



DOI: <https://doi.org/10.24833/0869-0049-2021-3-6-19>

Research article  
Received 17 May 2021  
Approved 14 August 2021

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# LETHAL AUTONOMOUS WEAPONS SYSTEMS AND INTERNATIONAL LAW

**INTRODUCTION.** *This research paper presents the authors view on the essence of the problems of modern international law regulation of lethal autonomous weapons systems (LAWS) and international arms circulation. The authors dwell upon various aspects of new technologies in the field of creating LAWS, outline the prospects for the solution of the current challenges, as well as give a legal assessment of the legality of new types of weapons, methods and means of warfare from the perspective of contemporary international law. The system and mechanisms of international law regulation of the military purpose products circulation are also analyzed in this scientific work.*

**MATERIALS AND METHODS.** *The subject of this study comprises international treaties, international customs, general principles of international law and national legislation of states. The study also includes the analysis of international acts of different nature, reports and other documents of international organizations, national authorities, scientific and educational*

*literature. The methodological basis of this study is a wide range of research methods, namely: formal-legal, formal-logical, comparative-legal and historical-legal. In addition, the researchers apply system, structural and functional methods, as well as methods of analysis and generalization.*

**RESEARCH RESULTS.** *The result of the study is the conclusion about the perspectives of developing a universal definition of LAWS, as well as a common approach to understanding their characteristics and parameters of human control, and also about the advantages of LAWS in the course of military operations and solving national security problems of states, primarily in terms of compliance with IHL rules, which all military personnel are required to strictly observe. It is also necessary to take into account the crucial role of the issues of secrecy and national security, while Article 36 of Additional Protocol I does not contain criteria for distinguishing new types of weapons from other types of weapons, for example, from those that have undergone multi-stage*

modernization. It can be stated that at present there are only separate and insufficiently effective mechanisms of international law regulation due to their voluntary basis. Therefore, national export control mechanisms are of paramount importance for the process of regulating the circulation of military purpose products, which is an essential element of national sovereignty.

**DISCUSSION AND CONCLUSIONS.** The authors come to the following conclusions: the existing provisions of IHL are fully applicable to LAWS; responsibility for the use of LAWS should be borne by the person who manages the robotic complex or «programs» and gives the order to use LAWS, but the specific forms and methods of human control should remain at the discretion of states; Article 36 of Additional Protocol I provides extremely limited opportunities to prevent the creation of new weapons systems, does not require any reporting and control format; research and development of new types of weapons are secret, and the acquisition or adoption of obviously or presumably indiscriminate weapons systems are not a violation, but rather a preparation for a violation or an activity of a controversial nature; fur-

ther improvement of the international law regulation of arms circulation should be developed by creating mandatory universal mechanisms of international law regulation that would prevent the uncontrolled circulation and illegal distribution of weapons, including their sale to terrorists.

**KEYWORDS:** lethal autonomous weapons systems, Inhumane Weapons Convention, new types of weapons, methods and means of warfare, military purpose products circulation, international arms trade and transfers, international humanitarian law, international security law, international economic law

**FOR CITATION:** Ivanov D.V., Korzhenyak A.M., Lapikhina E.S. Lethal Autonomous Weapons Systems and International Law. – *Moscow Journal of International Law*. 2021. No. 3. P. 6–19. DOI: <https://doi.org/10.24833/0869-0049-2021-3-6-19>

The authors declare the absence of conflict of interest.

## ПРАВО МЕЖДУНАРОДНОЙ БЕЗОПАСНОСТИ

DOI: <https://doi.org/10.24833/0869-0049-2021-3-6-19>

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Исследовательская статья  
Поступила в редакцию: 17.05.2021  
Принята к публикации: 13.08.2021

# СМЕРТОНОСНЫЕ АВТОНОМНЫЕ СИСТЕМЫ ВООРУЖЕНИЙ И МЕЖДУНАРОДНОЕ ПРАВО

**ВВЕДЕНИЕ.** В данной статье представлен авторский взгляд на сущность актуальных проблем в сфере современного международно-правового регулирования смертоносных автономных систем вооружений (САС) и международного оборота оружия. Авторы рассматривают различные аспекты новых технологий в области создания смертоносных автономных систем вооружений, определяют перспективы их решения, а также дают правовую оценку законности новых видов оружия, методов и средств ведения военных действий с точки зрения современного международного права. В статье также анализируются система и механизмы международно-правового регулирования оборота продукции военного назначения.

**МАТЕРИАЛЫ И МЕТОДЫ.** Предметом настоящего исследования выступают международные договоры, международно-правовые обычаи, общепризнанные принципы международного права, национальное законодательство государств. В предмет исследования также входят международные акты рекомендательного характера, доклады и иные материалы международных организаций, национальных министерств и ведомств, научная и учебная литература. Методологическую основу данного исследования составил широкий круг исследовательских методов, а именно: формально-юридический, формально-логический, сравнительно- и историко-правовой. Кроме того, авторами применены системный и структурно-функциональный методы, а также методы анализа и обобщения.

**РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЯ.** Результатом проведенного исследования является заключение, во-первых, о целесообразности разработки универсального определения САС, общего подхода к пониманию их характеристик, возможностей боевого применения и параметров человеческого контроля, во-вторых, о наличии преимуществ САС в ходе проведения военных операций и решения задач национальной безопасности государств, прежде всего с точки зрения соблюдения норм международного гуманитарного права (МГП), которые все вооруженнослужащие обязаны строго соблюдать даже в случае

ведения боевых действий с применением САС. Необходимо также учитывать первостепенное значение вопросов секретности и национальной безопасности, при том, что ст. 36 Дополнительного протокола I не поясняет, подпадают ли вооружения, прошедшие модернизацию, под предусмотренные ею правовые обзоры. Она также не содержит критериев отличия новых видов оружия от таких вооружений. Поэтому важное значение в процессе регулирования оборота продукции военного назначения играют национальные механизмы экспортного контроля.

