

Analysis of the International Responsibility of Governments in the Use of Laser Weapons in Sea War from the Perspective of International Humanitarian Law

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Abstract

In recent years, we have witnessed the use of laser weapons in naval conflicts in the Persian Gulf, the Strait of Hormuz and the Sea of Oman. Conflicts that are not armed and under the laws of hostilities and the rights of war and the rights of war are not considered, and the use of laser weapons in them violates the principles of proportionality and necessity in international humanitarian law. Based on the Fourth Protocol of 1995 of the 1980 Convention on Conventional Weapons and Article 86 of International Customary Humanitarian Law, the use of blinding and permanently blinding laser weapons is prohibited. Based on Article 36 of the 1st Additional Protocol of 1977, the governments in the production and use of new weapons should ensure that they are not prohibited from the point of view of international rules. Therefore, the use of laser weapons in the aforementioned maritime conflicts is a violation of international obligations and has a criminal nature, and according to Article 2 of the 2001 international responsibility plan of governments, it causes the international responsibility of the governments that use it. The main goal of this research is to analyze the international responsibility of governments in using laser weapons in maritime conflicts in the Persian Gulf and the Sea of Oman. Therefore, by using an applied research with a descriptive-analytical method to collect the data obtained through library studies and field investigation, we have sought to realize this goal. The result of the research showed that laser weapons are a violation of international obligations in the field of intimidation, unnecessary pain and suffering, use by terrorist groups, intelligent murder, terrorizing, aggressive nature and recourse to force, violation of the right to life and the right to reproduction. Humanitarian rights, human rights and mandatory rules

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and universal obligations are international and are considered an international violation and cause the international responsibility of the exploiting governments and the affected governments and even third governments can international courts to file claims for liability and compensation.

Keywords: Maritime conflicts, laser weapons, international responsibility, international armed conflicts, international law of the seas

Introduction

From the 1960s onwards, we have witnessed the entry of a new generation of military technologies, namely weapons and laser equipment, on laboratory and field scales, into the arena of war developments and armed conflicts (sandesh, 2012, 194). Weapons that were associated with international reactions from the very beginning and had their supporters and opponents. On the other hand, based on Article 36 of the first protocol of the 1949 Geneva Quadrilateral Conventions¹, the states that produce new weapons, before producing and using them in international hostilities, should consider the prohibition and non-prohibition of their use based on the mentioned protocol. Ensure other rules of international law (sandesh, 2012, 65). Therefore, the Convention on Conventional Weapons of 1980, in its fourth protocol of 1995, prohibited the use of permanent blinding laser weapons and laser weapons that are associated with vision disorders. On the other hand, the technology-owning governments that intended to use lasers in a comprehensive military manner, made indirect use and lateral use of lasers in destructive military weapons in order to increase their range, accuracy, and destructive power. In this situation, it is not possible to control and limit the use of laser weapons in armed conflicts by international legal frameworks, and we see a kind of legal vacuum in this field.

With the increasing demand of governments to exploit laser weapons and equipment and use them in international and non-international armed conflicts and the lack of supervision and control of international authorities and courts due to the existing legal and legal gaps, witness a gross violation of the principles and the international customary and thematic rules in the

¹ In studying, developing, acquiring or using a new weapon, instrument or method of warfare, a High Contracting State undertakes to determine whether its use, in some or all circumstances, is governed by this Protocol or any other rule of international law applicable to it. Is the High Contracting Party prohibited or not..



field of the law of armed conflict¹, humanitarian law, fundamental human rights, environmental law, and international universal and binding rules (Solis, 2010, 75). Therefore, it is necessary to prepare and formulate the necessary legal frameworks to adjust and limit their use in armed conflicts as soon as possible and in accordance with the widespread use of laser weapons in armed conflicts. In this regard, we need specific and valid legal control tools (Deidre, 2004: 165).

In analyzing and verifying the international responsibility of governments regarding the use of laser weapons in armed conflicts and especially maritime conflicts, we are faced with the following questions: Does the use of laser weapons in armed conflicts and especially maritime conflicts violate the international obligations of governments? Based on the 2001 plan of responsibility, can it be proven the violation of international obligations of governments regarding the use of laser weapons in armed conflicts? Are the violated international obligations due to the use of laser weapons in armed conflicts attributable to the governments? If the international responsibility of governments is established regarding the use of laser weapons in armed conflicts, what are the compensation mechanisms?

In recent years, especially since 2001, despite the principle of peaceful exploitation of seas and international water resources (Articles 88 and 301 of the 1982 Convention on the Law of the Sea), we have witnessed the use of various types of weapons and laser equipment in maritime conflicts in the Persian Gulf region. Let's be Omani sea². With the intensification of the use and competition of military powers for the production and development of laser equipment and weapons from 2012 onwards³, the concern of the international system to limit and prohibit the use in this field has doubled.

In this article, by examining the use of laser weapons in maritime conflicts and comparing it with international binding principles and rules, we seek to prove that the use of laser weapons in maritime conflicts is a violation of the international obligations of governments based on rights. It

¹Jus in bello
Jus ad bellum

² In 2017 and 2020, the Americans tested two laser weapons with powers of 30 and 150 kilowatts in the Persian Gulf, and in the second test, they shot down a drone.

³ Countries such as America, Russia, China, Germany and England tested laser weapons in laboratory and field scales.

is humanitarian and international human rights, and based on the 2001 draft of the responsibility of governments (Forsythe, 2017, 80) the nature of their actions is clear, and they will be the cause of their international responsibility, and they are required to compensate for the damage.

1. Using laser weapons in armed conflicts

1.1. Laser weapons and equipment

A laser weapon is a directed energy weapon that uses a laser beam to destroy a target. The word laser means light intensification by stimulated emission of a beam. Laser is actually an intense, narrow and monochromatic light beam. A laser weapon is a directed energy weapon that uses a laser beam to destroy a target. Lasers are used in three types: chemical¹, solid² and free electron³ in the military field (Jan, 2010, 21).

The most important military applications of lasers are: (C.J.Jeff.Breck, 2012, 64)

- a) Laser range finders⁴
- b) Laser markings⁵
- c) Energy directing weapons⁶

¹ In this type, the laser beam is produced through chemical reactions. These lasers are the most powerful types of lasers that emit in short wavelengths.

