

**Committee: Security  
Council  
Tópico A:  
Measurements to fight  
the threat of single-use**

# Tópico A: Measurements to fight the threat of single-use plastic 3D-printed weapons on international points



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## *Introduction*

The Security Council is responsible for maintaining and ensuring international peace. It determines the existence of a threat to peace or an act of aggression; it has the task of solving the presented conflicts peacefully. In some cases, the Security Council has the authority and obligation to answer with sanctions or even authorize using force to restore peace. This committee comprises 15 members: 10 elected members, and five permanent members, known as the G5.

After the Second World War, the United Nations established the Security Council in 1945 with four purposes, which remain relevant today: maintaining international peace and security, fostering friendly and diplomatic relations among nations, cooperating to solve international problems, promoting respect for basic human rights, and serving as a center for harmonizing the actions of nations in the search for upholding peace.

The Security Council can intervene at any moment if peace is threatened. If necessary, it can call an emergency meeting to reach a quick resolution. All United Nations member states must comply with the Security Council's resolutions. If a country

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refuses to comply, the Council may impose sanctions to ensure enforcement. The Security Council can also establish diplomatic missions worldwide to support its peacekeeping efforts.

The Security Council's permanent residence is in New York City, but meetings can be held in other locations such as Panama City, Geneva (Switzerland), and Addis Ababa (Ethiopia). The first meeting of this council took place on January 17, 1946, at Church House, Westminster, London. Due to the tensions during the Cold War, some sessions could not be completed as planned on the agenda.

The Security Council comprises ten elected members and five permanent members: the People's Republic of China, the French Republic, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland, and The United States of America. The General Assembly elects the ten non-permanent members for two-year terms. Each year, five members are changed through elections, ensuring geographical representation: five in Africa and Asia, two in Latin America and the Caribbean, one from East Europe, and two from West European countries.

The non-permanent members have the right to vote, but the resolution will not be approved if one of the five permanent members uses their veto power. The veto power can only be used to protect the nation's interests, address a foreign threat, or resolve an

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issue of state interest. The Security Council has the authority to take direct actions in resolutions and bind members, unlike other United Nations bodies that can only make recommendations to governments. Resolutions in the Security Council follow a structured process and are issued in a single document, known as the final resolution.

The Security Council holds significant power and responsibility within the United Nations framework, as stated in articles 24, 25, and 26 of the UN Charter. These articles emphasize the Council's duty to maintain international peace and security, ensure member states comply with its resolutions, and promote conflict resolutions. Additionally, the Security Council is tasked with minimizing the use of force in conflict and pursuing diplomatic measures to restore peace whenever possible.

## **Context of the Problem**

In the past decade, the regulation and control of international weapons has been a recurring topic in the United Nations Security Council, and it remains a global concern. Unregulated weapons trafficking facilitates violence by providing criminal organizations, such as cartels, with easy access to firearms, leading to global tragedies,

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including mass attacks and the entrenchment of cartel power in various regions (United Nations, 2023).

This issue is further compounded by regional instability, as seen in areas like Central Africa, where the trafficking of small arms and light weapons exacerbates civil conflicts and terrorism. Armed groups, particularly in countries like the Central African Republic and Gabon, have easy access to illegal weapons, making disarmament and stabilization efforts even more challenging. In December 2023, the United Nations held a Security Council meeting to address the problem, with Gabon playing a pivotal role in advocating for more African representation in discussions about global security and weapons control. This push for representation highlights the historical injustices and the underrepresentation of African nations in global security matters (United Nations, 2023).