**ОБСУЖДЕНИЕ И ВЫВОДЫ.** В ходе исследования авторы приходят к следующим выводам: существующие положения МГП полностью применимы к САС; ответственность за применение САС должно нести лицо, которое управляет роботехническим комплексом или «программирует» и отдает приказ на применение САС, но конкретные формы и методы контроля со стороны человека должны оставаться на усмотрение государств; учитывая, что особенностью САС является задействие в них новых технологий, важное значение отводится статье 36 Дополнительного протокола I, которая, однако, сформулирована общо и не предполагает какой-либо отчетности и процедур верификации; приобретение или принятие на вооружение очевидно или предположительно неизбежных систем оружия не является существенно нарушением, а могут расцениваться как действия по подготовке к нарушению; в дальнейшем международно-правовое регулирование оборота оружия следует развивать в направлении создания обязательных универсальных механизмов международно-правового регулирования, которые предотвратили бы неконтролируемый оборот и незаконное распространение оружия, включая продажу его террористам.

**КЛЮЧЕВЫЕ СЛОВА:** смертоносные автономные системы вооружений, Конвенция о «негуманном» оружии, новые виды оружия, методы и средства ведения военных действий, оборот продукции военного назначения, международная торговля и поставки оружия, международное гуманитарное

*право, право международной безопасности, международное экономическое право*

**ДЛЯ ЦИТИРОВАНИЯ:** Иванов Д.В., Корзеньяк А.М., Лапихина Е.С. 2021. Смертоносные автономные системы вооружений и международное

право. – *Московский журнал международного права*. № 3. С. 6–19. DOI: <https://doi.org/10.24833/0869-0049-2021-3-6-19>

*Авторы заявляют об отсутствии конфликта интересов.*

## 1. Introduction

Throughout history and at the present time wars and armed conflicts have been an unavoidable companion of people that entails death, suffering, violence and disaster to a huge number of people.

In view of the global transformations of the modern world the increasing pace of the scientific and technological progress, as well as changes in the economic and political environment the system of agreements in the field of strategic stability and non-proliferation has become subject of fundamental changes. In the context of the current political situation we observe: 1) the lowering of the threshold for the use of nuclear weapons; 2) the withdrawal of the US from the INF Treaty<sup>1</sup>; 3) their refusal to ratify the CTB<sup>2</sup>; 4) the collapse of the Iran «Nuclear Deal»; 5) the refusal to negotiate in order to prevent the deployment of weapons in outer space and the creation of the US Space Force (USSF); 6) the presentation of the new Space Defence Strategy of France<sup>3</sup>; 7) the ongoing military operations in the east of the Ukraine, in Iraq, Afghanistan, Yemen, Libya and many other armed conflicts. The combination of all these facts does not let us forget about the inhumanity of war and its irreversible and irreparable consequences. Therefore, such questions are not removed from the agenda as the necessity of strict and faithful observance of the existing provisions of international humanitarian law (IHL), the achievement of the balance between the national security issues and humanitarian considerations, as well as joint responsibility of all states for the maintenance of international peace and strengthening the global security and strategic stability.

With the beginning of 2020 the world community has entered a qualitatively new stage. In 2020–2021 the review cycles of the fundamental international documents are being completed (the Treaty on the Non-Proliferation of Nuclear Weapons, 1968 (NPT), the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, 1972 (BTWC), the Convention on Certain Conventional Weapons (the Inhumane Weapons Convention), 1980 – CCW). The prospects for strengthening the non-proliferation regimes of weapons of mass destruction (WMD) and the future of global security will depend on the results of the joint work.

## 2. The issue of new technologies including LAWS in the modern international law

Over the past decades the world has accelerated the emergence of technologies that can give unique capabilities to traditional weapons. Artificial intelligence, machine learning, image recognition programs, algorithms for analyzing large amounts of data, network interaction technologies, broadband communications, satellite navigation and new ultra-sensitive sensors create conditions for replacing soldiers on the battlefield and affect the course of armed conflicts.

Nowadays one of the most relevant issue in the context of acceptable means and methods of warfare are **lethal autonomous weapons systems** (LAWS). The debate and opinions about LAWS continue to evolve. After several rounds of informal discussions in 2014–2016 under the auspices of the CCW a Group of Governmental Experts (GGE) was established at

<sup>1</sup> Treaty Between the Union of Soviet Socialist Republics and the United States of America on the Elimination of their Intermediate-Range and Shorter-Range Missiles dated December 8, 1987.

<sup>2</sup> Comprehensive Nuclear-Test-Ban Treaty dated September 24, 1996.

<sup>3</sup> See also: Military Program Act 2019–2025. URL: [https://www.defense.gouv.fr/content/download/523961/9053454/file/MPL%202019-2025%20-%20Synopsis%20\(EN\).pdf](https://www.defense.gouv.fr/content/download/523961/9053454/file/MPL%202019-2025%20-%20Synopsis%20(EN).pdf) (accessed 26.02.2021).



the 5th Review Conference of the (CCW)<sup>4</sup> on 21 December 2016. The GGE has a mandate to discuss further the questions related to emerging technologies in the area of LAWS in the context of the objectives and purposes of the CCW.

In spite of the fact that GGE has been working since 2016 this issue remains controversial. There is no consensus among the States Parties to the CCW on the need to create a new regulation. The authors believe this is reasonable to restrain from reaching any legally binding agreements due to the lack of prototypes of such systems, difficulties of establishing definitions and drawing a clear «watershed» between military and civilian use of emerging technologies in the development of autonomous systems. At the same time, it is necessary to take appropriate measures in order not to harm scientific and technological progress in the field of information technology, artificial intelligence, peaceful robotics<sup>5</sup>, etc. [Chun, Papanikolopoulos 2016:1605-1626].