² These lasers are produced through optical pumping from crystal media and are less powerful than chemical lasers and emit at different wavelengths.

³ This laser is produced through electricity and emits in different wavelengths that can be changed in different environmental conditions.

⁴ It is based on the same principles that are used in conventional radars. A short laser beam (typically 10 to 20 nanoseconds in duration) is aimed at the target and the backscattered beam is recorded by a suitable optical receiver that includes an optical detector. The desired distance is obtained by measuring the flight time of this laser beam. Pocket rangefinders have been used on tanks and in air defense.

⁵ This is done with a weak laser designator that pinpoints the target for guided munitions. The bomb finds its way with the help of the reflection it receives from the laser, and thus its accuracy is greatly increased. Laser marking can be carried out by airmen or by infantry near the target. Most of the lasers used for this purpose are infrared lasers, and as a result, the enemy cannot easily notice them.

⁶ In these weapons, a beam of laser light with high power is sent to targets such as airplanes and missiles in about a few seconds, and it destroys them. Chemical lasers are the most suitable type of lasers for these weapons. America has various projects in this field and it is being tested.



- d) Laser vision¹
- e) Incapacitating weapons²

Incapacitating weapons include laser weapons, whose main target is human beings (both military and civilian) present in the conflict and battle area. These weapons are used by the Americans in the Middle East and the Persian Gulf region in recent years in land (personnel), sea (laser warning) and air (helicopter) types. These weapons have the following human consequences: Increase in body temperature, increase in heart rate, weakness and fatigue, blurring of vision, causing deformities and damage in the cornea and retina, causing temporary blindness if it is directly shone into the eye, nausea and dizziness, insomnia and bad sleep. High stress, aggression, burning and burning of the skin, etc. (Stup, 2010: 50).

The above-mentioned injuries are associated with a lot of pain and suffering, and their side effects remain with people for a long time. There is another type of laser weapon that is made with the sole purpose of blinding the enemy. These laser weapons are called dazzler which are one of the main types of debilitating laser weapons. Destructive, blinding and debilitating laser weapons that can be used with international reactions in various fields of human rights, mainly in covert operations that are used as terrorists. The dimensions and angles of such operations are mostly secret and non-media. The use of these weapons in non-international armed conflicts is also common. In recent years, such weapons have been used in Iraq, Syria, Afghanistan, Pakistan and Palestine by America and Israel. The term "intelligent murder" is common among American and Israeli operators in this field, and one of the purposes of using these laser weapons is the intelligent assassination of commanders and senior military and security officials.

2.1. Naval laser weapons


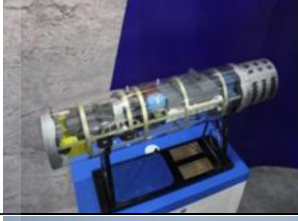


¹ The most important use of lasers in light weapons is to enhance weapon targeting. A laser sight is a small device mounted on rifles or handguns that emits a laser beam parallel to the barrel of the weapon. The laser light is placed in the target as a small point and the person uses it to aim. Most laser sights use red light, but some emit infrared light, which is invisible to humans but can be seen with night vision cameras.

² These weapons were used for the first time in 1982 in the Falkland War (between Argentina and England), when British warships used them against Argentine fighter pilots who were flying at low altitudes, causing temporary blindness.

1.2.1. Seabed laser mine detector (subsurface defense)

The LiDAR technique is a new method in the field of electro-optics, which is based on optical detection and ranging and using a laser beam, and has a unique ability to quickly detect and determine the position of anchored mines. Kaman company, the first example of it, called the magic lantern, has been tested in 1988. This technology was created with the aim of providing protection for the battle group when passing through blocked points and restricted straits and should perform well for quick identification in support of ground water operations. The main difference between LiDAR and laser-based radar is actually the type of radiation wavelengths used in them. The radar system uses wavelengths in the radio region, but LiDAR uses UV-Visible wavelengths. The figure below introduces some of the American laser range finder systems along with their details (Taheri, 2019: 35).

Table 1: Introducing some seabed LiDAR with laser technology

<p>Laser sensor ALMDS Designed and built by American north Grumman company in 2012 Installation on the MH-60 helicopter of naval force To identify coastal sea mines through air Completion of the project and operational testing in 2015 with a budget of 163 million dollars</p>	
<p>Laser scanning mine detector Magic Latern Advanced version of this system is installed on the US Navy helicopter MH-53E and It has capability of target identification to determine the depth level at the same time. Magic Latern system, used green-blue YAG: neodymium laser and with 6 high sensual camera to detect type of mines.</p>	
<p>Aircraft sensual laser Hawk Eye This product is a type of optical tracking and targeting system that is used in anti-submarine warfare in shallow waters as well as depth measurement. In this system, used the class of Nd:YAG laser with the frequency of green and infrared light. This system is used to track anchored mines.</p>	
<p>Aircraft sensual laser ALARMS This system, installed on a helicopter, can detect anchored mines up to a specified depth. Including a set with blue-green light beam in the 10khz frequency that shines on the surface of the water. The maximum of operational depth of this system is 100 ft.</p>	



Laser subsurface sensor SM2000

In this system, used the advanced solid laser with a continuous operating power of 100 watt and records high-precision images of objects under the surface up to a depth of 38 meters.



The design and construction of ALARMS air-based laser sensors with a working frequency of 10 kHz to detect anchored mines was done by the North Grumman Company of America and was used in the Persian Gulf during 1987 with an operational depth of 100 feet. Also, the new system of this company known as ALMDS, which was presented with a budget of 163 million dollars in 2012 with the aim of detecting shallow and coastal mines, was installed on the 60MH-helicopter and was operationally tested and used in 2015 in the Persian Gulf (Taheri, 2019: 31).

2. 2.1. Sea-based laser cannons (surface defense)

In order to develop and operationalize guided-laser energy weapons, the US Ministry of Defense has put plans for the design and construction of combat lasers on the agenda. As it appears from the published reports, these operational lasers are designed and manufactured with the aim of creating applications at different levels of "tactical", "operational-strategic", "strategic-global (Taheri, 2019, 32) .Since in naval battles, the accuracy, concealment and disruption of the enemy's offensive systems are more important than the power of destruction, so the US Navy has shown more interest in laser weapons. On the other hand, the necessary energy for laser weapons is provided from the electrical sources available in warships, and due to access to water, the problem of keeping it cool will be solved. Laser weapons can play a role even in submarine operations, and with a nose, laser head and deep periscope, it can engage with surface vessels and leave the battlefield before being detected by the enemy. Various examples of American laser cannons with technical specifications are presented in the figure below.

