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## Working Group on Firearms

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**Preventing and combating the illicit manufacturing  
of and trafficking in ammunition**

## Preventing and combating the illicit manufacturing of and trafficking in ammunition

Background paper prepared by the Secretariat

### I. Introduction

1. In 2017, the global legal export of small arms ammunition amounted to more than \$2.5 billion, which gives an indication of the amount of ammunition that flows through the legal market each year.<sup>1</sup> Such large volumes create a significant risk of legal firearms ammunition falling into the wrong hands.
2. In some regions, the popularity of certain types of weapons corresponds to the availability of their ammunition. Conversely, in some cases, a lack of ammunition has prompted combatants to seek to resolve their disputes peacefully (S/2011/255). Those examples, showing two sides of the same coin, highlight the fact that national, regional and international efforts to establish effective control over firearms and combat armed violence will yield results only when such controls are extended to control over ammunition.
3. The Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, supplementing the United Nations Convention against Transnational Organized Crime, with its combination of preventive and enforcement measures, is a cornerstone in international efforts to prevent, combat and eradicate the illicit manufacturing of and trafficking in firearms and ammunition in a holistic manner. In that regard, it provides an important foundation to ongoing complementary efforts at the international level to establish a global framework that will address existing gaps in through-life ammunition management.
4. While many previous recommendations of the Working Group made reference to ammunition in the triad of the scope of application of the Firearms Protocol (firearms, their parts and components, and ammunition), the Working Group has so far not addressed the topic of ammunition in detail. In its resolution 10/2, the Conference of Parties to the United Nations Convention against Transnational

\* CTOC/COP/WG.6/2022/1.

<sup>1</sup> Nicolas Florquin, Elodie Hainard and Benjamin Jongleux, *Trade Update 2020: An Eye on Ammunition Transfers to Africa* (Geneva, Small Arms Survey, 2020), p. 23.



Organized Crime singled out the topic of ammunition for the first time, acknowledging the occurrence, in some regions and countries, of an increasing amount of illicit trafficking in ammunition and the challenges of preventing, intercepting and tracing illicit trafficking in and the diversion of that ammunition ([CTOC/COP/2020/10](#)).

5. In line with that paragraph of Conference resolution 10/2, the present background paper provides an overview of the regulation of ammunition in relevant international and regional instruments. It summarizes the nature and modalities of the illicit manufacturing of and trafficking in ammunition and explores approaches to prevent and combat these crimes.

## **II. Ammunition in international and regional instruments**

6. Provisions on ammunition are included in several international, regional and subregional frameworks.<sup>2</sup> They differ, however, in terms of nature (either political commitments or legally binding instruments), membership, geographical coverage, and material scope, ranging from ammunition of firearms only to all types of conventional ammunition.

### **A. International legally binding instruments**

7. At the international level, two relevant legally binding instruments apply to ammunition used in firearms: the Firearms Protocol and the Arms Trade Treaty.

8. The Firearms Protocol applies not only to firearms and their parts and components but also provides a comprehensive regulatory framework on associated ammunition used in firearms. Ammunition is defined in the Protocol as “the complete round or its components, including cartridge cases, primers, propellant powder, bullets or projectiles, that are used in a firearm, provided that those components are themselves subject to authorization in the respective State Party”. Other conventional ammunition is not covered by the Protocol. Ammunition is consistently considered in almost all provisions of the Protocol, regulating key aspects of the supply chain (section III, below) and criminalizing certain conducts related to ammunition (section II).

9. While the Firearms Protocol focuses on preventing and combating the illicit supply of firearms and ammunition, the object of the Arms Trade Treaty is to regulate international legal trade in conventional arms and to prevent their diversion. Conventional ammunition, including those used in small arms and light weapons, is not explicitly included in the object, purpose and scope of application of the Arms Trade Treaty. However, pursuant to article 3 of the Treaty, States parties are obliged to establish and maintain a national control system to regulate the export of ammunition and to apply the export prohibitions and risk assessment criteria of articles 6 and 7 of that Treaty. Various additional provisions, in contrast, apply only to arms, including requirements on regulating import, transit, trans-shipment and brokering (arts. 8–10), preventing diversion (art. 11), keeping records of exported, imported, transited or trans-shipped items (art. 12) and reporting on diversion or annual transfers (art. 13, paras. 2 and 3).

### **B. International non-legally binding instruments and forums**

#### **1. Programme of Action on Small Arms and the International Tracing Instrument**

10. Among the international political instruments, neither the Programme of Action to Prevent, Combat and Eradicate the Illicit Trade in Small Arms and Light Weapons

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<sup>2</sup> For a full list of international, regional and subregional frameworks related to conventional ammunition, see [GGE/PACAS/2020/4](#).

in All Its Aspects nor the International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons apply to ammunition.

11. Nevertheless, in the context of the Biennial Meetings of States to Consider the Implementation of the Programme of Action on Small Arms, the issue of ammunition was raised a few times. In the Third Meeting and the Fourth Meeting, in 2008 and 2010, some States stressed the importance of the issue of ammunition for the implementation of the Programme of Action ([A/CONF.192/BMS/2008/3](#) and [A/CONF.192/BMS/2010/3](#)). In the outcome document of the third United Nations Conference to Review Progress Made in the Implementation of the Programme of Action on Small Arms and in the outcome document of the seventh Biennial Meeting it was highlighted that experiences related to ammunition that emanate from the implementation of other frameworks can also feed into the implementation of the Programme of Action. Explicitly, it was acknowledged that States that apply provisions of the Programme of Action to ammunition can integrate applicable policies and practices, including those acquired within the framework of other relevant instruments, into their small arms and light weapons control efforts ([A/CONF.192/BMS/2021/1](#)). This was also recognized by the General Assembly in 2021 in its resolution [76/232](#) on the illicit trade in small arms and light weapons in all its aspects.