There is a consensus among states that the existing provisions of international humanitarian law (IHL) are fully applicable to LAWS (agreed by the GGE<sup>6</sup>). At the same time states continue to have different views on whether the existing regulation is sufficient. Some of them believe that due to the unique capabilities of new technologies LAWS potentially can go beyond human control which will bring the world to catastrophe. Therefore, a group of states insists on starting negotiations towards a legally binding ban of LAWS. Other states have a position that a political declaration or a kind of «code of conduct» are needed to prevent potential breach of IHL by using LAWS. At the same time the practical development in the sphere of emerging technologies including weapons with autonomous functions demonstrates no indication that an additional or new legally binding regulation is necessary. IHL provides the necessary framework for the development and application of LAWS<sup>7</sup> (AP-I<sup>8</sup>,

Art. 36). So, the development of any legally and even politically binding document to this effect is impractical and counterproductive, including the introduction of various moratoriums on the development and use of technologies which have been developed to create such systems, and discussions on the «code of conduct» on LAWS are also premature.

No doubt that the development of the definition of the «meaningful human control» will face serious difficulties due to the absence of more or less universally recognized criteria as to what degree of such control should be considered meaningful. At the same time, it is obvious that, human control is a fundamental condition and constraint for the use of LAWS in conformity with IHL. Consequently, the responsibility for the use of LAWS should be imposed on the person who operates or programs an autonomous system, but the development of universal criteria for determining the appropriate level of «significance» of human control over the machine is almost impossible and far from the reality. At the same time, it would be more logical and realistic to leave specific forms and methods of human control to the discretion of the states, which in practice will rely on their own standards in this area [Riebe, Schmid, Reuter 2020:36-51].

The United Kingdom, Germany, Israel, Russia, France, the United States, South Korea and Japan are against a total ban on LAWS, i.e. those countries that conduct large-scale and significant R&D (research and development) in this area and actively finance innovative weapons. A number of these countries have established temporary moratoriums on the creation of fully autonomous LAWS, but the possibility of their creation in the future is not excluded. 26 countries (for example, Austria, Argentina, Brazil, Bolivia, etc.) [Nash 2015:118] and the only member state of the UN Security Council – China – insist on a complete ban [Roff 2015: 47, 50-51].

<sup>4</sup> See also: Sandoz Y. Introductory Note to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects (with Protocols), 1980. (In Russ.). URL: [http://legal.un.org/avl/pdf/ha/cprccc/cprccc\\_r.pdf](http://legal.un.org/avl/pdf/ha/cprccc/cprccc_r.pdf) (accessed 28.02.2021).

<sup>5</sup> Vorontsov K. Talking points. – *Rio Seminar on Autonomous Weapons Systems*. February 20, 2020. P. 187-190. URL: [http://funag.gov.br/biblioteca/download/laws\\_digital.pdf](http://funag.gov.br/biblioteca/download/laws_digital.pdf) (accessed 26.01.2021).

<sup>6</sup> In 2018 and 2019 were adopted two significant GGE Reports that contain 11 guidelines for LAWS. See: UN: Background on LAWS in the CCW. URL: <https://www.un.org/disarmament/the-convention-on-certain-conventional-weapons/background-on-laws-in-the-ccw/> (accessed 26.01.2021).

<sup>7</sup> Potential opportunities and limitations of military uses of lethal autonomous weapons systems. Submitted by the Russian Federation. Geneva, 25-29 March 2019. Item 5 of the provisional agenda. URL: <https://undocs.org/Home/Mobile?FinalSymbol=CCW%2FGGE.1%2F2019%2FWP.1&Language=R&DeviceType=Mobile> (accessed 26.02.2021).

<sup>8</sup> Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I) dated June 8, 1977. By the way, it has not been ratified by the United States and such states as Israel, India, Iraq, Iran, Turkey, etc., on the territory of which there are ongoing armed conflicts.

At the same time, it is important to encourage the development of a common definition of LAWS and to maintain a dialogue on the characteristics of LAWS, their military application and human control. Otherwise, each state will have its own understanding of the LAWS and its own guidelines, which can lead to unpredictable consequences and misunderstandings. Moreover, that can result in a subjective division of weapons into permissible and prohibited, «good» and «bad», on the basis of **political preferences**. In addition, as a substantive remark can be considered the inapplicability to the work on LAWS of such a frequently cited example as the CCW Protocol IV on Blinding Laser Weapons<sup>9</sup>, since this document, as is well known, prohibited not the laser weapon itself, but the extremely specific case of its use – **for causing «permanent blindness» to human organs of vision**.

The Russian Federation<sup>10</sup> believes that potential LAWS can demonstrate greater efficiency than a human operator in solving tasks, can reduce the likelihood of errors and significantly diminish the negative consequences of using weapons in the context of IHL which are related to the mental and physiological state of the operator, his moral, religious, ethical attitudes [Umbrello, Torres, De Bellis 2020:273-282]. The use of highly automated technologies can improve the accuracy of targeting weapons aimed at military targets as well as help reduce the likelihood of unintentional attacks on the civilian population and civilian objects [Mull 2018:461, 498]. Along with the destruction of military facilities and protection of the civilian population, the potential areas of the use of LAWS are defence and protection of strategically important objects (nuclear power plants, dams, bridges, etc.), as well as elimination of terrorist groups, fight against mine hazards, etc. Existing military systems with a high degree of automation should not be classified as a «special» category that needs immediate restrictions and prohibitions. This level of automation allows such systems to operate in dynamic combat conditions and in various environments with a high degree of efficiency which is often not available to humans, thereby ensuring an

appropriate degree of selectivity and enhancing the accuracy of weapons directed against military objectives, and, as a result, enabling their compliance with the core principles and rules of IHL [Combe II 2019:35-68].

The discussions in the GGE on LAWS are limited to fully autonomous systems, according to the mandate of the Group. They are proposed to be understood as «unmanned technical means that are not ammunition and are designed to perform military and supportive tasks without any operator involvement». In this regard, it is unacceptable to discuss the subject of unmanned aerial vehicles in the context of LAWS in the framework of the CCW, since they are a special case of highly automated systems and do not belong to the LAWS.