In continuation of the research and development of naval laser defense systems and with the aim of countering the threats of speed boats and unmanned aerial vehicles, the United States of America has equipped the

small warship USS Little Rock with a 150 kilowatt laser weapon developed by General Dynamics and Lockheed. Martin designed and built, equipped. According to American officials, this weapon has the ability to create a hole or destroy the fuel source of small fast boats. In addition, low-power laser weapons have also been installed on American ships, which are used to disable sensors on boats, planes, and missiles. In 2019, the US Navy installed a new laser weapon called ODIN on its warships, which attacks attackers through laser radiation. One of the important features of this system was its extremely high speed, noiseless attack, and the non-effect of wind on its performance (Taheri, 2019: 25). The ODIN laser system was installed on the USS Dewey Arleigh Break class destroyer during a test operation to test its ability to disable the sensors of unmanned aerial systems. Probably, one of the reasons behind the development of this system is the Iranian drones, which patrolling the Persian Gulf, have photographed and collected information from American ships many times (Taheri, 2019: 36).

3.2.1. The use of laser weapons in naval warfare

Naval warfare has sea-based tools and methods that have been considered and defined in various international documents¹. Tools and methods that have specific legal requirements within the framework of general and specific international humanitarian law. Tools such as warships and warships, aircraft, sea missiles, sea mines², which are considered in the thirteen international documents of 1907 in The Hague. In the field of tactics and methods of naval warfare, we also face naval bombardment³, naval blockade, and the seizure and inspection of vessels, which are also considered and defined in relevant international documents. Therefore, the

¹ Declaration of Paris dated April 16, 1856, Convention of Geneva dated August 22, 1864, Hague Convention of 1904 on the Immunity of Hospital Ships, Convention dated July 6, 1906 on the Protection of War Sick and Wounded, Hague Agreements dated October 18, 1907, which are thirteen agreements And there are seven agreements on naval warfare, the Washington Treaty of February 6, 1922 on the Limitation of Naval Arms, the London Naval Treaty of April 22, 1930, the London Convention of November 6, 1936 on the Regulation of Submarine Warfare (prohibition of attacks on merchant ships by submarines)

² The Hague Convention of 1907 mentions the issue of sea mines and allows the use of fixed mines and prohibits the use of floating mines.

³ In the issue of naval bombings, the Hague Agreement of 1907 and the First Additional Protocol (1977) have raised some issues



use of any tools and methods that are outside of these international legal frameworks can cause the international responsibility of the exploiting governments. The use of laser equipment and weapons, which violate the principles of military necessity and proportionality from the point of view of humanitarian rights, are included under this issue.

Maritime conflicts in the Persian Gulf and the Sea of Oman are affected by the hostile relations between the parties in the region. The above-mentioned naval conflicts do not have the nature of a direct armed conflict. Therefore, conflicts and tensions are mainly unarmed and security. In some cases, these tensions have resulted in occasional physical conflicts, and the parties have used weapons against each other, directly and indirectly. One of these cases has been the use of laser weapons and equipment in certain cases against the other side's human and equipment targets. Governments should consider international legal requirements and frameworks in using war tools and methods and not deviate from international rules. In Article 36 of the First Additional Protocol of the 1949 Geneva Quadrilateral Conventions, states in the production and use of new weapons and war tactics must ensure that the use of said weapons in international armed conflicts is contrary to the documents and rules of law (Kretzmer,2009: 55). It is not international. On the other hand, in articles 35¹ and 51², weapons, equipment and war methods that have human consequences and severe and unnecessary injuries are prohibited. Therefore, the use of any laser equipment and weapons that

¹ Article 35 — Basic rules

1. In any armed conflict, the right of the Parties to the conflict to choose methods or means of warfare is not unlimited.
2. It is prohibited to employ weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering.
3. It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.

² Article 51 — Protection of the civilian population

4. Indiscriminate attacks are prohibited. Indiscriminate attacks are:
 - a) those which are not directed at a specific military objective;
 - b) those which employ a method or means of combat which cannot be directed at a specific military objective; or
 - c) those which employ a method or means of combat the effects of which cannot be limited as required by this Protocol;and consequently, in each such case, are of a nature to strike military objectives and civilians or civilian objects without distinction

violates the rules and laws of international law is prohibited and causes the responsibility of the operating governments (Antony. B.S, 2003, 95).

2. The illegal nature of using laser weapons from the perspective of international law

1.2. Thematic documents

Prohibition of laser weapons from its permanent blinding types is proposed in the Fourth Protocol (1995) of the 1980 Convention on Conventional Weapons. The mentioned convention in its article 1 has prohibited the use of laser weapons which, based on their special design, have a permanent blinding function¹ (Crawford, Pert, 2015: 20). On the other hand, in the same article, the transfer of technology for making these weapons is also prohibited. This means that non-member countries cannot obtain this weapon, unless they produce it themselves² (Henkertz and Dusvaldik, 2012, 234). Using conventional or unconventional laser weapons in armed conflict (international or non-international), can cause the formation of important international crimes such as crimes against humanity³, genocide⁴, war crimes⁵ and rape, which are criminal in nature and subject to prosecution and punishment from the perspective of international criminal law, based on the Rome Statute⁶, the Criminal Court International is the competent authority to prosecute and pursue the offending governments (Nicholas Tsagourias, 2018, 33). One of the consequences of using conventional war tools and methods is the torture of human beings (military and civilian) in different ways. This issue has been considered by the 1984 Convention on the Prohibition of Torture, and it has paid attention to and prohibited the human dimensions of military torture in

¹ It is prohibited to use a laser weapon that, based on its special design, unique function or one of its weapon functions, causes permanent blindness or visual impairment.

² With a little thought in this article, we realize the goals of the member states of this convention, which have sought monopolization in the field of laser weapons technology, and the goals of humanitarian rights were nothing more than an excuse, which if it was not the case, the production should also be because of the use and Transfer was prohibited.