Countries worldwide, such as those in the Balkans, also face similar challenges. Albania has raised concerns about the trafficking of small arms and light weapons within its borders, stressing that organized crime is deeply intertwined with the flow of these weapons. The ease with which weapons move across borders fuels not just local violence but also terrorism on an international scale. At the December 2023 meeting, Albania's representative, IGLI HASANI, emphasized that *“Efforts to combat organized crime are*

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*integral to the fight against the trafficking of small arms and light weapons” (United Nations, 2023).*

Weapons trafficking has been a persistent global issue dating back to the 16th century. However, in the 20th and 21st centuries, it has escalated to contribute significantly to violence and terrorism worldwide. Over the last decade, international peace efforts have increasingly focused on the control of weapons as a means to promote stability. The United Nations has repeatedly stressed that unregulated weapons not only threaten local populations but also have far-reaching effects on global security (United Nations, 2023). The 2020 study by the UNODC found that 89% of weapons trafficking in North America is illegal. Countries like those in Central America and the Middle East, which struggle with drug trade, civil wars, and social instability, face the greatest challenges in curbing the illegal arms trade (UNODC, 2020).

## **3D-Printing Processes Involved in Weapon Manufacturing**

3D printing has emerged as a key issue in the regulation of firearms, especially with the rise of "ghost guns". Producing firearms using 3D-printing technology makes them lack serial numbers and can evade traditional detection methods. Several 3D-printing processes are commonly used in the creation of firearms or firearm components:

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## 1. Fused Deposition Modeling (FDM):

FDM is the most widely used 3D printing process, particularly for domestic and hobbyist use. In this process, a thermoplastic filament (usually plastic such as ABS or PLA) is heated and extruded layer by layer to form the desired object. This method is affordable and accessible, with entry-level FDM printers starting at around \$200, making it easy for individuals to create 3D-printed firearms at home.

While the quality of FDM-printed firearms can vary, advancements in materials and printing techniques have enabled more durable and functional components to be produced. Most of the early 3D-printed guns, like the Liberator pistol, were made using FDM technology, although the quality and durability of these firearms were often questionable due to the plastic construction.

## 2. Stereolithography (SLA):

SLA is a more precise 3D-printing technique that uses a laser to cure liquid resin into solid layers. This method can produce highly detailed and smooth objects, making it suitable for more intricate firearm components. SLA-printed parts typically have a higher resolution and finer finish than FDM-printed parts, but they are also more expensive to produce.

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In terms of weapon production, SLA can be used to create detailed components such as triggers, grips, and other accessories that require a high degree of precision. However, due to the nature of the resin used, these parts tend to be more brittle than those produced using FDM or other methods, limiting their durability for heavy use.

### 3. **Selective Laser Sintering (SLS):**

SLS uses a high-powered laser to fuse powdered materials, such as nylon or other thermoplastics, into solid objects. This method produces parts with excellent mechanical properties and can print objects without the need for support structures, making it ideal for complex geometries. SLS-printed parts are typically stronger and more durable than those made using FDM or SLA, making this method particularly suited for firearm components that need to withstand significant stress.

In addition to plastics, SLS can also be used with powdered metals, producing stronger, more resilient parts. For example, 3D-printed metal barrels or firing pins can be made using SLS, which can increase the reliability and safety of a 3D-printed firearm.

### 4. **Direct Metal Laser Sintering (DMLS):**

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DMLS is a more advanced 3D printing technique that involves using a laser to melt and fuse metal powder layer by layer. This process allows for the creation of fully functional metal components, such as gun barrels, slides, and bolts. DMLS-produced firearms or firearm parts are typically much stronger and more durable than those made from plastic or resin.

The ability to produce metal parts via DMLS represents a significant advancement in the capability of 3D printing for weapon manufacturing. Firearms made using DMLS can rival traditionally manufactured guns in terms of strength and reliability, posing a greater threat to law enforcement due to their potential for widespread use in criminal activities.

## 5. Hybrid Designs:

Many 3D-printed firearms incorporate a mix of printed plastic parts and traditional metal components. For example, while the frame or grip of a gun might be 3D-printed using FDM or SLA, crucial functional parts such as the barrel or firing pin are often made from metal using traditional methods or advanced 3D-printing techniques like SLS or DMLS. This hybrid approach allows for the production of functional firearms that can withstand the pressures and forces exerted during firing.

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These 3D-printing processes offer various levels of precision, durability, and accessibility, allowing individuals to produce firearms or firearm components at home.