At this stage the main problem with the work on LAWS is the speculative nature of the discussions, which is due to the lack of both actually operating LAWS and a common understanding of their working definition and basic functions [Wood 2020:220-240]. There are states that include into LAWS classification semi-autonomous and automated systems and believe that such elements already exist and are widely used. Others believe that there are no such systems and that real LAWS with a high level of artificial intelligence is a matter of the future [Skuratova, Korol'kova 2019:24-26]. For example, the **Ministry of Defence of the Russian Federation** uses such working definitions as «autonomous weapons system», «semi-autonomous weapons system», «autonomous unmanned underwater vehicle», «autonomous spacecraft», but none of them applies to unguided ammunition; ammunition controlled by a human operator (for example, laser-guided or wire-guided ammunition); mines, unexploded ordnance. **The definition of the LAWS only through the function of selecting the target and the command to kill is not appropriate**, since this will signal that these functions of machines are exclusively reserved for humans, whereas these missions are better conducted by machines in certain conditions. And then we will have to include already existing highly automated combat systems in the concept of LAWS.

<sup>9</sup> Protocol on Blinding Laser Weapons (Protocol IV to the 1980 Convention) dated October 13, 1995. URL: [http://www.weaponslaw.org/assets/downloads/1995\\_CCW\\_Prot\\_IV.pdf](http://www.weaponslaw.org/assets/downloads/1995_CCW_Prot_IV.pdf) (accessed 26.02.2021).

<sup>10</sup> Potential opportunities and limitations of military uses of lethal autonomous weapons systems. Submitted by the Russian Federation. Geneva, 25-29 March 2019. Item 5 of the provisional agenda. URL: <https://undocs.org/Home/Mobile?FinalSymbol=CCW%2FGGE.1%2F2019%2FWP.1&Language=R&DeviceType=Mobile> (accessed 26.02.2021).

### 3. Legal regime of new types of weapons, methods and means of warfare from the perspective of contemporary international law

Since LAWS are based on emerging technologies, they must be capable of being used in compliance with IHL. Article 36 of Additional Protocol I of 1977 (AP-I) is of great importance in this regard. It provides that each State Party is required to determine whether the employment of a new weapon, means or methods of warfare that it studies, develops, acquires or adopts would, in some or all circumstances, be prohibited by international law. Legal reviews of new weapons, including new technologies of warfare, are a critical measure for states to ensure respect for IHL. At the same time Article 36 contains neither criteria for distinguishing new types of weapons from other types of weapons, such as those that have undergone multi-stage modernization, nor provides any specific reporting format. The determination of new types of weapons, methods and means of warfare remains at the discretion of the participating states. Those provisions of the Article that relate to the research, development and creation of new types of weapons are not subject to control and verification, since these stages of creating weapons are strictly confidential. In turn, the acquisition or adoption of apparently or presumably indiscriminate weapons systems does not constitute a violation in itself, but rather can be seen as a preparation for a violation or an activity of a controversial nature, since a violation involves precisely the use of these weapons in an armed conflict. Because of the general character of Art. 36 AP-I, it seems to be problematic to assess whether this article can provide enough opportunities to prevent the creation or acquisition of new or high-tech upgraded weapons systems. There is no generally accepted and universally recognized practice in this area. The question whether the obligation to conduct a legal review reflected in Art. 36 should be qualified as a State's obligation under customary international law remains open and requires further discussion [Jevg-levskaja 2018:186-221].

At the same time Art. 35 of AP-I states that the right of the Parties to the conflict to choose methods and means of warfare is not unlimited.

All the principles and restrictions of modern IHL are fully applicable to LAWS. In practice it means that such systems, their technical characteristics and capabilities determined by autonomation as well as their use during armed conflict must comply with the principle of protection of the civilian population against the effects of hostilities, the principle that prohibits the employment of weapons of a nature to cause superfluous injury or unnecessary suffering, must not cause widespread, long-term and severe damage to the natural environment (CCW, preamble).

Modern IHL is based on the balance between minimizing the negative consequences of warfare, i.e., its «humanization» and the need to ensure national security. A shift towards one of them may cause insufficient level of protection of civilians in armed conflict or infringement of legal security interests.

For example, the US administration is currently giving priority to the development of high-tech weapons following the implementation of the US Department of Defense directives on maintaining competitiveness and ensuring global military dominance [Wyatt 2020:1-20; Nash 2015:115-122]. The Pentagon plans to implement «artificial intelligence» technologies widely in the activities of the US Armed Forces<sup>11</sup>. In turn, over the past decade a practice of «*pre-emptive self-defence, which is incompatible with the laws and customs of warfare*» has been developed by the counter-terrorism operations in the United States, which means the use of armed drones in case of an alleged or anticipated terrorist attack.

Due to the lack of the definition of lethal autonomous systems in international law, many analysts often rely on the functional concept of weapons system autonomy that was put forward by the United States and the International Committee of the Red Cross (ICRC). It is based on a «target selection cycle» without human participation «targeting cycle» (or F2T2EA – find, fix, track, target, engage, assess)<sup>12</sup>. Such vague assumptions in the definition already raise a number of questions: 1) How can the distinction between «autonomous» and «highly automated» weapons be legally defined? 2) How can «automatic execution» of functions be distinguished from the

<sup>11</sup> «Smart systems», such as, for example, «*Project Maven*», which develops computer vision algorithms for analyzing video recordings from drones to support the US military operations against IS in Iraq and Syria, explaining this by the need to improve the effectiveness of national security.

<sup>12</sup> F. Sauer is a Professor at the Bundeswehr University of Munich. Based on the materials of the Russian Embassy in Germany «To discussions on the regulation of lethal autonomous weapons systems in Germany», 2018.

artificial intelligence? Which of these are clearly defined and predictable algorithms, and which include independent decision-making about carrying out a fire attack? 3) Can we say that the algorithm of machine behavior, which was laid down by the developer of the program, means human control?