³ Article 6 of the statute

⁴ Article 7 of the statute

⁵ Article 8 of the statute

⁶ Article 5 of the Rome Statute



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the conditions of war and international hostilities. This issue has been considered in articles 2¹ and 10² of this convention in its distinctive dimensions. The extension of individual torture to armed conflicts and the use of unconventional tools and methods can be investigated and interpreted by the parties to the conflict, and this type of torture can be both international in nature (a foreign aggressor government tortures a person) and It has an internal nature (the respective government tortures the person) (Williams,2003: 112).

One of the illegal aspects of using laser weapons is the destruction of the international environment and the violation of relevant obligations in this field. In order to limit and adjust the environmental consequences of war (tools and methods), international principles have been considered as the basis for the use of conventional war equipment and methods, which include the principles of separation³, proportionality⁴, necessity, caution⁵, etc. to be These principles have been described and defined in the form of rules 15⁶, 17⁷, 43⁸ and 44⁹ of customary international humanitarian law. Using laser weapons

¹ Article 2(2): No exceptional circumstances such as war or threat thereof, etc. can be invoked as a pretext for torture.

² Each member state of the convention ensures that sufficient information and training on the subject of the prohibition of torture is included in military programs and...

³ The parties to the conflict must distinguish between military and civilian property and persons. This principle is included in the Saint Petersburg Declaration (1868), Article 25 of the Hague Regulations (1907) and Articles 48, 51 and 52 of the First Additional Protocol (1977)

⁴ This principle is considered in Articles 51 and 57 of the First Additional Protocol (1977). According to this principle, military attacks should not have civilian casualties and should be in accordance with the principles and rules of war. Unconventional and blind attacks that cause human casualties are prohibited.

⁵ Article 2(3) of the 1907 Hague Convention, Article 57(1) of the 1st Additional Protocol of 1977

⁶ In directing military operations, special care must be taken to separate the civilian population, civilians and civilian property. All possible precautions

⁷ Each of the conflicting parties must take every possible precaution in the selection of war tools and methods in order to avoid and in any case minimize accidental casualties to civilians and damage to civilian property.

⁸ The general principles governing armed conflicts towards the environment are:

A- No part of the environment should be attacked, unless it is a military objective.

B-The destruction of any part of the natural environment is prohibited, unless the urgent military necessity requires it.

C- An attack against a military target is prohibited if the chance of accidental damage to the environment is greater than the objective and direct military advantage.

⁹ War methods and tools should be used with full attention to the preservation and protection of the natural environment. In conducting military operations, all possible precautions should be

violates principles such as proportionality, necessity and caution (Willmott, Deidre, 2004, 55).

2.2. Jus cogens and Erga omnes

1.2.2. The rules are binding

There are general rules that the international community, believing and committing to their international interests, consider these rules inviolable and consider themselves obliged to comply with them. The 1969 Vienna Convention on Treaties in the definition of mandatory rules in Article 53 stipulates that "from the point of view of this treaty, a mandatory rule of general international law is a rule that is accepted by the entire international community of states as an inviolable rule, which can only be followed by a subsequent rule. General international law, with the same characteristic, can be adjusted, accepted and recognized. In this convention, it has given a special and superior position to mandatory rules and has placed them as a superior rule at the top of international rules, and all documents and treaties that violate these rules at the time of drafting and approval are null and void has considered¹ (Boothby, 2009: 55).

Among the examples of jus cogens, the following can be mentioned:

The principle of faithfulness to the covenant, the principle of good faith, the principle of the prohibition of resorting to force and the sanction of war, the principle of legitimate defense, the principle of the prohibition of mass killing, the principle of the prohibition of slavery, the principle of non-racial discrimination, the principle of the right of nations to self-determination, the principle of respect for sovereignty, independence and the territorial integrity of countries (Falsefi, 2000: 283).

taken in order to avoid collateral damage to the environment and in any case to minimize these damages. The lack of scientific certainty regarding the effects of certain military operations on the environment does not relieve the responsibility of each of the parties to the conflict in applying the aforementioned precautionary measures.

¹ Article 53: A treaty that conflicts with a rule of international law at the time of its conclusion is invalid.

Article 64: If a new mandatory rule of general international law is established, any existing treaty that is in conflict with the said rule will be null and void.



The use of prohibited conventional and conventional weapons mainly violates the principles of good faith, the prohibition of resorting to force, legitimate defense and respect for territorial integrity, and the prohibition of mass killings, which from the perspective of international law and the draft international responsibility plan of the government Ha (2001), will bring their international responsibility. In its articles 26¹ and 40², the plan of international responsibility of governments considers the criminal aspect of the actions of governments in violation of international rules and mentions them as gross and severe violations and establishes their international responsibility (Mohammadi-Ansardoost, 2014, 19). Therefore, according to the international rules and the international responsibility resulting from their violation, the use of unconventional and conventional prohibited weapons and new weapons with laser technologies, etc., which can fall within the scope of prohibition and unconventionality, are subject to responsibility. It is international and the affected governments can demand responsibility and compensation in the courts and competent judicial and security authorities.

2.2.2. Erga omnes

Bilateral or multilateral obligations are placed on governments. These obligations are imposed on governments in the form of special³ and general⁴ treaties and agreements, and governments are required to implement them. In fact, universal international obligations are obligations that governments have towards each other and it is possible to violate them. But in jus cogens, governments are committed to the entire international community, and in case of violation of inviolable international obligations, they must be accountable to the international community (ZiyaiBigdeli, 2016, 75). The basis of universal

¹ None of the provisions of this chapter shall eliminate the violation aspect of any act committed by a state in violation of an obligation arising from a binding rule of public international law.

² The application of this chapter is the international responsibility resulting from a serious violation of an obligation arising from a mandatory rule of international law by a state. Violation of such an obligation is considered a serious violation of the obligation if it involves gross or regular negligence of the responsible government in fulfilling the obligation.

³ Agreements and treaties are bilateral or multilateral that are concluded between governments and have a relative effect on member governments.

⁴ Treaties that are compiled by competent international legislative and public authorities and organizations and have the status of an international treaty and are binding.

international obligations is the will and authority of governments to accept obligations. Therefore, it will be possible for other governments to agree on its contradictory actions and actions.

In fact, general obligations sometimes in various international issues can be an obstacle in the way of fulfilling international requirements and demands. Especially in issues such as arms control, states possessing weapons with dual and multiple technologies (laser and...) by creating international universal obligations in the form of treaties such as Arms Trade 2013, NPT (1968) and..., they create obligations whose dual and extended interpretations cause new concerns in the international system that Their international systematization requires the review and modification of these obligations and the creation of conflicting universal obligations at the international level in the relevant fields (raei, 2016: 70).