## **2. General Assembly and the Security Council**

12. The General Assembly has addressed ammunition under an agenda item on problems arising from the accumulation of conventional ammunition stockpiles in surplus. Since 2005, the Assembly has adopted 10 resolutions on the topic. While earlier resolutions had a strong focus on reducing surplus stockpiles of ammunitions, later ones gave more room to security considerations and effective ammunition management (General Assembly resolutions [72/55](#) and [74/65](#)). From the very outset, the resolutions also encouraged Member States to implement measures to address illicit trafficking related to the accumulation of ammunition stockpiles (General Assembly resolution [60/74](#)).

13. In 2015, the Security Council, in its resolution [2220 \(2015\)](#), recognized the importance of preventing the illicit transfers and sales of weapons and ammunition to armed groups and criminal networks that target civilians and civilian objects. It further recognized, in the same resolution and in resolution [2117 \(2013\)](#), the value of effective physical security and management of stockpiles of arms and ammunition as an important means to prevent their illicit transfer, destabilizing accumulation and misuse. Recently, the Security Council, in its resolution [2616 \(2021\)](#), emphasized that the capacity of States under Council-mandated embargoes to exert effective control over their existing arms and ammunition stockpiles and future imports with a view to preventing such weapons from being diverted to the illicit market will be duly considered by the Council when evaluating the possible lifting of an arms embargo.

14. However, several relevant resolutions of the Security Council also contain some notable gaps in the context of ammunition: For example, resolution [2370 \(2017\)](#) on preventing terrorists from acquiring weapons refers only to small arms and light weapons but does not mention ammunition. Similarly, while the frequency is rising, only 7 of 13 Security Council-mandated arms embargoes that were active in 2019 contained references to ammunition ([S/2019/1011](#)).

## **3. Group of Governmental Experts on problems arising from the accumulation of conventional ammunition stockpiles in surplus**

15. In 2017, the General Assembly established the Group of Governmental Experts on problems arising from the accumulation of conventional ammunition stockpiles in surplus. The Group approached the topic with a focus on the dual challenges of unplanned explosions at munition sites and the diversion of ammunition.

16. Based on the recommendations in the Group's final report (A/76/324), the General Assembly, in December 2021, decided to establish an open-ended working group to elaborate a set of political commitments as a new global framework that would address existing gaps in through-life ammunition management, building upon and complementing existing frameworks. That framework was to include international cooperation and assistance, without prejudice to national legal systems addressing national ammunition ownership, possession and use (General Assembly resolution 76/233).

#### 4. International Ammunition Technical Guidelines

17. In addition to the political instruments and processes, the United Nations, mandated by the General Assembly, developed the International Ammunition Technical Guidelines.<sup>3</sup> The aim of the Guidelines is to supplement existing international and regional instruments and provide a framework to help States minimize the risk of unplanned explosions at munitions sites and to prevent diversion. While not officially endorsed, several resolutions of the General Assembly and the Security Council explicitly acknowledge the Guidelines.

#### 5. Agenda for Disarmament

18. Finally, ammunition also plays a role in the Agenda for Disarmament announced by the Secretary-General. In particular, the United Nations commits itself to enhancing support for State and regional action on excessive and poorly maintained stockpiles.<sup>4</sup>

### III. Illicit manufacturing of and trafficking in ammunition: nature, modalities and trends

19. In 2020, the United Nations Office on Drugs and Crime (UNODC) published the *Global Study on Firearms Trafficking 2020*, based on a comprehensive collection of data on seized firearms, their parts and components and ammunition from 81 countries. Of those countries, 45 countries provided data on seized ammunition. According to the study, States seized 3 million rounds of ammunition in 2016 and 7.9 million rounds in 2017. The amount of seized ammunition greatly varies from country to country. An average of 23 rounds of ammunition were seized for each seized firearm.<sup>5</sup> In a previous UNODC study from 2015, 31 contributing States reported a total of more than 23 million rounds of ammunition seized between 2010 and 2013, an average of 5.74 million rounds of ammunition per year.<sup>6</sup>

20. In 2016 and 2017, every second customs seizure case involving weapons or related items included the seizure of ammunition and parts thereof, while only 43 per cent involved firearms.<sup>7</sup> This suggests that ammunition trafficking occurs more frequently than trafficking in firearms. At the same time, ammunition is often sold together with firearms. In fact, one out of three significant firearms seizure cases also involved ammunition.<sup>8</sup>

<sup>3</sup> See, in this regard, General Assembly resolution 63/61. The Guidelines are maintained through the SaferGuard programme, available at <https://unsafeguard.org>.

<sup>4</sup> *Securing our Common Future: An Agenda for Disarmament* (United Nations publication, 2018), p. 45.

<sup>5</sup> *Global Study on Firearms Trafficking 2020* (United Nations publication, 2020), pp. 27 ff.

<sup>6</sup> United Nations Office on Drugs and Crime (UNODC), *UNODC Study on Firearms 2015: A Study on the Transnational Nature of and Routes and Modus Operandi Used in Trafficking in Firearms* (Vienna, 2015), p. 26.

<sup>7</sup> *Global Study on Firearms Trafficking 2020*, pp. 29 ff.

<sup>8</sup> *Ibid.*, p. 79. See also UNODC, *Illicit Trafficking in Firearms, Their Parts, Components and Ammunition to, from and across the European Union: Regional Analysis Report 2020*, (Vienna, 2020), pp. 118 ff., and 161.

