Reasons. Springer Science+Business Media, Dordrecht.

Scharre, Paul (2018): Army of None - Autonomous Weapons and the Future of War. W. W. Norton, New York.

Singer, P. W. (2005): Children at War. Vintage Books, New York, 43-62. o.

Sparrow, Robert (2007): Killer Robots. Journal of Applied Philosophy, Vol. 24, No. 1, 2007.

Strawser, Bradley Jay (2010) Moral Predators: The Duty to Employ Uninhabited Aerial Vehicles. Journal of Military Ethics, 9:4, 342-368.

UNICEF (1996): The Best Interests of the Child: Towards a Synthesis of Children's Rights and Cultural Values. International Child Development Centre, Siena.

UNICEF (2007): Implementation Handbook for the Convention on The Rights of the Child. UNICEF Regional Office for Europe, Geneva.

WHO (2004): The precautionary principle: protecting public health, the environment and the future of our children. Regional Office for Europe of the World Health Organisation, København, 15-49. o.

Yakubova, Muhabbat Makhbudovna (2014): Education System of

Tajikistan During the Civil War: Students' Perspectives of Hardships. North Dakota State University, Fargo.

Online resources:

Cervantes-Duarte, Luisa & Fernández-Cano, Antonio (2016): Impact of Armed Conflicts on Education and Educational Agents: A Multivocal Review. https://www.researchgate.net/publication/307852443_Impact_of_Armed_Conflicts_on_Education_and_Educational_Agents_A_Multivocal_Review

Heffes, Ezequiel (2019): Compliance with IHL by Non-State Armed Groups: Some Practical Reflections at the 70th Anniversary of the 1949 Geneva Conventions. <https://www.ejiltalk.org/compliance-with-ihl-by-non-state-armed-groups-some-practical-reflections-at-the-70th-anniversary-of-the-1949-geneva-conventions/>

HRC (2013): Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns. https://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-47_en.pdf

<https://futureoflife.org/2017/08/20/killer-robots-worlds-top-ai-robotics-companies-urge-united-nations-ban-lethal-autonomous-weapons/?cn-reloaded=1>

<https://www.unicef.org/child-rights-convention/history-child-rights>

<https://u-szeged.hu/fejlesztisprojektek/efop-3-4-3-16-2016-00014/efop-3-4-3-16-2016-00014>

<https://www.armscontrol.org/act/2019-04/news/pentagon-asks-more-autonomous-weapons>

<https://www.cbc.ca/radio/ideas/killer-robots-march-into-uncharted-ethical-territory-1.5289804>

[https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_IDA\(2015\)573876](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_IDA(2015)573876)

<https://www.peacepalacelibrary.nl/library-special/the-martens-clause/>

<https://www.scmp.com/news/china/science/article/2172141/chinas-brightest-children-are-being-recruited-develop-ai-killer>

<https://www.stopkillerrobots.org>

<https://www.theguardian.com/commentisfree/2007/aug/18/comment.military>

<https://www.theguardian.com/technology/2019/dec/12/ai-end-uk-use-racially-biased-algorithms-noel-sharkey>

<https://www.youtube.com/watch?v=2NXKTnQtyDM>

<https://www.youtube.com/watch?v=kjRV9FzdQNk>

ICRC (2010): IHL and human rights law. <https://www.icrc.org/en/doc/war-and-law/ihl-other-legal-regimes/ihl-human-rights/overview-ihl-and-human-rights.htm>

OHCHR (1984): CCPR General Comment No. 14: Article 6 (Right to Life) - Nuclear Weapons and the Right to Life. <https://www.refworld.org/docid/453883f911.html>

Sparrow, Robert (2017): Ethics as a source of law: The Martens clause and autonomous weapons. <https://blogs.icrc.org/law-and-policy/2017/11/14/ethics-source-law-martens-clause-autonomous-weapons/>

Ticehurst, Rupert (1997): The Martens Clause and the Rules of Armed Conflict. <https://www.icrc.org/en/doc/resources/documents/article/other/57jnhy.htm>

UNHCR & UNICEF (2014): Safe & Sound: What States Can Do to Ensure Respect for the Best Interests of Unaccompanied and Separated Children in Europe. <https://www.refworld.org/pdfid/5423da264.pdf>

UNHCR (2018): Guidelines on Assessing and Determining the Best Interests of The Child. <https://www.refworld.org/pdfid/5c18d7254.pdf>

Wareham, Mary (2014): Killer Robots: Keeping Control of Autonomous Weapons <https://www.hrw.org/news/2014/08/21/killer-robots-keeping-control-autonomous-weapons>