Environmental commitments are among the general international commitments that are violated in the use of unauthorized unconventional and conventional weapons and new weapons with technologies such as lasers. These weapons have many destructive environmental effects. According to important international documents, including the United Nations Charter, governments are required to maintain international peace and security and take collective measures to establish it at international levels¹. Therefore, any action that violates international peace and security is a gross violation of an international obligation, and all governments can file a lawsuit against the offending government. Employing armed forces and resorting to and threatening force using conventional and non-conventional weapons against the independence and lateral integrity of other governments is a violation of all thematic and general international obligations in the field of armed conflicts.

Violation of general international obligations based on the plan of international responsibility of states (2001), if it occurs, will result in the international responsibility of the offending state, and all states, including the directly affected states and the states whose interests have been indirectly lost is, they have the ability to invoke the responsibility of the offending government² (Helmi, 2016: 65).

¹ Article 1(1) of the United Nations Charter

² Article 48(1): Any government other than the injured government has the right to invoke the responsibility of another government according to paragraph 2 if:



3. Proof of violation of international obligations regarding the use of laser weapons based on the 2001 liability plan

The plan of international responsibility of governments was approved for the first time in the form of a 35-article plan in 1980 by the International Law Commission. But this plan was always criticized and revised. Finally, in December 2001, a more comprehensive plan, which included 59 articles, was finally approved by the aforementioned commission as the international responsibility plan of governments. In the 58th session of the United Nations General Assembly in 2006, the government's political support plan was also approved as an integral part of the governments' international responsibility and was attached to the said plan (Helmi, 2016: 14).

1.3. The criminal nature of the use of laser weapons from the perspective of the 2001 plan of international responsibility of states

A) International violation

In Article 2 of the 2001 plan, international violation is considered as violation of obligations. Violation of an international obligation attributable to the offending government is called international violation and is subject to international responsibility. Therefore, in the interpretation of international obligations, it is necessary to consider some things and have a broad interpretation of the subject:

- 1- By limiting international obligations to treaty obligations, acts or omissions that violate general and customary international law and in some way overshadow mandatory and universal international rules cannot be ignored and people He did not hold the perpetrator legally responsible (Zamani, 2017: 125).
- 2- In the international system, governments sometimes accept unwritten obligations before the international community that international custom imposes on them, and their violation causes international responsibility,

A- The breached obligation was for the benefit of a group of governments, including that government
B- The breached obligation is in the interest of the entire international community.

and third and affected governments (directly and indirectly), they can file a lawsuit against the offending government and demand their responsibility in international courts. Therefore, any government's violation of any obligation, regardless of its origin, causes the government to be held responsible¹. Therefore, the violation of non-treaty obligations should also be considered as subject to international responsibility, and in the category of responsibility resulting from the use of laser weapons in armed conflicts, it is one of the bases for establishing the responsibility of governments in this field (Helmi, 2016: 70).

- 3- An international violation can be a combined act or omission that causes the responsibility of several states. Governments that have supervised, participated, or assisted in committing a violation. In this regard, an international violation may have a treaty origin for one state and a customary and non-treaty origin for another state. Therefore, merely causing damage to natural and legal persons who are parties to the dispute will prove the responsibility of the offending government or governments, and governments that are not parties to the treaty cannot avoid committing the violation and attributing it (Zamani, 2017: 65).

Therefore, simply using types of laser weapons that cause severe physical and mental harm to military and civilian people, will prove the international responsibility of the user government. On the other hand, the destruction of the international environment in the sea and land areas, caused by the use of chemical laser and free electron weapons, causes the international responsibility of the exploiting governments to the affected governments and the entire international community.

b) International jus cogens

The rules that are considered as inviolable rules by the consensus of the international community and can only be modified by the next rule of general international law or mandatory rule². One of the main bases for determining an international violation and subsequently establishing responsibility in the 2001 plan is a violation of international mandatory rules and their violation.

¹ The case of Rainbow Warrior (New Zealand v. France), report of international arbitration awards of the United Nations, volume 14, page 159, paragraph 163

² Article 53 of the 1969 Vienna Convention



This category is one of the important and rare cases that will not be removed in any way¹. (Fazaeli-Sataishpour, 2019, p. 32) The use of laser weapons or missiles with laser technologies and sensors, to carry out military missions, mainly with drones and in the shadow of aggression and violation of the sovereignty and territorial integrity of the target states². Such missions have been carried out many times by the Americans and Israelis in the wars in Iraq, Afghanistan, Syria, Lebanon, etc. Therefore, this way of using laser weapons is a violation of the international rules and causes responsibility against the affected governments. On the other hand, we have repeatedly witnessed the encroachment of American warships into the territorial waters of the target states (Iran) and the use of cannons, warning devices and laser target finders by them. On the other hand, the use of laser weapons causes severe and unnecessary pain and damage to military and civilian people, which can be an example of torture in international law, which has been identified as international mandatory rules. Therefore, in this respect as well, the international violation is distinct and causes the international responsibility of the exploiting governments (Falsefi, 2001: 45).

c) Necessity

One of the basic principles in using military equipment and tactics in armed conflicts is the principle of necessity. On this basis, the parties to the conflict should use conventional equipment and tactics against military targets by carefully monitoring military needs. In the use of laser weapons and considering that the electromagnetic environment has not yet been identified as a conventional and comprehensive military environment and the related equipment and weapons have not been included in the framework of international legal rules and requirements, it is subject to the principle of military necessity are not placed Therefore, in an asymmetric military environment, the use of laser and electromagnetic weapons violates the principles and rules of humanitarian rights (raei,2016: 66). Therefore, invoking the principle of necessity in this area cannot be used to remove the

¹ Article 26 of the 2001 plan

² Many cases have happened in recent years in the Persian Gulf region and the Strait of Hormuz by the American fleet.

appearance of a violation. This issue is covered by Article 25 of the 2001 plan on the international responsibility of governments, and it establishes responsibility for violations of the rules of humanitarian rights of governments, regarding the use of laser weapons (Sandesh, 2012: 650). The use of laser weapons not only does not preserve any fundamental interest in the international system, but also destroys the basic interests of governments in the fields of environment, humanitarian rights and human rights.

d) Reciprocal action

The action of the injured government against the government that has committed an international violation, in order to force that government to fulfill its international obligations, is called countermeasure¹ (Helmi, 2017: 70).