21. Even though, due to different survey methods, the results of the 2015 and 2020 studies are comparable only to a limited extent, the studies unveil striking variations in the reported quantities of ammunition seized in the same countries over the years. Frequently in that period, the amount of ammunition seized increased or decreased sometimes by a factor of two, three or even much more from one year to the next. These fluctuations, together with existing gaps in data coverage in several countries and reported difficulties in detecting illicit trafficking flows, lead to the conclusion that these amounts likely represent merely the tip of the iceberg, as greater amounts of illicitly circulating ammunition remain undiscovered and/or unreported. The limited availability and reliability of the data impede an informed analysis of related crimes, proactive and intelligence-led investigations and evidence-based policies.<sup>9</sup>

22. Like firearms, ammunition often remains in circulation for decades, in some cases moving from the legal to the illicit realm, and may be used a long time after manufacture. Interestingly, this holds true for ammunition both in non-conflict and conflict-affected countries. For example, some of the ammunition that has been retrieved at crime scenes and sites of terror attacks in Europe appears to be old ammunition manufactured in the period from the 1960s to the 1990s.<sup>10</sup> Ammunition retrieved at crime scenes in four European countries was manufactured, on average, 33 years before its use.<sup>11</sup> Similarly, to take an example from a conflict setting, most of the 4,793 rounds of small-calibre ammunition documented by Conflict Armament Research in Ukraine between 2018 and 2020 were manufactured at least 20 years ago, spanning a production period going back 55 years. In fact, none of the ammunition documented had been manufactured after the time of the outbreak of the conflict in 2014.<sup>12</sup> Another study conducted by Small Arms Survey concluded that more than 70 per cent of firearms ammunition that was seized in Ukraine was manufactured before 1991, and only 1 per cent after 2010.<sup>13</sup>

23. Diversion of ammunition can occur at any point in its lifecycle, including during manufacture, before or during a transfer or retransfer, after a transfer and during end use or disposal, and from both national stockpiles and private holdings.<sup>14</sup> Diversion includes a variety of modalities, ranging from theft and resale of service ammunition through corrupt officials, diversion from manufacture, State-sponsored unauthorized retransfers, diversion en route, capture of ammunition including in cases of breakdown of active forces and/or State collapse, ineffective physical security and stockpile management, fraudulent actions, leaks from private actors and cross-border trafficking.<sup>15</sup>

24. The topic of diversion has previously been addressed at the eighth meeting of the Working Group on Firearms. A background paper prepared by the Secretariat ([CTOC/COP/WG.6/2021/3](#)) provides a comprehensive overview of possible points of diversion throughout the supply chain for firearms and ammunition and contains relevant case studies related to the diversion of ammunition. While that information remains valid, the following section of the present background paper focuses on those modalities that are typically used for the diversion of ammunition.

<sup>9</sup> André Desmarais and others, “Monitoring illicit ammunition through the ballistic datasets of four European countries”, *Forensic Science International*, vol. 330 (2022), p. 1.

<sup>10</sup> Nicolas Florquin and André Desmarais, “Lethal legacies: illicit firearms and terrorism in France” in *Triggering Terror: Illicit Gun Markets and Firearms Acquisition of Terrorist Networks in Europe*, Nils Duquet, ed. (Brussels, Flemish Peace Institute 2018), p. 213.

<sup>11</sup> Desmarais and others, “Monitoring illicit ammunition”, p. 11.

<sup>12</sup> Conflict Armament Research, *Weapons of the War in Ukraine. A Three-year Investigation of Weapon Supplies into Donetsk and Luhansk* (London, 2021), pp. 61 ff.

<sup>13</sup> Matt Schroeder and Olena Shumska, *Making the Rounds: Illicit Ammunition in Ukraine*, Emilia Dungel, ed. (Geneva, Small Arms Survey, Graduate Institute of International and Development Studies, 2019), p. 10.

<sup>14</sup> [GGE/PACAS/2020/3](#), pp. 2 ff.; and Arms Trade Treaty, Working Group on Effective Treaty Implementation, document [ATT/CSP4.WGETI/2018/CHAIR/355/Conf.Rep.](#), para. 11.

<sup>15</sup> [GGE/PACAS/2020/3](#), pp. 2 ff.; and James Bevan, “Conventional ammunition diversion”, in *Conventional Ammunition in Surplus: A Reference Guide*, James Bevan, ed. (Geneva, Small Arms Survey, Graduate Institute of International and Development Studies, 2008), p. 145.

## A. Illicit manufacturing of ammunition

25. In accordance with article 3 (d) of the Firearms Protocol, the illicit manufacturing of ammunition is defined as their manufacturing or assembly, either from illicitly trafficked components or without a licence or authorization from a competent authority of the State where the manufacture or assembly takes place. The offence of illicit manufacturing of ammunition covers the handloading and reloading of ammunition as well as the conversion of blanks into live ammunition.

### 1. Handloading and reloading of ammunition

26. The terms “handloading” and “reloading” are understood as the process of making firearm cartridges by assembling the individual components (case, primer, propellant, and projectile). While the term “handloading” is the more general term, “reloading” refers to the handloading of previously fired cartridges.

27. In the United Kingdom of Great Britain and Northern Ireland, during several investigations of illicit manufacturers of firearms also equipment and material to handload ammunition was recovered.<sup>16</sup> In four other European countries, non-factory ammunition that was produced by loading unprimed cartridge cases with a primer and powder, and crimping a bullet, was discovered at various crime scenes.<sup>17</sup> Against this backdrop, in its 2018 strategy document, “Securing arms, protecting citizens”, the European Union committed to continuing to address the illicit manufacture of ammunition, including through the illicit use of reloading tools.<sup>18</sup>

28. Another notable case was adjudicated in the United States of America in 2020, when the supplier of armour piercing ammunition used in a mass shooting that resulted in 61 deaths and 411 injured by gunfire was sentenced for engaging in the business of manufacturing ammunition without a licence. When investigators executed a search on the premises of the supplier, they seized hundreds of kilograms of ammunition and ammunition components and found a workshop that was in the process of being automated.<sup>19</sup> While generally a licence is not needed for the handloading of ammunition in the United States, it is required once a person engages in the business of selling or distributing reloads for the purpose of livelihood and profit.<sup>20</sup>

29. After several high-profile shootings, YouTube adopted a firearms policy that prohibits the posting of content that instructs viewers how to make ammunition.<sup>21</sup> Similarly, the search engine Bing no longer allows advertisements for products designed to create ammunition or that aid in ammunition reloading.<sup>22</sup>

### 2. Conversion of blank cartridges into live ammunition

30. In the European Union, the conversion of blank-firing firearms is among the main sources of illegal firearms.<sup>23</sup> Not only the weapons are subject to conversion but also blank ammunition, referring to non-bulleted ammunition rounds that produce a noise and a flash, is increasingly converted into lethal rounds. What was once primarily an artisanal process has more recently evolved into a practice on a much

<sup>16</sup> UNODC, *Illicit Trafficking in Firearms*, pp. 138, 143 and 157.