Despite the fact that LAWS are now seen as weapons of the future with a strike effect and highly mobile platforms and given the fact that the United States are not in favor of developing a legally binding document prohibiting the use of LAWS, they will act in the interests of their own foreign policy, national security and a favorable strategic position, strengthening their influence and leverage on the world stage<sup>13</sup>. In general, the US arguments are similar to the position of the most developed countries in scientific, technical and military-strategic terms (including Russia). In particular, they emphasize that automation of functions can be used both to improve the accuracy of the weapon itself, and for the correctness and timeliness of human decision-making in stressful and urgent situations<sup>14</sup>.

The proposed definitions include already existing military air defense systems (for example, the «Patriot» used by the Bundeswehr of Germany) [Alwardt, Polle 2018:133-139] or systems for suppressing enemy radar stations (for example, the Israeli «Harpy»). Some hypersonic and space vehicles<sup>15</sup>, which are being developed today, may potentially belong to LAWS, that is, some time later, in the absence of clear definitions, but only vague and unnecessarily broad concepts, most weapons may fall under the definition of LAWS. As a result, any remotely controlled vehicle can potentially be called an autonomous combat robot. However, at the same time, it is also necessary to pay attention to the following key aspects of the problem under study:

1) **IHL describes in detail the rules of warfare**, and all military personnel are required to strictly comply with these rules and principles of IHL, even in the case of combat operations with the use of LAWS. International law also makes it possible to identify the person responsible for the war crimes, including those committed with the use of autonomous robots. Modern management and control tools allow to record the entire process of using a combat robot that may simplify in the future the issue of responsibility for possible violations.

2) **Issues of secrecy and national security** will always dominate for each state, so an effective control over the weapons systems software of the armies of various countries in the world is impossible for both political and technical reasons. In addition, you need professional expertise in order to identify LAWS, meanwhile, the use of autonomous weapons can be hidden or classified. It is important to maintain the balance between the considerations of humanity and national security interests.

#### **4. International law aspects of international circulation of military purpose products (MPP)**

In the context of the subject matter of this study it is important to keep in mind that before the formation of the UN international law regulation of the circulation of military purpose products (MPP) was mainly carried out in the field of international humanitarian law and was associated with the introduction of prohibitions and restrictions on the use of certain types of weapons. This trend was continued after the Second World War, as evidenced by the adoption of such fundamental instruments as the Treaty on the Non-Proliferation of Nuclear Weapons, 1968 (NPT), the Convention on the Prohibition

<sup>13</sup> U.S. working papers to the CCW GGE: Implementing International Humanitarian Law in the Use of Autonomy in Weapon Systems, March 28, 2019, CCW/GGE.1/2019/WP.5, URL: <https://undocs.org/CCW/GGE.1/2019/WP.5>. Human-Machine Interaction in the Development, Deployment and Use of Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, Aug. 28, 2018, CCW/GGE.2/2018/WP.4, URL: <https://undocs.org/CCW/GGE.2/2018/WP.4>; Humanitarian benefits of emerging technologies in the area of lethal autonomous weapon systems, March 28, 2018, CCW/GGE.1/2018/WP.4, URL: <https://undocs.org/pdf?symbol=en/CCW/GGE.1/2018/WP.4>; Autonomy in Weapon Systems, Nov. 10, 2017, CCW/GGE.1/2017/WP.6, URL: <https://undocs.org/en/CCW/GGE.1/2017/WP.6>. Characteristics of Lethal Autonomous Weapons Systems, Nov. 10, 2017, CCW/GGE.1/2017/WP.7, URL: <https://undocs.org/en/CCW/GGE.1/2017/WP.7> (accessed 08.03.2021).

<sup>14</sup> A number of international experts, in particular, Professor Ron Arkin, a roboticist from the Georgia Institute of Technology, admit that LAWS can more effectively comply with the provisions of IHL and the principles of the use of force, since they are not subject to stress, their sensors are often more accurate than human senses, and software based on artificial intelligence allows to limit the use of weapons with specified parameters.

<sup>15</sup> In particular, Boeing X-37B Orbital Test, Vehicle X-43A Hypersonic Experimental Vehicle, stationary combat robots, for example, Katlanit robotic machine gun towers in Israel, Samsung SGR-A1 in South Korea or Common Remotely Operated Weapon Station (CROWS) in the United States.



of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, 1972 (BTWC), the Inhumane Weapons Convention, 1980 – the Convention on Certain Conventional Weapons (CCW) and its five Protocols (two prohibitive ones – on Non-X-ray Detectable Fragments and Blinding Laser Weapons – and three restrictive ones, but the state must agree to be bound by at least two protocols and not all of them); the Paris Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, 1993 (the Chemical Weapons Convention – CWC).

In general, the circulation of MPP before the formation of the UN and during the Cold War was not limited in any way, although some attempts were made to establish common criteria for the weapon transfers. For instance, some hypotheses were put forward for the introduction of a ban on the weapon transfers to a state that launched military operations against another independent state. In other words, it is the question of aggression, the definition of which was unanimously adopted at the XXIX session of the UN General Assembly in 1974. Hence, an act of aggression on the part of an arms-importing state should be considered as the main factor in addressing the issue of weapon transfers, and thus any arms transfers to an aggressor state should be stopped.

However, the attempts to define common criteria for the weapon transfers were doomed to failure, since states could not reach a consensus due to the imbalance of forces in the world and the desire of states to ensure their security by all available means. The idea of limiting the weapon transfers was not implemented to a large extent due to the confrontation between the USSR and the United States. The instrument «On Practical Ways to End the Arms Race. Proposals of the Soviet Union», which was presented at the UN General Assembly session on Disarmament in 1978<sup>16</sup>, is significant and historically important in this regard, because it emphasized the need to develop reasonable and precise political and international law *eligibility criteria for the international arms trade and transfers*.

In the 1990s, the priorities changed, and the international community began to strive not for the direct restriction of the arms trade, but for the increase

in the *sales transparency* [Bothe, Marauhn 1993:23]. In this area, a number of regimes have been developed to regulate the circulation of certain types of weapons, but in general this position also reached an impasse due to the *lack of political will and mandatory control mechanisms*. Many states were not ready to provide relevant reports on a voluntary basis.