Countermeasure, if it is contrary to international obligations, its violation aspect will be lost in this situation². One of the reasons that the states using laser weapons put forward in the military justification of their action is the adoption of military countermeasures against the target state. In other words, they consider this action as a military confrontation and a legitimate war against the other side of the conflict. Reciprocal action can remove the criminality of the action³ when the other party has committed a violation of an international obligation that threatens the interests of the other state. On the other hand, the countermeasure should be decisive for the offending act. If a leading government uses weapons, target finders and destructive laser warning devices in armed conflicts, it cannot invoke the mechanism of countermeasures and escape from the burden of responsibility. On the other hand, countermeasures should be proportionate⁴ to the action of the state of the conflicting party. In other words, in the first step, there must have been a violation and breach of obligation, in order for countermeasures to be legal. On the other hand, countermeasures should not violate the international rules

¹ Article 49 of the 2001 draft of international responsibility of governments

² Article 22 of the 2001 plan of international responsibility of governments

³ Article 22 of the 2001 plan: the act contrary to the international obligation of a government against another government, if it is in the framework of countermeasures against the latter government, the aspect of violation is eliminated.

⁴ Article 51 of the 2001 Plan: Countermeasures should be proportional to the damage caused, considering the level of international deterioration and the rights raised in it.



and require any violation of basic international obligations¹. If the use of laser weapons is a clear example of violation of international obligations such as rape and torture (Helmi, 2017: 119).

2.3. Non-contractual obligations

One of the weak points of international rules and laws is the guarantee of their legal and criminal enforcement. This mandatory void in non-treaty obligations is unimaginable and pervasive, and governments violate non-treaty and customary obligations in various ways. On the other hand, verifying and proving the violation of obligations in this field has complex legal and political obstacles and problems (Helmi, 1395: 45) Non-treaty obligations are inviolable obligations that every government is required to observe and protect just by being a member of the international community. and on the other hand, it is interested in the protection of them by other governments. Therefore, it has a legal relationship with these obligations, in which rights and obligations have their own definitions and mandatory framework. Therefore, the violation of these obligations on the part of any government is an international violation, which will be subject to international responsibility by filing a lawsuit by the interested governments.

It can be safely said that the basis for the conclusion and formation of multilateral regional and international treaties in various subjects and areas, especially in the areas of human rights and humanitarian rights, were non-treaty and customary obligations and requirements that are aimed at preserving and development of human and environmental benefits have been established.

In the field of using laser weapons in armed conflicts and the responsibilities arising from their human and environmental consequences, the main basis for ascertaining the responsibility of the governments and proving the violation of their international obligations are the inviolable and general non-treaty obligations that are violated. It is a violation of fundamental human

¹ Article 50 of the 2001 Plan: Countermeasures will not affect the following obligations:

- a. Prohibition of resorting to and threatening force
- b. Human rights obligations
- c. Obligations that have a humanitarian aspect
- d. Obligations that originate from the jus cogens.

rights. In the field of universal and non-treaty obligations, respect for the sovereignty and territorial integrity of other states, prohibition of aggression, preservation of fundamental human rights (right to life and reproduction), preservation of dignity and human dignity, etc., can be mentioned. Carrying out armed operations with weapons and laser equipment are mainly carried out in the form of tactics and techniques that violate the aforementioned rights and obligations. Most of the operations that have been carried out in Iraq, Afghanistan, Syria, Lebanon, Yemen, etc., have been governed by the mentioned conditions and have had human rights consequences. With case-by-case legal interpretation, numerous cases of violations of international non-treaty obligations by states operating in laser armed operations in non-international and international armed conflicts can be counted.

In the matter of non-treaty obligations, we can refer to the unwritten obligations that a government has towards other governments in the international system, and all governments can file a lawsuit against a government if they are violated. Mandatory and general international rules are also part of non-treaty obligations that even treaty obligations cannot be created against them and all contracts that are against them cannot be enforced and heard in international law¹.

3.3. Jurisprudence of international courts

When the action of a government can be considered an international violation, that action is contrary to and violates acts and omissions that are required to fulfill the international obligations and customary in international law. The International Court of Justice has paid special attention to the violation of international obligations in various cases and lawsuits raised in that court in order to hold the offending governments responsible (Hamed, 2017, 43). The International Court of Justice declares in the US consular case in Tehran that "the conformity of the acts and actions attributed to the Iranian government with the obligations of Iran according to the valid treaties or any other applicable rules of international law should be checked and the contradictions with them should be determined."². In the case of repairing the

¹ Article 53 of the 1969 Vienna Convention

² The American consular case in Tehran, reports of the International Court of Justice, 1980, p. 41, paragraph 90



damages, the court has pointed out the violation of international obligations¹. In Article 36 of its statutes, the International Court of Justice raises the issue of violation of international obligations by governments and considers itself competent to investigate and intervene in these situations.

Therefore, in establishing the international violation of the governments, in the first step, the violation of their international treaty and non-treaty obligations should be identified and proven, and they should be condemned for committing international criminal acts. The International Court of Justice has also referred to the non-treaty obligations of governments in some of the cases and lawsuits and considered their violation to be subject to international responsibility. In the case of Rainbow Warrior, the International Court of Justice refers to any violation by the government of any type of obligation, and accordingly considers the violation of non-treaty obligations to be liable (raei, 2016, 65).

