

• Study Guide •



DISEC



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2. Introduction to the committee.

2.1 History

The General Assembly (GA) was established under the IV chapter of the United Nations Charter, and it's its main organ. Said General Assembly is made up of six committees, DISEC being the first one of them.

The first resolution made by DISEC was in 1946, in light of the events of Nagasaki and Hiroshima, to address “Establishment of a Commission to Deal with the Problems Raised by the Discovery of Atomic Energy.” as an international concern.

The committee meets every year in October, for a 4-5 week session, and the 193 members of the General Assembly are entitled to attend.

2.2 Functions and powers

Taking into consideration the resolution 48/87 of the UN General Assembly, the Disarmament and International Security Committee must look for the solution by creating plans and strategies, and recommending other organs of the UN on topics and problematics such as:

- Nuclear weapons
- Massive destruction weapons
- Conventional weapons
- Regional disarmament and security,
- Disarmament in outer space.
- Disarmament mechanisms.

The First Committee of the UN General Assembly examines all disarmament and international security concerns within the Charter's jurisdiction, which are relevant to the powers and functions of any other UN entities. The committee uses basic principles of cooperation in the maintenance of international peace and security, as well as principles regulating disarmament and armament regulation, and promotion of cooperative arrangements and actions.

2.3 Tools

DISEC, as member of the UN General Assembly has the duty to work under the conditions established in Chapter IV of the UN Charter, specifically in the article 11, “The

General Assembly may consider the general principles of co-operation in the maintenance of international peace and security, including the principles governing disarmament and the regulation of armaments [...]”.

The First Committee of the UN General Assembly is the only main committee that has verbatim records coverage.

The Disarmament and International Security Committee has 4 subsidiary bodies:

- The Conference of Disarmament, that is a single multilateral disarmament negotiating forum of the international community.
- The United Nations Office for Disarmament Affairs (UNODA), which provides substantive and organizational support to Member States in the area of disarmament through the work of the General Assembly and its First Committee, the Disarmament Commission, the Conference on Disarmament, and other bodies. It fosters preventive disarmament measures, such as dialogue, transparency, and confidence-building on military matters, and encourages regional disarmament efforts. It also provides information on UN disarmament efforts.
- The Disarmament Commission: its work is usually divided into two groups, in which topics on the range of disarmament issues are discussed and must include nuclear disarmament.
- The expert groups established based on a recommendation. DISEC has the possibility to establish groups conformed by experts about a topic that concern the committee, to give advice or recommendation.

2.4 Ground documents

- United Nations Charter
- Rules of procedure
- Status of documentation of the first committee
- Programme of work, action, and timetable (according to the session being held)

3. Topic 1: Disarmament and eradication of the production of laser-directed energy weapons.

3.1. Introduction

To understand what lasers are and how these work, it's important to know that "laser" means Light Amplification by Stimulated Emission of Radiation. What makes lasers different from any other light source is that they emit coherent light, which is a property that allows stationary interference and makes the frequency and waveform identical.

A laser is created when the electrons of the atoms in special glasses, crystals, or gases, absorb the energy that comes from the electrical current and move from a lower energy orbit to a higher energy orbit. The light is directional and generates a tight beam that stays focused for vast distances. Lasers are classified into 3 types based on the medium they use:

- Solid-state laser: glass or crystalline materials are used, and light is used as pumping force.
- Gas laser: the laser light is produced and discharged through a gas inside the laser medium. It converts electrical energy into light energy.
- Liquid laser: uses liquid as a laser medium to which light is provided.

Laser weapons are directed- energy weapons based on lasers, which are weapons that damage their target with focused energy and there are three main types:

- Electrolaser: it's an electroshock weapon that can be considered as the high-energy, long-distance version of the Taser. It uses a laser-induced plasma channel, which emits a laser beam into the air and ionizes the surrounding gases to form a plasma using rapid heat.
- Pulsed energy projectile: the purpose of this weapon is to create an expanding plasma at the target, which creates sound, sound and electromagnetic waves that may cause pain and temporary paralysis. It is currently under development and may or may not be a lethal weapon.
- Dazzlers: its purpose is to disorient or temporarily blind the target with intense directed radiation. They emit infrared (invisible) light, and visible light against humans, but are intended to cause no long-term damage to the human eye.

It's also important to understand the danger these weapons represent, and that they are meant to cause either permanent or temporary damage, such as blindness. A powerful laser

weapon could cut through the retina, and burn through a person's brain tissue, if it was meant and focused to do so.