At present we can say that the international law regulation of the MPP circulation is possible only in terms of certain issues where the interests of particular states within the international system coincide. The main objectives of international law regulation in this area consist in the regulation of the MPP transfer and circulation, including the establishment of restrictions or prohibitions on the distribution of certain types of MPP, the implementation of which is carried out through the national export control mechanisms.

At the same time, the main source of international law in this area are international treaties that provide for the obligations of states to limit the transfers of MPP, as well as the responsibility to the international community for non-compliance with the assumed obligations. They should be distinguished from the contracts between states for the supply of military purpose products since the latter establish specific private obligations between the subjects of emerging legal relations and cannot be considered as a source of international law.

In the context of the *international economic law*, we can distinguish two groups of international treaties in the field of MPP circulation: 1) general normative ones – i.e., *trade agreements* in the sphere of arms circulation, agreements on the organization of arms supply and exchange; 2) agreements in the area of *military-technical cooperation*. At the same time, it should be noted that in fact most of the existing principles, on which the international law regulation of the MPP circulation is based, exist in the form of the *international custom*, which is also the main source of international law.

As the object of the international law regulation of the MPP circulation should be considered a system of *economic relations of a public-law nature between the subjects of international law in the sphere of the MPP circulation*. Economic relations in the area of the MPP circulation include *trade relations* in which a state satisfies its needs for weapons and

<sup>16</sup> UN: Resolutions and Decisions adopted by the General Assembly during its Tenth Special Session. 23 May-30 June 1978. URL: <https://www.un.org/disarmament/wp-content/uploads/2017/05/A-S10-4.pdf> (accessed 08.03.2021).

military equipment by purchasing them from another state<sup>17</sup>.

**There are two areas of the legal impact on the MPP circulation in international law:**

1) *the establishment of restrictions and prohibitions on the circulation of certain types of weapons*<sup>18</sup>, which is regulated by such branches of international law as *international security law and international humanitarian law* (herewith, most international treaties in this area apply only to such categories of weapons, *the rapid increase of which poses a higher threat to the security of states than the proliferation of conventional weapons*, thus, the withdrawal of certain types of MPP<sup>19</sup> from the foreign economic turnover prevents a potential threat to the international security and stability) [Hayashi 2017:127-137]. It is necessary to consider that the establishment of restrictions and prohibitions on the supply of certain types of weapons does not imply a total ban on the supply of other categories of weapons. The eligibility of the MPP circulation generally corresponds to the basic principles of international law, including the inalienable right of states to individual or collective self-defense in case of an armed attack (Article 51 of the UN Charter is based on this natural right) [Dinstein 2001:140-146, 157-169, 183-192, 213-226].

2) *the regulation of economic relations between the subjects of international law regarding the supply and transfer of the allowed for circulation MPP*, which is regulated by the norms of *international economic law* (IEL)<sup>20</sup>. Two key conclusions follow from this:

- about the application of the *principles of IEL* to this sphere (such as the development of international economic and scientific-technical relations between states, the principle of economic non-discrimination, the principle of freedom of organizational forms of foreign economic relations, etc.);

- about the predominance of *regional norms*<sup>21</sup> in the regulation of these relations due to the specifics of the MPP as an object of circulation and due to the manifestation of the consequences of globalization and internationalization of the economy precisely within the framework of specific socio-economic systems, *regional entities* or even *megaregional entities* in the context of the new integration processes.

Nevertheless, it should be noted that the legal regulation of the MPP circulation is not exclusively, but still mainly carried out by *domestic law*. International law regulates in this area only relations concerning general issues which affect the international interests as a whole or the interests of a group of states [Nayan 2019:9-54]. International law regulation of the circulation of conventional arms is limited only by the general organizational principles, thus providing the subjects with the opportunity to determine the procedure of their interaction independently, which is reflected in Article 5, Paragraph 2 of the Arms Trade Treaty.

The system of interstate relations in the sphere of the MPP circulation is determined not only by economic patterns and the need of states to ensure their own interests through the MPP circulation, but also by the need to ensure the security of peaceful coexistence and to reduce international tension [Shvydun 2019:736-748].

**The consensually willful establishment** of international relations in the sphere of military purpose products circulation is characterized by the **dominance of state interest** and is considered as an important means of ensuring the national security of the country. Military purpose products can function both as a guarantor of security maintenance and as a means of peace and security destabilization in certain states, regions or on an international scale. Nonetheless, the method of agreement within the

<sup>17</sup> Serov I.B. *Sovremennye mezhdunarodno-pravovye voprosy mezhdunarodnogo oborota oruzhiya*: diss.... kand. yurid. Nauk [Modern international law issues of international arms circulation: candidate thesis]. Moscow. 2018. P. 71-77. (In Russ.).

<sup>18</sup> International law regimes for disarmament, arms reduction and limitation, including the international regime for the non-proliferation of nuclear weapons (NPT) and other weapons of mass destruction, the regime for the prohibition of the development, production and stockpiling of bacteriological (biological), toxin (BTWC) and chemical (CWC) weapons and their destruction.

<sup>19</sup> Namely: 1) capable of causing excessive damage; 2) causing unnecessary suffering; c) being excessively injurious or having indiscriminate effects; d) capable of causing extensive, long-term and serious damage to nature.

<sup>20</sup> See, e.g., the Arms Trade Treaty (ATT), which establishes common international standards for the import and export of conventional weapons and forms the basis of the conventional mechanism of the system of international law regulation of the MPP circulation. URL: <https://unoda-web.s3-accelerate.amazonaws.com/wp-content/uploads/2013/06/English7.pdf> (accessed 26.02.2021).

<sup>21</sup> See, e.g., the European Convention on the Control of the Acquisition and Possession of Firearms by Individuals dated June 28, 1978.

system of international law regulation of the MPP circulation is characterized by a combination of general authorization for the supply of military purpose products, on the one hand, and prohibitions related to the supply of MPP for certain purposes, for certain subjects and to certain territories, on the other [Hayashi 2017:127-137].