The growing accessibility of this technology has led to significant concerns among law enforcement agencies and policymakers, as it makes it easier for individuals to manufacture untraceable weapons that bypass traditional firearms regulations.

The proliferation of 3D-printed firearms adds a new dimension to the global issue of weapons trafficking, requiring updated legal frameworks and international cooperation to prevent the misuse of this technology.

## ***Current Relevance***

The rise of 3D-printed firearms has introduced unprecedented challenges to global security, exacerbating the issues surrounding traditional weapons trafficking. 3D printing technology once heralded for its revolutionary applications in medicine, engineering, and consumer goods, is now being exploited to manufacture untraceable and undetectable weapons. These firearms, commonly referred to as "ghost guns," have no serial numbers, making them virtually impossible to track. Law enforcement agencies worldwide have expressed concern over their use in criminal activities, as they bypass existing regulations designed to control the sale, transfer, and ownership of firearms.

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Several factors make 3D-printed firearms particularly dangerous. First, they can be produced using relatively inexpensive and widely available 3D printers and materials. The cost of entry-level 3D printers has significantly dropped in recent years, making it easier for individuals with little technical knowledge to produce functional firearms. For example, an entry-level Fused Deposition Modeling (FDM) printer can be purchased for as little as \$200, and with readily available plastic filament, users can create a weapon in hours.

Second, the lack of metal components in many 3D-printed firearms allows them to evade traditional detection methods, such as airport security metal detectors. This poses a significant threat to public spaces, including airports, schools, and government buildings, where security measures rely heavily on metal detection systems. Some designs, like the Liberator, a single-shot pistol, use only a small metal firing pin, meaning they can bypass these security measures undetected.

Third, the dissemination of digital blueprints for 3D-printed firearms across the internet has made it nearly impossible to control their spread. These blueprints are shared on forums, websites, and dark web platforms, where they can be downloaded by anyone with access to the necessary technology. This creates a global issue, as even countries with strict gun control laws are vulnerable to the influx of 3D-printed firearms. Efforts to

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regulate these digital files have been met with challenges, as they often cross borders digitally, making enforcement difficult.

The increasing sophistication of 3D printing technology also raises concerns about the future of weapons production. While early 3D-printed firearms were often unreliable and prone to malfunction, advancements in both materials and printing precision have led to the creation of more durable and functional firearms. Some models now incorporate hybrid designs that use both printed plastic components and traditional metal parts, further complicating detection and regulation efforts.

Law enforcement agencies are struggling to keep pace with the rapid evolution of this technology. In 2019, U.S. law enforcement agencies reported a surge in the number of 3D-printed firearms used in violent crimes. These weapons were found in the possession of individuals who would otherwise be prohibited from owning firearms, such as convicted felons and individuals with mental health issues. This highlights a significant loophole in current firearm regulations, as individuals who are legally restricted from purchasing traditional firearms can easily manufacture their own using a 3D printer.

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In response, several countries have introduced new legislation aimed at closing these gaps. For example, in the United States, the Biden Administration has pushed for stricter regulations on ghost guns, including requiring background checks for the purchase of key 3D printing components and mandating serial numbers on all firearms, including those produced at home. Other countries, such as Germany and the United Kingdom, have also tightened their gun laws to address the growing threat of 3D-printed firearms, focusing on restricting access to 3D printing technology and materials.

At the international level, organizations like the United Nations and INTERPOL are calling for greater collaboration among countries to address the global nature of this threat. Efforts to standardize regulations and improve information-sharing across borders are seen as essential steps in preventing the proliferation of 3D-printed firearms. However, the challenge remains that many countries have different approaches to gun control, making it difficult to implement a unified global strategy.

The rise of 3D-printed firearms presents a significant and growing challenge to global security. As technology continues to advance and become more accessible, the need for coordinated international efforts to regulate and control these weapons becomes increasingly urgent. Without decisive action, the proliferation of these unregulated

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firearms could lead to a new era of gun violence that law enforcement agencies are ill-equipped to handle.