3.2. Background

The first laser was developed on May 16th of 1960 at the Hughes Research Laboratory in California. This first laser used a ruby which had its atoms excited through a powerful energy source. The first actual application of the laser appeared in 1971, when the laser printer was invented. Later, in 1974, the bar code scanners started being used.

Regarding laser weapons, the first laser and energy weapon was the ZEUS-HLONS, and it is still used for neutralizing mines and unexploded territories.

The newest laser weapon is the iron beam anti-missile weapon, which was announced in 2014 and developed in 2020. There have been a lot of versions of these kinds of weapons, but also a lot of them have been discontinued, canceled, or never went past the experimental stage, because high performance effective laser weapons seem very hard to achieve.

The Convention on Certain Conventional Weapons of the United Nations has the purpose of banning or restricting the use of specific types of weapons that may be considered by the international community as unnecessary, or that cause unjustifiable suffering to combatants and affect civilians indiscriminately. It is important to note that the only directed energy weapons regulated are the dazzlers, in the 4th protocol of the convention mentioned above.

Directed-energy weapons are getting more recognized and used with time, but there hasn't been any kind of statement among the international community, and that's the reason why it is important to know all the dangers these type of weapons represent, and what could happen if they are not regulated and considered as an actual concern.

3.3. Current Situation

Nowadays, the laser weapons that are functional are characterized for having low voltages, approximately 10kW to 100kW, for that reason, this kind of directed-energy weapons can produce temporary or permanent vision loss on humans. On the weaponry field, the current developed laser weapons can overthrow small unmanned aerial vehicles, motorboats, or small helicopters, as happened on August 4th, 2019 during the Libyan Civil War, when Turkish-

supported Libyan government forces used the laser weapon to shoot down a Chinese drone supplied by the United Arab Emirates to a rebel group called Libyan National Army.¹

Also, it is important to take into account that the original idea of developing laser weapons wasn't only creating a weapon able to shoot down small drones or create blindness in humans., Instead, the idea was to create weapons capable of shooting down huge warships, aircrafts, and tanks; for this it would be necessary to develop a weapon with a voltage higher than 150kW. An armament with a high voltage could have extreme consequences in human health. For example, if a person is attacked with one of this directed-energy weapons, in best cases can cause brain damage, third degree burns, evaporate the body's water, or almost destroy an organ; in worst cases it can cause death.

Additionally, the laser directed-energy weapons bring several operational advantages that are very likeable by the different armies around the world. The first one is that they can be adapted to the different platforms that an army needs, in other words, the laser weapons can be adapted to different types of warships, helicopters, war aircrafts, unmanned aerial vehicles, and war cars. Second, unlike the traditional weaponry, it doesn't generate any sound, the gravity doesn't affect the trajectory (this makes the laser weapon one of the most precise weapons that exists), they travel at the speed of light and have an infinite range (this allows its future use in outer space wars), and they don't need ammunition - only enough energy to work, so they eradicate lots of logistical issues. Nevertheless, the performance laser directed-energy weapons could be affected by atmospheric thermal blooming, which is a topic that hasn't been solved, and must be solved to allow the daily implementation of this kind of weapons.

The laser directed-energy weapons not only affect the weaponry scope, as it was mentioned above, but they can represent an enormous issue to international security, peace, and politics. This is mainly because there are no international and national regulations about the use, the production, the trade, and the commercialization of this kind of weapons.

In the International Community there are some countries that currently have programs developing laser weapons, some of them are already using them and others are in a testing stage.

- United States of America

Since 2014, the US has been developing directed-energy weapons, each one of them with different features, some of them able to destroy drones, improvised rockets, vehicles, and

¹ <https://nationalinterest.org/blog/buzz/did-turkish-combat-laser-shoot-down-chinese-drone-77286>

small boats. Also, there is the possibility that these weapons can be added to army vessels, airplanes, and tanks. Currently, the US is developing a laser weapon able to destroy huge war devices like vessels and planes, the most important in this list is The Tactical Ultrashort Pulsed Laser for Army Platforms.²

- Russia

The Russian programme is one of the most advanced in the world, it started working in 2017, and in the last two years the programme has expanded in a significant way. according to Russian Defense Minister Yuri Borisov, the country has developed several types of laser weaponry, and the Russian armed forces are in the process of adopting laser-based weapons systems. Nowadays, the Russian programme is focused on developing an airborne laser weapon.