At present there are several *universal mechanisms of international law regulation of the MPP circulation*<sup>22</sup>:

1) **the UN Register of Conventional Arms (UNROCA)**, established by the Resolution adopted by the General Assembly, 9 December 1991 (A/RES/46/36L), according to which the states undertake to provide information on their imports and/or exports of weapons<sup>23</sup>, which is used to assess the limit beyond which arms transfers can become «excessive and destabilizing» for international security in the global dimension<sup>24</sup>, although only a small number of states provide such reports.

2) **the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies**, signed in 1996<sup>25</sup>, according to which the states parties shall endeavour to ensure that the supply of goods enumerated in the lists of equipment and technologies does not contribute to the development or enhancement of military capabilities that undermine security and stability, and is not used to support such capabilities. This Arrangement does not create an institutional body with the authority to make binding decisions. The agreements reached within its framework are implemented through national export control mechanisms.

3) **Bans on the supply of weapons imposed by the decisions of the UN Security Council** (embargo)<sup>26</sup>.

A number of mechanisms of international law regulation of certain categories of weapons can also be identified within the framework of the international export control system: the Nuclear Exporters Committee, or the Zangger Committee (ZAC), the Nuclear Suppliers Group (NSG), the Australian

Group (AG), the Missile Technology Control Regime (MTCR) [Sultan 2019:63-83].

The arms trade control system involves the creation of methods for ensuring compliance with treaty obligations, established to prevent the prohibited for circulation MPP from transferring to other states or falling into the hands of non-state actors, to provide the states parties with the information on the fulfillment of the obligations by other states parties, to prevent and detect cases of violations.

The creation of an effective mechanism for the legal regulation of the circulation of conventional arms is a necessary part of national sovereignty, so the MPP circulation is one of those areas in which there is no well-established and developed international law framework and no effective mechanism for international law regulation [Mussington 1993:44-45]. States are responsible for using their national control systems regulating the transfer of conventional arms in order to comply with the ATT provisions.

The International code of conduct on Arms Transfers 2000 tried to codify general principles common for the regulation of transfer of MPP including dual-use technologies. According to this document such transfers may be conducted if the recipient observes such principles as compliance with international human rights standards and IHL, respect for democratic rights, respect for international arms embargoes and military sanctions, participation in the UN Register of Conventional Arms, commitment to promote regional peace, security and stability, opposition to terrorism, promotion of human development. The Code is not a legally binding act, does not create for states any obligations under international law. Principles mentioned above are not always of a consensual character. However, the compliance with IHL and the obligation to follow the decisions of the UN Security Council under Chapter VII on military embargo can, in our view, be considered as universally recognized and can serve as a basis for a potential transfer regime for LAWS including domestic regulation.

<sup>22</sup> Serov I.B. Op. cit. P. 93-105.

<sup>23</sup> These categories are: I. Battle tanks; II. Armoured combat vehicles; III. Large-calibre artillery systems; IV. Combat aircraft and unmanned combat aerial vehicles (UCAV); V. Attack helicopters; VI. Warships; VII. Missiles and missile launchers. See: United Nations Register of Conventional Arms: Categories of major conventional arms. URL: <https://www.unroca.org/categories> (accessed 26.02.2021).

<sup>24</sup> Serov I.B. Op. cit. P. 96.

<sup>25</sup> See: The Wassenaar Arrangement. URL: <https://www.wassenaar.org> (accessed 26.02.2021).

<sup>26</sup> In recent years the UN Security Council has adopted decisions on arms embargoes on Sierra Leone, Eritrea and Ethiopia, Iraq, Liberia and a number of other states. See also: [Yihdego 2007:115-132].

## 5. Conclusions

The significant contribution of states to the codification and progressive development of IHL and international security law is obvious, but against the current political background it is necessary to faithfully comply with the existing international law rules in order to achieve the balance between humanitarian issues and national security interests.

The issue of LAWS remains controversial due to the lack of prototypes of such systems, the complexity of developing definitions and drawing a clear distinction between military and civilian technologies, the importance of preventing from harming the scientific and technical progress in the field of information technology, artificial intelligence, and peaceful robotics. It is necessary to underline that the existing provisions of IHL are fully applicable to LAWS, and there is no indication that it is necessary to adapt the new legal rules to the «specifics» of these weapons systems: the issue rather concerns the effective enforcement and implementation of IHL rules and principles at the national level (where an effective enforcement and control mechanism is possible) and the political will on this subject of the states themselves. There are obvious advantages of LAWS in terms of their military application and solving national security problems of states, including compliance with IHL rules. Responsibility for the use of LAWS should be borne by the person who manages the robotic complex or «programs» and gives the order to use LAWS, but the specific forms and methods of human control should remain at the discretion of states. It is also important to keep in mind that the need to consider humanitarian concerns (and often far-fetched ones) cannot be used as the only sufficient condition for the introduction of restrictive and prohibitive regimes for specific types of weapons: thereby it is necessary to take into account the legitimate interests of national security of states (primarily defence security).

Furthermore, Article 36 of the Additional Protocol-I to the Geneva Conventions does not contain criteria for distinguishing new types of weapons from other types of weapons and does not require

any reporting and control format, so this is left to the discretion of the participating states. Research and development of new types of weapons are secret, and the acquisition or adoption of obviously or presumably indiscriminate weapons systems are not a violation, but rather a preparation for a violation or an activity of a controversial nature, since only the use of these weapons in an international armed conflict by a prohibited method is regarded as a violation. At the same time Article 36 of the AP-I should be considered as an important prerequisite for fair compliance with IHL. It is necessary, first of all, to proceed from the fact that international humanitarian law describes in detail the rules of warfare, and all military personnel are required to strictly observe these rules and principles, even in the case of combat operations with the use of LAWS. Secondly, issues of secrecy and national security should not be cast aside, because will always dominate for each state (and a ban on LAWS actually means a ban on software), and therefore it is apparent that no state will allow to control its electronic equipment on the grounds of national security.