## **Global Efforts to Combat Weapons Trafficking and 3D-Printed Firearms**

In response to the rising threat of 3D-printed firearms and weapons trafficking, numerous countries and international organizations are taking significant action to address the issue.

The **United States** with the **Undetectable Firearms Act (UFA)** was passed to tackle concerns about 3D-printed guns. This act mandates that all firearms must contain a certain amount of metal to ensure they can be detected by security equipment like metal detectors. In 2019, eight states and the District of Columbia enacted stricter regulations on 3D-printed firearms due to increasing gun violence and mass shootings. The U.S. continues to explore additional regulations to address the growing concerns over 3D-printed weapons.

The **European Union** with the **Firearms Directive (2017/853)** imposes stringent regulations on the production, trade, and possession of firearms, including 3D-printed weapons. It requires EU member states to implement background checks, establish national firearm registries, and track the movement of firearms within and

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outside the EU. **Europol** collaborates with law enforcement agencies in European Union countries to monitor and dismantle illegal arms trafficking networks, including 3D-printed weapons.

The **Interpol's Global Firearms Program** plays a critical role in facilitating international cooperation to combat firearms trafficking. Through the sharing of intelligence, joint operations, and cross-border coordination, Interpol helps curb the flow of illegal weapons, including 3D-printed firearms. The program provides training and resources to law enforcement agencies worldwide, enhancing their capacity to detect and investigate firearms trafficking.

The **United Nations Office on Drugs and Crime (UNODC)** provides technical assistance to countries facing challenges with illicit firearms trafficking, helping them strengthen their legal frameworks and law enforcement capabilities. It also conducts training programs to enhance the investigative skills of law enforcement officials, focusing on detecting and intercepting illicit firearm shipments, including those involving 3D-printed weapons.

The **World Customs Organization (WCO)**, plays a vital role in supporting border control efforts to prevent illegal arms trafficking. It trains customs officials in

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high-risk areas to detect and intercept illicit shipments, including those containing 3D-printed firearms. The WCO's efforts in controlling cross-border arms smuggling are critical for ensuring global security.

On the other hand, countries such as **Japan, Australia, the United Kingdom, and Germany** have also implemented some of the world's strictest firearm laws to prevent weapons trafficking and the rise of untraceable firearms like 3D-printed guns.

**Japan** enforces some of the strictest gun control laws globally. Prospective gun owners must undergo rigorous background checks, and mental health evaluations, and pass an extensive shooting range test. Licenses must be renewed every three years. Only shotguns and air rifles are allowed under strict conditions, and the illegal possession of firearms carries severe penalties. Japan's low crime rate is largely attributed to these stringent regulations.

**Australia** introduced its **National Firearms Agreement** in response to the 1996 Port Arthur massacre, which resulted in 35 deaths. The agreement banned semi-automatic rifles and shotguns and implemented strict licensing requirements. Additionally, a national gun buyback program collected over 600,000 illegal firearms.

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These measures led to a significant decrease in firearm-related deaths and mass shootings.

Following the Dunblane school massacre in 1996, which killed 16 children and one teacher, the UK implemented a complete ban on private handgun ownership. Today, firearm ownership in the UK is largely limited to shotguns and rifles, and individuals must demonstrate a valid reason, such as hunting or pest control, to be granted a license. The UK's strict regulations have contributed to its low rates of gun violence.

**Germany** has long-standing, stringent firearm laws that include mandatory background checks, psychological evaluations, and safety training. The country has continually expanded these laws, including stricter criteria for firearm storage and usage. Firearm licenses are difficult to obtain, and Germany categorizes weapons by class, implementing different levels of restriction based on their potential threat. German authorities closely monitor legal gun owners to prevent illegal activities.

Together, these countries and organizations form a comprehensive network working to combat weapons trafficking and the growing threat of 3D-printed firearms. By sharing intelligence, tightening regulations, and coordinating international efforts,

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they aim to mitigate the risks posed by these unregulated weapons and strengthen global security.