<sup>17</sup> Desmarais and others, “Monitoring illicit ammunition”, p. 11.

<sup>18</sup> Council of the European Union, Council conclusions on the adoption of an EU strategy against illicit firearms, small arms and light weapons and their ammunition, document No. 13581/18 (Brussels, 2018), p. 14.

<sup>19</sup> United States, Department of Justice, “Arizona man sentenced for illegally manufacturing ammunition without a license”, 30 June 2020.

<sup>20</sup> United States, Bureau of Alcohol, Tobacco, Firearms and Explosive, “Is a person who reloads ammunition required to be licensed as a manufacturer?”, 16 July 2020.

<sup>21</sup> Available at <https://support.google.com/youtube/answer/7667605>.

<sup>22</sup> Microsoft, restricted categories, “Weapons, knives, firearms and ammunition”, 14 February 2022.

<sup>23</sup> European Union Agency for Law Enforcement Cooperation (Europol), *SOCTA 2017: Serious and Organised Crime Threat Assessment – Crime in the Age of Technology* (The Hague, 2017), p. 54.



greater scale. For instance, in Operation Bosphorus, several European Union member States cooperated in tackling the trafficking of blank firing weapons. Of the nearly 34,000 pieces of ammunition recovered in the operation, 8,000 were converted rounds of blank ammunition.<sup>24</sup> According to another study, of 3,130 cartridge cases that were recovered at crime scenes in four European countries, 205 cartridge cases were converted blank-firing ammunition.<sup>25</sup>

## B. Trafficking in ammunition

31. The Firearms Protocol defines illicit trafficking in ammunition as the import, export, acquisition, sale, delivery, movement or transfer of ammunition from or across the territory of one State party to that of another State party if any one of the States parties concerned does not authorize it in accordance with the terms of the Firearms Protocol.

32. Often ammunition is trafficked along the same routes or even in the same shipments as firearms. Therefore, the different patterns and modalities of ammunition trafficking are as multifaceted as those of the illicit trafficking of firearms. They range from maritime trafficking on speedboats, concealment in containers on large cargo ships or in cars that are shipped on vehicle carriers, to airfreight trafficking, including postal shipments of ammunition.<sup>26</sup> In 2020, a Haitian national pleaded guilty to attempting to export some 36,000 rounds of ammunition to Haiti by concealing the contraband in a car he intended to ship to the island.<sup>27</sup> Similarly, in Germany, a defendant was sentenced for three cases of trafficking of 45,000, 60,000 and 70,000 rounds of ammunition to Lebanon in violation of an arms embargo. The ammunition was concealed in vans that were shipped to Lebanon.<sup>28</sup> Also land border trafficking of ammunition, including through so-called “ant trafficking” remains a typical trafficking pattern for smaller consignments of ammunition. One particularly relevant case of ant trafficking is mentioned in the 2021 Mexican lawsuit against gun companies of the United States. An individual was indicted for purchasing 37,200 rounds of ammunition between 2016 and 2018 and trafficking them into Mexico by means of 87 border crossings.<sup>29</sup>

33. The purchase of firearms and ammunition on the darknet, often combined with postal shipments of the purchased items, has raised concerns among investigators, as enhanced encryption makes it difficult to identify dealers and purchasers. A well-known case is the purchase of a Glock pistol and 450 rounds of ammunition in a darknet forum by the active shooter of Munich in 2016.<sup>30</sup> While some darknet purchases have gained significant attention, a 2017 study found that firearms-related listings made up only 0.5 per cent of the total number of listings on darknet marketplaces. Of those, only 25 per cent related to ammunition.<sup>31</sup>

34. As outlined in the above-mentioned background paper prepared by the Secretariat for the eighth meeting of the Working Group on Firearms (CTOC/COP/WG.6/2021/3), the consistent application of the offence of illicit ammunition trafficking can play a crucial role in the enforcement of arms embargoes.

<sup>24</sup> Benjamin Jongleux, Nicolas Florquin, “Monitoring the response to converted firearms in Europe”, Non-Proliferation and Disarmament Papers, No. 70 (Stockholm, Stockholm International Peace Research Institute, 2020), p. 8.

<sup>25</sup> Desmarais and others, “Monitoring illicit ammunition”, p. 13.

<sup>26</sup> UNODC, *Illicit Trafficking in Firearms*, pp. 104 and 126.

<sup>27</sup> United States, Department of Justice, “Firearms trafficker attempts to smuggle guns to Haiti”, 29 September 2020.

<sup>28</sup> Germany, Federal Court of Justice, Sentence 3 StR 314/13 of 24 July 2014.

<sup>29</sup> United States District Court for the District of Massachusetts, *Estados Unidos Mexicanos, v. Smith & Wesson Brands, INC. and others*, Complaint, 4 August 2021, para. 147.

<sup>30</sup> Germany, Regional Court Munich, Sentence 12 KLS 111 Js 239798/16, Judgement of 19 January 2018.

<sup>31</sup> Giacomo Paoli and others, *Behind the Curtain: The Illicit Trade of Firearms, Explosives and Ammunition on the Dark Web* (Santa Monica, California, RAND Corporation, 2017), p. 29.