4. Attribution violations of international obligations to governments based on the 2001 responsibility scheme

1.4. The legal concept of assignment from the perspective of the 2001 plan

In the legal interpretation of attribution, we seek to explain the legal relationship between the suspect government and international law in the subject in question. In other words, the alleged action of the perpetrating government should be considered a violation and breach of obligation based on international law. This issue has been considered and explained in Article 2 of the 2001 plan on the international responsibility of governments. Therefore, in the legal attribution of an act to the government, spiritual, material and legal elements should be looked at from the perspective of international law (raei, 2016: 80).

a. Spiritual element

The spiritual element in committing a violation and violation of an international obligation is the intention of the offending state. If the offending state intentionally commits an act that causes material and moral

¹ The case of reparation of injuries caused to United Nations employees, reports of the International Court of Justice, 1949, pp. 174 and 184

damage to the affected states, with the purpose of harming the state or other states, the basis for the attribution of an international wrongful act is paved. In the international field, verifying the intentions of the government's faces obstacles and problems, which are sometimes the Achilles heel of the relevant legal cases and in some cases, it causes the non-verification of responsibility and the escape of punishment by the offending governments. In fact, issues such as fault, error, negligence or lack of care, etc. are examined in this area.

b. Material element

The material element is actually actions and omissions (actions and activities) that are based on international documents and agreements, crimes or violations of international nature in various legal and criminal matters. The quality and quantity of legal and non-legal (political, military-security, etc.) acts have a profound effect on the accountability of the offending governments.

c. Legal element

The legal element is actually the punishments (legal and criminal) that are intended for natural and legal persons in international documents and are determined and defined by applying these punishments to the committed acts, crimes or international violations of persons (zamani, 2017, 61). Considering the minimum power and guarantee of laws and punishments in the international field, the legal element does not have the validity and executive and decisive position in dealing with violations and international crimes and ascertaining the responsibility of state and non-state perpetrators and violators. In some cases, it is one of the vulnerable aspects of international law, which is always criticized and interpreted by scholars and international lawyers.

By examining and matching the above-mentioned three elements with the activities of natural and legal persons in the international system, it is possible to determine their violations and violations of their possible obligations and subject them to international legal and criminal responsibilities.

2.4. Acts attributable to governments

The government is a collection of natural and legal persons that directly and indirectly under its executive and intellectual management and influence, performs actions and activities at the domestic and international levels.



Therefore, any actions and activities carried out by these persons in the capacity of agents and official actions under the title of the said government, are defined and determined under the responsibility of the respective government. These people include the following:

1.2.4. Government institutions

All authorities that are responsible for legislative, executive, judicial and other duties in a government or government are considered government institutions and their action is the action of the government¹ (Helmi, 2016: 123). This government institution can include all natural and legal persons who carry out missions and perform actions and activities under the title of the said institution. Military and security measures and activities carried out by government institutions (army and military institutions) are also considered part of the said government's action, and violations and violations of the obligations attributed to them cause the said government's international responsibility. The aforementioned institutions commit international violations in various ways, such as exceeding the limits and loopholes of their missions and powers, violating domestic and international legal and legal obligations, etc.

2.2.4. Persons or institutions that exercise elements of government authority

In some cases, individuals or institutions may commit violations and violations of international obligations that are not in the structural and legal framework of the mentioned government, but are directly and indirectly assigned by the government to carry out governmental activities. In this situation, their action is the action of the respective government and their violations are subject to the international responsibilities of the government² (Emily Crawford, 2015, 150).

3.2.4. The action of institutions that are placed under the control of the said government by another government

¹ Article 4 of the 2001 Plan of International Responsibility of States

² Article 5 of the 2001 Plan of International Responsibility of States

In many international and non-international armed conflicts, we have seen cases in which the involved governments ask the third governments, in the form of a security and military agreement, to deploy their military and security institutions for actions and activities. Provide them with military advice. The action of an institution that is placed at the disposal of a government by another government, if it acts in the capacity of exercising elements of the government's governmental authority, is considered the action of the government¹ (Helmi,1395: 132). In some cases, the aforementioned institutions violate the limits of authority or orders and commit violations and violations of international obligations. In this situation, the accountability of the governments faces ambiguous points and platforms are created to evade responsibility. On the other hand, the principle is the responsibility of the government under whose guidance and direction the said institution acts, and the said government cannot escape from international responsibility on the pretext of the violation of the authority and orders assigned by the said institution² (Helmi, 2017: 165). This issue is also mentioned in Article 91 of the 1st Additional Protocol of 1977, and it has made the government responsible for the actions of the military institutions under its leadership and guidance, and has blocked possible platforms for evading responsibility.³

4.2.4. Actions that are carried out at the command or direction of the government

In some international and non-international armed conflicts, we witness actions and military and security activities of individuals and groups that have a criminal nature and an international criminal image and are outside the framework of the laws governing war and rights in war. These actions and activities are carried out with the support, order, guidance or command of one of the conflicting states or a third state. In this situation, all the actions that are carried out under the government's guidance or order are considered the

¹ Article 6 of the 2001 Plan of International Responsibility of States

² Article 7 of the 2001 Plan of International Responsibility of States

³ A state party to the conflict... is responsible for all the actions of persons who are part of its armed forces



actions of the government, and the said government is responsible for possible violations and crimes (Helmi, 2017, 65). In recent years, we have witnessed the formation of various international and non-international conflicts, in which we have seen many cases of violations of human rights obligations, international humanitarian rights, etc., which have been intervened in various ways (support, leadership, command) has been accompanied by third governments. The wars in Syria, Iraq, Yemen, Lebanon, Karabakh, etc. are among them, which have been the arena of confrontation between the military and security strategies of other governments. Have the competent international courts and authorities realized the importance and necessity of legal and political intervention based on subjective and customary rules and laws in these developments and have they been able to assume legal and executive independence and intervention power and have they been able to assume legal and criminal responsibilities? Identify the offending and criminal governments?! About 20 years have passed since the approval of the 2001 project on the international responsibility of governments in the International Law Commission, but it has not yet acquired the status and position of an international binding document, and this is a sign of the lack of luck of the governments to limit the geographical exercise of their sovereignty¹ in The society is international and the international rules and requirements are also the role of a beautiful showcase that is sometimes needed, put yourself in it and be beautiful...!!!

3.4. The Use of Laser Weapons in Armed Conflicts and the Ability to Attribute Violations of International Obligations to Governments

By field investigation of armed conflicts in which laser weapons² and laser equipment³ have been used and the legal application of the three elements

¹ Apart from absolute sovereignty and relative sovereignty, which is given to governments with the subjectivity and centrality of domestic and international laws and is also recognized by the international community, we are witnessing a type of extra-legal sovereignty, which is the nature of domination and political, military and It is economic, and in other words, it is associated with a new kind of colonialism and exploitation. This type of governance is the basis of expansionism and extra-regional campaigns of global powers.

² They are used with a purely military function and with the aim of direct destruction, destruction and lethality, and they use lasers directly.

³ They are used with side military functions and with the aim of weakening and incapacitating the enemy, and they use laser technology indirectly and sidewise.