## Solutions

Addressing the threats posed by weapons trafficking and 3D-printed firearms requires a multifaceted approach, combining technological innovation, international cooperation, and legislative reform. Here are some detailed solutions currently being pursued by the international community:

- a. **Technological Solutions:** Technological advancements, particularly in AI and machine learning, are being leveraged to detect 3D-printed firearms and prevent the distribution of digital blueprints. AI-based scanning systems at airports and border control points can identify the unique properties of 3D-printed components, even when they contain minimal metal content. Similarly, cybersecurity measures are being developed to monitor and block the dissemination of firearm blueprints online. Governments and private companies are working on systems that track unauthorized 3D-printing activities through embedded digital markers in printing software.

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- b. **Legislative Action:** Countries like the United States, the United Kingdom, and Australia are updating their firearm laws to address the specific threats posed by 3D-printed guns. The enforcement of these laws involves closer regulation of 3D-printing technology, including restricting access to certain materials and requiring licenses for 3D printers capable of producing firearms. Moreover, many countries are passing laws that mandate the inclusion of traceable elements, like serial numbers, in all firearms, whether printed or traditionally manufactured. This ensures that even 3D-printed weapons are subject to regulatory oversight.
- c. **International Cooperation:** Organizations like the United Nations, INTERPOL, and EUROPOL are playing pivotal roles in facilitating cross-border cooperation to address the flow of illicit firearms. Joint intelligence-sharing platforms, such as Interpol's Firearms Program, allow countries to track arms trafficking routes and monitor online forums where 3D-printed firearm blueprints are traded. These international collaborations also ensure that law enforcement agencies from different countries can coordinate their operations in real-time, increasing the likelihood of intercepting illegal weapons before they cross borders.

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- d. **Public Awareness and Education:** Public awareness campaigns are crucial in educating citizens about the dangers of 3D-printed firearms and illegal weapons trafficking. Governments and international organizations are holding conferences, workshops, and public forums to inform the public about new regulations and the potential risks associated with these weapons. Schools and universities are also incorporating information about the legal and ethical implications of 3D-printing technology into their curricula, aiming to deter young people from using this technology for illegal purposes.
- e. **Cutting Off Materials Supply:** Another important solution is to regulate the sale of materials used in 3D-printing firearms. Governments are working with manufacturers and retailers to restrict access to certain plastics and metals that are commonly used in illegal firearm production. By imposing stricter controls on the sale and distribution of these materials, countries can reduce the risk of 3D-printed firearms being mass-produced by criminal organizations or terrorist groups.

Finding solutions to weapons trafficking, especially with the rise of 3D-printed firearms, is crucial for global security. These untraceable weapons pose serious risks to public safety and law enforcement. Without effective regulation and international

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cooperation, they can fuel violence and crime. Addressing this issue is essential to prevent further destabilization, reduce gun violence, and maintain public safety worldwide.

## *Points to Discuss*

### *1. Context*

- a. The 3D-printed weapons certainly affect the proliferation of
  - i. What are the main factors contributing to the proliferation of illicit firearms globally?
  - ii. How does the availability of 3D printing technology impact the landscape of illicit firearms trafficking?
  - iii. What role do organized crime networks play in facilitating the production and distribution of illegal weapons?
  - iv. How do political instability, armed conflict, and weak governance contribute to the problem of illicit firearm trafficking?
  - v. What advancements have been made in 3D printing technologies that have affected the problem?

### *2. Development*

- a. Should the use of 3D printers be banned?

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- b. What laws and regulations should be created to combat the problem?
  - i. If they already are, what are the specifications it should have to prevent loopholes?
- c. What technological solutions and innovations are being developed to detect and prevent 3D-printed firearms production?
- d. What role do emerging technologies, such as blockchain and artificial intelligence, play in combating illicit firearms trafficking?
- e. What challenges exist in implementing and scaling up technological countermeasures addressing the evolving threats of 3D-printed weapons?

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