That background paper provides a summary of selected case studies in which countries applied the trafficking offence in order to investigate and prosecute actors involved in ammunition transfers that circumvented such embargoes.

### C. Other sources of illicit ammunition

35. In addition to those modalities, ammunition also enters the illicit circuit through other forms of diversion not covered by the Protocol. That includes legacy ammunition circulating in post-conflict settings, the retransfer of ammunition to unauthorized destinations and recipients, State-sponsored ammunition supply in violation of international law, capture from national or private stockpiles and the sale of service ammunition through corrupt officials.<sup>32</sup>

36. Although States parties to the Firearms Protocol are not required to establish criminal offences covering such conduct, pursuant to article 11 of the Protocol, they are obliged to take appropriate measures to require the security of ammunition in an effort to detect, prevent and eliminate their theft, loss or diversion, which may include the establishment of criminal offences.

#### *Recommendations*

37. **With the support of UNODC, States should continue to collect and analyse data on seized ammunition, including through the use of standardized tools such as templates and automated applications, with a view to gaining a better understanding of sources of illicit ammunition, which is needed for evidence-based policies and proactive and intelligence-led investigations.**

38. **Taking into account the longevity of ammunition, States should ensure the destruction of surplus and legacy ammunition.**

39. **The real value of firearms depends on the availability of ammunition. Effective measures to stem the illicit trafficking and use of firearms must include efforts to prevent the illicit supply of ammunition.**

## IV. Preventive measures

40. In regard to the preventive measures enshrined in the Firearms Protocol, States parties are required to confiscate and seize illicit ammunition; maintain, where appropriate and feasible, information on ammunition that is necessary to trace and identify it; maintain an effective transfer authorization and notification system for the export, import and transit of ammunition; and adopt effective security measures. The following section provides further background information on these requirements while also encompassing additional preventive measures such as the marking of ammunition.

### A. Marking of ammunition and ammunition packaging

41. The marking of ammunition serves as a system of classification for record-keeping purposes that facilitates accounting for ammunition use, safe transportation, storage and quality control. Moreover, even though this is not the primary reason for ammunition marking, it can be used to trace transfers of ammunition in the context of disciplinary or criminal investigations.<sup>33</sup>

42. The Firearms Protocol, in its article 8, only requires the marking of firearms, not of ammunition. However, States parties shall, where appropriate and feasible,

<sup>32</sup> GGE/PACAS/2020/3, pp. 2 ff.; and Conflict Armament Research, “Typology of diversion”, *Diversion Digest*, No. 1 (2018).

<sup>33</sup> Giacomo Persi Paoli, “Ammunition marking: current practices and future possibilities”, *Small Arms Survey Issue Brief*, No. 3 (December 2011), p. 1.



record information that is necessary for the tracing and identification of ammunition (art. 7) and shall cooperate in responding to tracing requests (art. 12, para. 4). Tracing relies on the possibility of uniquely identifying a recovered item, which underlines the importance of markings on ammunition and/or ammunition packaging. To that end, and in accordance with article 34, paragraph 3, of the Organized Crime Convention, States may wish to go beyond the minimum requirements by marking ammunition.<sup>34</sup> In line with article 13, paragraph 3, of the Protocol, States could cooperate with ammunition producers and request these markings during ammunition procurement processes.

43. Owing to the absence of globally binding marking standards, the use of markings on ammunition and ammunition packaging varies significantly.<sup>35</sup> Contrary to the Firearms Protocol, several regional instruments have established such requirements. The Economic Community of West African States Convention on Small Arms and Light Weapons, Their Ammunition and Other Related Materials (art. 18, para. 3) and the Kinshasa Convention (art.14, para. 9), for instance, require that cartridges are marked with a unique lot/batch number, the manufacturer and the country and year of manufacture, as well as the purchaser and the country of destination if this information is known at the time of manufacture. In addition, the ECOWAS Convention and European Union directive 2021/555 (art. 4, para. 2) require that each elementary ammunition packaging shall be marked in such a way as to indicate the name of the manufacturer, the batch or lot identification number, the calibre and the type of ammunition. In accordance with article 14, paragraph 2, of the Kinshasa Convention, ammunition which is not marked shall be considered illicit and shall be destroyed.

## 1. Marking of single cartridges and ammunition packaging

44. Single cartridges commonly contain headstamps that indicate the manufacturer and the year of manufacture or the calibre. Conversely, the marking of the lot (composed of the serial number of the lot, the manufacturer's initials and the last two digits of the year of manufacture) is applied less frequently.<sup>36</sup> As long as a single round of ammunition is stored in its original packaging, basic information required for its identification and tracing can be found on its label. However, once the ammunition is removed, it is no longer possible to link the cartridge to its production lot, significantly decreasing the chances of successful tracing. The use of single cartridge marking may therefore improve stockpile management and increase the chances of successful tracing of diverted ammunition.<sup>37</sup> While lot marking can provide for important evidence in the investigation of diversion incidences from defence or security forces that purchase entire lots of ammunition, it might only be of limited use to trace ammunition that has been purchased in smaller quantities by individuals.

45. It is often argued that the marking of single rounds of ammunition is not feasible from an economical and practical point of view. However, nowadays the possibility

<sup>34</sup> Similarly, also the Group of Governmental Experts on Ammunition recommended ammunition marking for record-keeping, where feasible (A/76/324, table 1). For commented model provisions on the marking of ammunition, see the *Model Law against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition* (United Nations publication, Sales No. E.14.V.8), pp. 108 ff.; and United Nations, "Tracing illicit small arms and light", Modular Small-Arms-Control Implementation Series, MOSAIC 05.31 (2018), p. 5.

<sup>35</sup> While not adopted globally, the North Atlantic Treaty Organization (NATO) ammunition standards that have been formalized in several standardization agreements (STANAGs), represent the most complete standardization effort in the field of ammunition control.