- China

The Chinese programme started in 2014, and the first weapons were shown to the world through a promotional video broadcast by state-owned channel CCTV; these weapons can be used both in land and sea. This programme is developed as a response to the maritime primacy of the government, with the purpose of keeping their enemies' naval power at bay; and to address the insufficiency declared by the Chinese Communist Party of creating laws with claims and threatening other countries in an "old-fashioned way". Currently, the programme is mainly working on a new airborne laser attack pod, which depending on the level of power, could be used to defend a friendly aircraft from incoming missile threats, or destroy enemy aircraft and ground targets.

- United Kingdom

The UK laser weapon programme is called Dragonfire, which was launched in 2017 by the Defense, Science and Technology Laboratory on behalf of the Ministry of Defence, with a budget that overpasses the £30 M. The main objective of the programme is to create a laser weapon capable of striking a tiny target from miles away. In March 2021, The British Prime Minister Boris Johnson, reaffirmed the interest that this nation has in developing laser directed energy weapons. Currently, the programme is focused on creating lighter and smaller laser weapons, so they can be installed on airborne domains.

- Germany

² <https://www.sbir.gov/node/1654485>

Since 2019, Germany has shown interest in developing this kind of weapons, and in the beginning of 2021, the country decided to begin the production of maritime laser weapons and adapt them to German Navy frigate F124, German companies MBDA and Rheinmetall.

- Turkey

The Turkish Programme started a decade ago, in which they have focused on developing all types of laser weapons. In 2019, this country became the first country to attack who? using laser weapons, attacking a Chinese armed-drone during the Libyan Civil War. Since that attack, laser weapons have become a key priority to the government, and its main purpose is to take the maximum advantage possible in this field. One of the main objectives for the future is to start exporting direct energy weapons.

- India

India's Defense Research and Development Organization announced in September 2020, that they were going to start developing directed-energy weapons using lasers and microwaves. Nowadays, they are working on their first weapon, the DURGA II, which is going to be used in sea, land, and air.

- Israel

During the last years, Israel has focused its efforts into the laser directed-energy programme, achieving different important milestones in the programme, one of the most recent ones was in June 2021, where Israel became the first country to create the first airborne laser weapon capable of destroying drones. This weapon is a 100-kW prototype, and in the first tests was able to shoot down light aircraft rockets and drones that were 1km away.

- France

The French Programme is behind compared to the other 4 four Permanent Members of the UNSC. as a response to this situation, France decided in 2019 to announce that its programme was going to be mainly focused on the creation and development of anti-satellite laser weapons. The French government hopes that by 2025 the first testing will be made, and by 2030 the weapons are installed in their satellites.

3.4. Guide questions

1. Does your delegation have any internal regulations regarding directed-energy weapons?
2. Does your delegation consider the use of laser weapons as a threat to international peace and security?
3. Would your delegation be willing to support an international resolution meant to ban laser weapons?

4. Does your delegation have any internal control regarding arm trafficking?
5. Which type of weapon is the most commercialized in your country?

3.5. Recommendations

The United Nations has never given an official statement about the use of laser directed-energy weapons in military applications; that's why it is the responsibility of the delegates to discuss this topic for the first time. The chair recommends that the delegates are able to understand and differentiate all the types of laser weapons, especially by platform and by potential.

3.6. Useful links

Convention on Certain Conventional Weapons:

<https://www.un.org/disarmament/the-convention-on-certain-conventional-weapons/>

<https://www.youtube.com/watch?v=jMx1-yaRLyQ>

<https://nationalinterest.org/blog/buzz/did-turkish-combat-laser-shoot-down-chinese-drone-77286>

<https://www.youtube.com/watch?v=K4FcpfNhhnQ>

3.7. Glossary

Atmospheric thermal blooming: is an atmospheric effect that results from the nonlinear interaction of laser radiation with the propagation medium, usually air, which is heated by the absorption of a fraction of the radiation.

kW: a kilowatt is a unit of power equal to 1,000 watts (which is the standard measure to electrical power).

Laser attack pod: capsule capable of protecting laser attacks, and depending on the power that it contains, it can prevent aircrafts from being intercepted with this kind of weapons or counter the attacks of other aircrafts.

Unmanned aerial vehicles: also known as “drones”, is a type of aircraft that operates without a human pilot onboard. They can be controlled by onboard electronic equipment or via control equipment from the ground.

Ammunition: material used by a weapon to work, informally said, what the weapon fires.