(spiritual, material and legal) of the concept of attribution of action and investigation of the relationship between the actors in the scene of the conflict with the respective governments, it can be He considered the use of laser weapons in the mentioned hostilities to be the action of the governments and confirmed their international responsibility from the point of view of the 2001 international plan (Boothby, 2009, 230).

1.3.4. Production, testing and improvement of laser weapons in military and government laboratories

In the last decade, we have witnessed the abundance of production, testing, upgrading, dissemination and distribution of laser weapons by countries such as America, Russia, China, France, etc. In the meantime, the American government has hijacked the sphere of military superiority in this area and has created warehouses of weapons and laser military equipment in its various mission points. This action violates the principles of arms control and causes the escalation of arms races and security and military tension in the mentioned points. Therefore, this government is subject to international legal responsibilities by violating international arms control rules and regulations.

2.3.4. Field Testing Of Laser Weapons and Equipment by Military Organizations

One of the issues that has been considered by international courts such as the Court of Justice, and in this regard, lawsuits have also been raised, is the field testing of new chemical and microbial weapons that have various side effects and human consequences¹. Testing and testing of laser weapons in recent years in the Persian Gulf, Indian Ocean, Pacific Ocean, Black Sea, etc., has been very frequent. Therefore, all the countries of America, Russia, England, Israel, France, etc., which have tested these weapons, are subject to possible legal and criminal responsibilities.

3.3.4. The Use of Laser Weapons by Governmental and Non-Governmental Military Organizations in Armed Conflicts

¹ The case of the government of the Marshall Islands against the governments of Great Britain, America, France, India, Pakistan, North Korea, Israel, Russia and China



As a military institution of the US government, the US 5th Fleet implements US naval military policies in the Persian Gulf region, the Strait of Hormuz and the Sea of Oman and other areas under the mission. Therefore, any action and naval military activity of this fleet is considered an action of the US government. The use of laser cannons, laser warning devices, target finders and individual laser weapons by this fleet in the Persian Gulf region and the Oman Sea has had a special operational and combat development. Therefore, the American government is responsible for the violations and crimes of human rights and humanitarian rights caused by the use of the mentioned weapons by the fifth naval fleet. On the other hand, in the Iraq and Syria wars, we have witnessed the use of the private military organization "Blackwater Mercenaries" by the US government. These mercenaries are also engaged in the Saudi coalition in the Yemen war and use individual weapons and laser warnings (the laser beam is used directly) against military and civilian people, which have brain, skin, muscle and joint consequences. ... they aim at human beings. Therefore, the inhumane actions of this non-governmental military group are also considered the actions of the US government and will bring the international responsibility of the employing government.

4.3.4. Approval of Testing and Use Of Laser Weapons by Governments

In recent years, we have seen the testing of many laser weapons in sea and air by the United States of America, and this government has always approved their testing and experimental use¹. On the other hand, this government has repeatedly used laser weapons and equipment in military operations and approved their use². In the Persian Gulf region, in the two time periods of 2014 and 2017, the laser cannon system was tested on USS Dewey and USS Ponce with powers of 20 and 30 kilowatts, which have

¹ On May 16, 2020, the US Navy tested a 150-kW laser weapon in the Pacific Ocean. This laser weapon was tested from the deck of the battleship "USS Portland" and shot down a drone. Kerry Sanders, commander of the Portland cruiser, said, "By conducting advanced tests and using this weapon against drones and small boats..., we will provide a new definition of naval warfare.

² Assassination of general Soleimani in which laser guided missiles were used.

human and environmental consequences¹. They were. In this situation and by documenting and filing legal and criminal lawsuits by affected individuals and governments in domestic and international courts, the legal basis for verifying the responsibility of the American government should be provided.

Considering the aforementioned cases and the legal interpretation of the relevant human consequences and the comparative review and interpretation of war actions and activities and the violations and violations of the relevant obligations, establishing the international responsibility of governments and agents and real and legal institutions under the command and direction, based on The principles and rules of the 2001 International Responsibility of Governments plan are defined.

5. Conclusion

The 2001 draft of the international responsibility of governments, with the definition of international criminal and illegal acts and actions, based on the two main components of breach of obligation and the ability to assign them to the government or governments, a conceptual framework for ascertaining and determining the international responsibility of guilty and delinquent governments (Helmi,2017: 22). has planned Therefore, by determining and identifying cases of violations of international obligations by governments and determining the legal grounds for attributing illegal and criminal acts to them, their international responsibility is ascertained. In the matter of using laser weapons in international and non-international armed conflicts, we face two types of violation of obligations, both treaty and non-treaty, in two areas of simple and compound obligations. In the treaty field, the use of laser weapons of various types is a violation of the Fourth Additional Protocol of 1995 to the 1980 Convention on Conventional Weapons, which prohibits the use of blinding and sight-impairing laser weapons. On the other hand, the prohibition of using laser weapons in customary humanitarian law has been proposed in the form of rule 86, and from this aspect, their use is considered a violation of customary obligations. In the field of production, research and development of the aforementioned weapons and equipment, Article 36 of the 1977 Protocol

¹ Military forces who were exposed to this weapon suffered from complications such as headaches, dizziness, seizures, infertility, low fertility, skin complications, etc.



of the Geneva Convention of 1949 requires governments to ensure that there are no human and human rights consequences before producing the aforementioned weapons (Williams, 2003, 167). Therefore, considering the human consequences of the mentioned weapons, their production and development is a violation of the mentioned article. In the field of non-treaty international obligations, we are faced with universal and mandatory international obligations that the use of the aforementioned weapons at the tactical and technical military levels violates obligations such as respect for sovereignty and territorial integrity, prohibition of aggression, political and sovereign independence, prohibition intervention and... Therefore, it is also considered a violation of non-contractual obligations. The use of laser weapons, from the time of production to transfer, accumulation and use in armed conflicts, is a violation of a compound obligation in cases that after being used in armed conflicts, the compound obligation is violated, and in this regard, the government or governments involved They are each in the field of breached obligations and have international responsibility in relation to direct and indirect intervention, and actions can be attributed to them jointly, jointly or individually. Therefore, the use of laser technologies in armed conflicts and their military use in international and non-international conflicts are in the international framework of responsibility based on breach of obligation and assignability, and the offending governments must be within the established frameworks, compensate for the damage.

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