<sup>36</sup> Holger Anders, "Following the lethal trail: identifying sources of illicit ammunition", in *Targeting Ammunition: A Primer*, Stéphanie Pézard and Holger Anders, eds. (Geneva, Small Arms Survey, 2006), p. 210.

<sup>37</sup> UNODC, *Technical Guide to the Implementation of the Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, supplementing the United Nations Convention against Transnational Organized Crime* (Vienna, 2011), p. 50; and Persi Paoli, "Ammunition marking", p. 9.

of introducing laser marking in the packaging machinery for ammunition provides a cost-efficient solution at the production stage.<sup>38</sup> Furthermore, if importing States do not have the resources to provide for such markings themselves, they can require the marking of ammunition prior to their import, prohibiting the import of unmarked ammunition. This approach is taken by the Dominican Republic, for instance, which requires all ammunition imported for the civilian market and law enforcement procurement processes to be marked with a lot number by the manufacturer or importer.<sup>39</sup> In Brazil, after ammunition destined for military use was seized by authorities from the hands of criminal organizations, the Firearms Act was reinforced and now requires the application of individual marks for the identification of the production lot and of the purchasing organization on each cartridge in order to prevent theft from the stockpiles of security forces.<sup>40</sup> In Brazil and Colombia, ammunition for security forces is produced in lots of 10,000–25,000 rounds for specific units, making it possible to trace back recovered ammunition to these entities.<sup>41</sup>

46. A recent development is the inkjet marking of surplus ammunition that is sold on the civilian market. The marking typically includes an alphabetical code that identifies the retailer and can provide information on the last legal transaction involving the ammunition in question, if such information is retained in databases.<sup>42</sup>

47. Considering that ammunition cartridges offer only limited space to apply markings, much of the information that is required for transfer and stockpile control is displayed on the packaging of ammunition, often also in the form of barcodes.

## 2. Microstamping (micromarking)

48. Microstamping, or micromarking, is a ballistic identification technology that can mark a single cartridge at the time of firing a firearm. Thereby, microscopic unique identifiers are engraved onto the tip of the firing pin of a firearm with a laser. When the gun is fired, these etchings are transferred to the primer by the firing pin. The microscopic markings imprinted on the cartridges can then be examined by forensic ballistics experts to help trace the firearm to the last registered owner.<sup>43</sup> Microstamping and ammunition marking provide two different kinds of investigative leads: while ammunition marking may help to trace and identify the source of illicit ammunition, microstamping may help to identify the firearm that fired the recovered ammunition and ultimately its last legitimate owner.

49. In 2018, California – the first jurisdiction to do so so far – required microstamping technology in all new semiautomatic firearms sold in the state.<sup>44</sup> To date, the practicability of microstamping, in particular with the aim of identifying and tracing firearms, has not yet been sufficiently assessed. In particular, there is an insufficient body of research related to the reliability and durability of microstamping, in particular the susceptibility to tampering and countermeasures.

### *Recommendations*

**50. For the purpose of identifying and tracing ammunition, States should consider the following:**

**(a) Marking ammunition and their smallest packaging units with identifiers of the manufacturer, country and year of manufacture, lot and/or**

<sup>38</sup> UNODC, *Technical Guide to the Implementation of the Firearms Protocol*, pp. 42 and 51.

<sup>39</sup> Dominican Republic, Law No. 631-16 for the Control and Regulation of Weapons, Ammunition and Related Materials (2 August 2016), art. 10, paras. 2 and 4.

<sup>40</sup> Brazil, Law No. 10.826 of 22 December 2003, art. 23, para. 2.

<sup>41</sup> James Bevan and Pablo Dreyfus, “Small arms ammunition lot marking”, in *Conventional Ammunition in Surplus. A Reference Guide* (Geneva, Small Arms Survey, Graduate Institute of International and Development Studies, 2008), p. 156; and Persi Paoli, “Ammunition marking”, p. 9.

<sup>42</sup> Desmarais and others, “Monitoring illicit ammunition”, p. 11.

<sup>43</sup> UNODC, *Technical Guide to the Implementation of the Firearms Protocol*, pp. 54 ff.

<sup>44</sup> United States, California, Assembly Bill No. 1471 (13 October 2007), chap. 572.

batch number and, if possible and feasible, the destined purchaser, and maintaining records of those markings;

(b) Uniquely linking each lot number to one recipient, instead of producing ammunition under one lot number for various recipients, when producing ammunition for official use;

(c) Requiring the mandatory use of microstamping technology in newly manufactured and imported firearms, for the purpose of linking ammunition retrieved at a crime scene to a unique firearm.

## B. Records of ammunition

51. If ammunition and ammunition packaging are marked with the aim of facilitating the tracing of recovered ammunition, such markings can contribute to increased accountability only if complemented by adequate record-keeping practices.

52. In contrast to the marking of ammunition, the maintenance of information related to ammunition is explicitly mentioned in article 7 of the Firearms Protocol. However, while States parties are required to maintain information that is necessary to trace and identify firearms, the requirement to keep information related to ammunition is less stringent and applies “where appropriate and feasible”. The extent of the inclusion of ammunition in national record-keeping regimes will depend also on the corresponding requirements to mark ammunition and ammunition packaging. In addition, pursuant to article 7 (b), information related to international transfers of ammunition, including the issuance and expiration dates of the appropriate licences or authorizations, the country of export, the country of import, the transit countries, where appropriate, and the final recipient and the description and quantity of the ammunition should be recorded.