Finally, levelling the problems in the field of arms circulation is one of the activities of the UN and the international community as a whole. Such problems include the increase in illegal arms trafficking, the expansion of non-state-controlled channels of arms sales and supply to terrorist and extremist organizations. At present, we can talk about the existence of separate mechanisms of international law regulation of the military purpose products circulation. However, the effectiveness of such mechanisms is insignificant since they are implemented by the states on a voluntary basis. National export control mechanisms play a leading role in the process of regulating the MPP circulation, which is due to the specifics of MPP as an object of regulation. It seems that the further improvement of the international law regulation of the MPP circulation should be developed from the point of view of creating mandatory universal mechanisms of international law regulation that would prevent the uncontrolled circulation of weapons, their illegal distribution and sale to terrorists.

## References

1. Alwardt C., Polle J. Internationale Rüstungskontrollbemühungen zu autonomen Waffensystemen: Definitionen, Technik und sicherheitspolitische Implikationen. *Security & Peace. – Sicherheit und Frieden*. 2018. Vol. 36. Issue 3. P. 133-139. DOI: <https://doi.org/10.5771/0175-274X-2018-3-133>
2. Bothe M., Marauhn T. The Arms Trade: Comparative Aspects of Law. – *Revue Belge de Droit International*. 1993. Vol. 26. Issue 1. P. 20-42.
3. Chun W.H., Papanikolopoulos N. Robot Surveillance and Security. – *Springer Handbook of Robotics*. Ed. by B. Siciliano B. and O. Khatib. Cham: Springer. 2016. P. 1605-1626. DOI: [https://doi.org/10.1007/978-3-319-32552-1\\_61](https://doi.org/10.1007/978-3-319-32552-1_61)



4. Combe II P.C. Autonomous Doctrine: Operationalizing the Law of Armed Conflict in the Employment of Lethal Autonomous Weapons Systems. – *St Mary's Law Journal*. 2019. Vol. 51. Issue 1. P. 35-68.
5. Dinstein Y. *War, Aggression and Self-Defence*. 3<sup>rd</sup> ed. Cambridge: Cambridge University Press. 2001. 301 p.
6. Hayashi M. Export Control in the Arms Trade Treaty: Can It Have an Impact on the Prevention of Serious Violations of International Humanitarian Law?. – *Theory and Practice of Export Control*. Ed. by D. Tamada and P. Achilleas. Singapore: Springer. 2017. P. 127-137. DOI: 10.1007/978-981-10-5960-5\_11.
7. Jevglevskaia N. Weapons Review Obligation under Customary International Law. – *International Law Studies*. 2018. Vol. 94. P. 186-221.
8. Mull N.W. The Robotization of Warfare with Lethal Autonomous Weapon Systems (Laws): Mandate of Humanity or Threat to It?. – *Houston Journal of International Law*. 2018. Vol. 40. Issue 2. P. 461-530.
9. Mussington D. The International Control of the Arms Trade. – *Revue Belge de Droit International*. 1993. Vol. 26. Issue 1. P. 43-57.
10. Nash T. The Technologies of Violence and Global Inequality. – *Sur: International Journal on Human Rights*. 2015. Vol. 12. Issue 22. P. 115-122.
11. Nayan R. *Global Strategic Trade Management*. New Delhi: Springer. 186 p. DOI: <https://doi.org/10.1007/978-81-322-3926-0>
12. Riebe T., Schmid S., Reuter C. Meaningful Human Control of Lethal Autonomous Weapon Systems: The CCW-Debate and Its Implications for VSD. – *IEEE Technology & Society Magazine*. 2020. Vol. 39. Issue 4. 2020, pp. 36-51. DOI: 10.1109/MTS.2020.3031846.
13. Roff H.M. Lethal Autonomous Weapons and Jus Ad Bellum Proportionality. – *Case Western Reserve Journal of International Law*. 2015. Vol. 47. Issue 3. P. 37-52.
14. Shvydun S. Influence of Countries in the Global Arms Transfers Network: 1950–2018. – *Studies in Computational Intelligence*. Vol. 882. Cham: Springer. 2019, P. 736-748. DOI: 10.1007/978-3-030-36683-4\_59.
15. Skuratova A.Yu. Korol'kova E.E. Smertnosnye avtonomnye sistemy vooruzhenii: problemy mezhdunarodno-pravovogo regulirovaniya [Lethal Autonomous Weapon Systems: problems of international law regulation]. – *Rossiiskii yuridicheskii zhurnal*. 2019. No. 1. P. 22-30. (In Russ.)
16. Sultan A. *Universalizing Nuclear Nonproliferation Norms*. Cham: Palgrave Pivot. 2019. 169 p. DOI: 10.1007/978-3-030-01334-9
17. Umbrello S., Torres P., De Bellis A.F. The future of war: could lethal autonomous weapons make conflict more ethical?. – *AI & Society*. 2020. Vol. 35. Issue 1. P. 273-282. DOI: <https://doi.org/10.1007/s00146-019-00879-x>
18. Wood N.G. The Problem with Killer Robots. – *Journal of Military Ethics*. 2020. Vol. 19. Issue 3. P. 220-240. DOI: <https://doi.org/10.1080/15027570.2020.1849966>
19. Wyatt A. Charting great power progress toward a lethal autonomous weapon system demonstration point. – *Defence Studies*. 2020. Vol. 20. Issue 1. P. 1-20. DOI: <https://doi.org/10.1080/14702436.2019.1698956>
20. Yihdego Z.W. The Role of Security Council Arms Embargoes in Stemming Destabilizing Transfers of Small Arms and Light Weapons (SALW): Recent Developments and Challenges. – *Netherlands International Law Review*. 2007. Vol. 54. Issue 1. P. 115-132. DOI: <https://doi.org/10.1017/S0165070X07001155>

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