53. Unlike the Firearms Protocol, the Arms Trade Treaty explicitly excludes all kind of conventional ammunition from its record-keeping regime. Consequently, States parties to the Arms Trade Treaty are not required to maintain records of the issuance of authorizations of ammunition exports nor information on imported or transited ammunition. During the negotiations of the Arms Trade Treaty, the question of whether to include ammunition in the Treaty’s scope of application was one of the most contentious issues. Opposition was mainly based on practical and logistical obstacles related to the maintenance of records of the large volumes of ammunition transfers.<sup>45</sup> However, in the 2015 report of the Secretary-General on small arms and light weapons, submitted to the Security Council, it is argued that since consumer traceability has evolved in other fields in which goods have an even higher turnover, “the question of including ammunition in arms regulation seems to be more a matter of political prioritization than one of technical or logistical impossibility” (S/2015/289, para. 11).

54. In that regard, the Group of Governmental Experts on Ammunition recommended that accurate and comprehensive records on production, sales, transfers and inventories should be maintained throughout the entire ammunition supply chain. Furthermore, States should encourage ammunition producers to maintain effective accounting and record-keeping systems that permit the retrieval (by serial, batch or lot number) of detailed sales and transfer records (A/76/324, paras. 56–57).

55. National record-keeping practices may vary significantly depending on the question of whether ammunition is sold under contract to a specific client (often security or defence forces) or produced for non-State actor markets. In the latter case, sport shooters and hunters usually purchase ammunition in smaller quantities. Consequently, ammunition of the same lot will be sold to various end users, limiting

<sup>45</sup> Stuart Casey-Maslen and others, “Art. 3: Ammunition/munitions”, in *The Arms Trade Treaty: A Commentary*, Andrew Clapham and others, eds., Oxford Commentaries on International Law Series (Oxford, Oxford University Press, 2016), paras. 3.02 and 3.07.

the informative value of records of lot numbers. In addition, in practice, even rather strict national firearms control regimes usually do not require dealers to keep records that would identify the authorized end user that purchased ammunition from a specific lot or report such information to firearms registries.<sup>46</sup> However, enhanced record-keeping mechanisms that include information on ammunition may at least help to trace the significant quantities of ammunition that are diverted from national stockpiles.

#### *Recommendation*

**56. States should consider maintaining records of imported and manufactured ammunition that, at a minimum include information on the lot number and first recipient of the ammunition, and, where possible, their end users.**

### **C. Security of ammunition**

57. In *Securing Our Common Future: An Agenda for Disarmament*, it is noted that “the loss of arms and ammunition from storage sites, and their onward proliferation, can be a catalyst for armed violence, conflict and insecurity”.<sup>47</sup> As several incidences have shown, diversion not only occurs from national stockpiles but also during international transfers of ammunition. For instance, more than 42,000 rounds of ammunition for the protection of the European Union Border Assistance Mission in Libya, as well as several shipments of a total of 3,000 tons of ammunition for small arms and light weapons by Belarus, were stolen at Tripoli International Airport between 2013 and 2015 (S/2015/128, paras. 135–139 and 151).

58. In accordance with article 11 (a) of the Firearms Protocol, States parties are required to adopt measures for security at the time of manufacture, import, export and transit through their territory, in an effort to detect, prevent and eliminate the theft, loss or diversion of, as well as the illicit manufacturing of and trafficking in, ammunition. Leaving the specific security measures to the discretion of States parties, it is currently the only binding reference to ammunition security at the global level. At the regional level, some legally binding instruments, such as the ECOWAS Convention on Small Arms and Light Weapons, Their Ammunition and Other Related Materials (art. 16), the Kinshasa Convention (art. 16) and European Union directive 2021/555 (art. 7) set out security and stockpile measures in greater detail.

59. While voluntary, the International Ammunition Technical Guidelines currently contain the most comprehensive frame of reference related to the physical security and stockpile management of ammunition. Modules of the Guidelines address risk management, ammunition accounting, storage facilities, ammunition processing, and transport and security of ammunition. In addition, the Organization for Security and Cooperation in Europe (OSCE) *Handbook of Best Practices on Conventional Ammunition* contains best practices guides on procedures for management and security of stockpiles and on ammunition transportation.

60. In parallel, the development of a global framework that will address existing gaps in through-life ammunition management (see above) is expected to provide in the future a comprehensive approach to the security and safety of ammunition at the time of manufacture, import, export and transit.

#### *Recommendation*

**61. In an effort to detect, prevent and eliminate the theft, loss or diversion of, as well as the illicit manufacturing of and trafficking in ammunition, States and private companies should consider incorporating into their standing operating**

<sup>46</sup> Anders, “Following the lethal trail”, p. 213.

<sup>47</sup> *Securing our Common Future*, p. 44.

procedures the safety and security measures provided in the International Ammunition Technical Guidelines and other relevant guidelines.

## D. Transfer controls

62. Similar to article 5, paragraph 2, of the Arms Trade Treaty, article 10 of the Firearms Protocol requires States parties to establish or maintain an effective system of ammunition transfers. Hence, before authorizing ammunition exports, exporting States shall verify that the importing State has authorized the transfer and that transit States have been given notice and did not object to the transit.

63. This transfer authorization system is process-driven and does not contain import and export criteria. Such criteria that structure or limit the discretion of officials charged with deciding whether to issue authorizations are, however, enshrined in articles 6 and 7 of the Arms Trade Treaty, which also apply to the transfer of ammunition. Therefore, the establishment of a comprehensive transfer control system that builds on the authorization process under the Protocol and includes the export criteria of the Arms Trade Treaty may create synergies in the implementation of the instruments for countries that are a party to both. In accordance with article 7, paragraph 1 (b)(iv), of the Arms Trade Treaty, exporting States should assess the risk that exported items could be illicitly trafficked during or after the transfer. In order to prevent onward trafficking of ammunition, exporting States should assess diversion risks, including stockpile safety standards and security measures in recipient States.<sup>48</sup> Moreover, exporting States may consider the mandatory use of non-retransfer clauses in end-user certification and post-delivery verification measures and notification of delivery, the latter in accordance with article 10, paragraph 4, of the Protocol.

64. The Protocol further requires certain procedural minimum standards for international transfers of ammunition. These include minimum information in export and import licences or authorizations and accompanying documentation, such as a description and quantity of the transferred ammunition, their final recipient and the countries of transit (art. 10, para. 3).

### *Recommendations*

65. **In order to maintain an uninterrupted paper trail of ammunition transfers that supports the detection, investigation, prosecution and adjudication of diversion incidences and illicit ammunition trafficking, States should require exporters to list all ammunition lot and batch numbers in sales documentation and authorization requests and record this information.**<sup>49</sup>

66. **Before issuing authorizations for the export of ammunition, States should assess the risk of diversion of the exported ammunition and request the disclosure of all parties involved in the transfer and possible retransfer, including intermediary recipients, freight forwarders and brokers.**

## E. Confiscation, seizure and destruction of ammunition

67. According to article 6 of the Protocol, the same requirements apply for the seizure, confiscation and destruction of ammunition as for firearms. However, the intrinsic risk of unplanned explosions of seized ammunition in storage facilities or during their destruction require additional precaution measures.

<sup>48</sup> See, for example, Council of the European Union, User's guide to Council common position 2008/944/CFSP defining common rules governing the control of exports of military technology and equipment, document No. 10858/15, pp. 128 ff.

<sup>49</sup> Similar recommendation in the final report of the Group of Governmental Experts on Ammunition ([A/76/324](#), p. 19).

68. With regards to the destruction of firearms ammunition, both the International Ammunition Technical Guidelines<sup>50</sup> and the OSCE Best Practice Guide on the Destruction of Conventional Ammunition offer detailed guidance on different destruction techniques, and their corresponding advantages and risks. In conflict and post-conflict settings, United Nations peacekeeping operations and other and intergovernmental organizations may be in a position to assist in ensuring the safe and effective collection and/or destruction of seized ammunition.<sup>51</sup>

69. Ammunition that might be needed as ballistic evidence in criminal investigations should not be destroyed until a final judicial decision has been given. Effective inventories of storage facilities and notification mechanisms with the judicial authorities are therefore required, to permit the identification of ammunition that can be disposed of.

#### *Recommendation*

**70. States should apply the fundamental principles of ammunition management, as contained in the International Ammunition Technical Guidelines, to seized and confiscated ammunition.**<sup>52</sup>

## **V. Investigative approaches**

71. The above case studies underline that even though large amounts of ammunition have been seized in investigations of firearms trafficking networks, the seizure of ammunition is often rather a by-product than at the centre of the operation. This is surely also due to the fact that ammunition is more difficult to trace than firearms.

72. In addition to illicitly trafficked or manufactured ammunition that is detected at border crossings or during operations, law enforcement officers also recover significant numbers of fired cartridges at crime scenes. Often, investigative measures focus on ballistic examination to establishing linkages with other cases where the same firearm may have been used. Conversely, they rarely exploit the full potential of systematically analysing the information contained on a single fired cartridge to create a comprehensive picture of the main types of ammunition in criminal use and the possible sources of trafficking. In short, recovered ammunition can provide important investigative leads not only to solve the crime but also to better understand and address ammunition trafficking in general.<sup>53</sup> Such information allows investigators to initiate proactive and intelligence-led investigation of the criminal procurement networks. On a larger scale, it contributes to the global understanding of ammunition proliferation and provides an evidence base for export risk assessments and prevention policies.<sup>54</sup> The tracing of ammunition and the examination of ballistic evidence are important investigative measures in that context.

### **A. Ammunition tracing**

73. As defined in article 3 (f) of the Firearms Protocol, “tracing” means the systematic tracking of firearms and, where possible, ammunition from manufacturer to purchaser for the purpose of detecting, investigating and analysing illicit manufacturing and trafficking. Ideally, it provides an understanding of the line of

<sup>50</sup> United Nations, Office for Disarmament Affairs, “International Ammunition Technical Guidelines 10.10: demilitarization, destruction and logistic disposal of conventional ammunition”, 3rd ed. (Vienna, 2021).

<sup>51</sup> See [S/2008/258](#) and Security Council resolution [2220 \(2015\)](#).

<sup>52</sup> Similar recommendation in the final report of the Group of Governmental Experts on Ammunition ([A/76/324](#), table 1, p. 15).

<sup>53</sup> Desmarais and others, “Monitoring illicit ammunition”, p. 1.

<sup>54</sup> Small Arms Survey, “Ammunition tracing protocols: a guide to safe, responsible, evidence-based ammunition tracing” (Geneva, 2021), p. 2.



supply to the last known legal holder and the point at which it became illicit.<sup>55</sup> States parties to the Firearms Protocol shall cooperate in the tracing of ammunition that may have been illicitly manufactured or trafficked (art. 12, para. 4).

74. Even though the vast majority of seized firearms – some 85 per cent – are accurately marked, according to the UNODC *Global Study on Firearms Trafficking 2020*, only 28 per cent of these potentially traceable firearms have been successfully traced back, while in one out of three cases no tracing procedure was initiated at all.<sup>56</sup> Because that ammunition is often manufactured in lots of several hundred thousand rounds, unlike serial numbers on firearms, a lot marking does not allow for an unambiguous assignment of a retrieved cartridge to its last legitimate owner. Furthermore, the utility of direct tracing is significantly reduced when ammunitions have changed hands since manufacture, for example, in cases of retransfers. Even if the ammunition is lot-marked, the marking can only help to identify the manufacturer and the first recipient but not any subsequent users of the ammunition.<sup>57</sup>

75. Nevertheless, ammunition tracing can provide important investigative leads in criminal investigations, such as narrowing down the group of potential suspects or, at least, for eliminating some potential sources from which the illicit ammunition could have come. These leads can be contextualized and supported by other evidence during investigations, including documentation of ammunition transfers, the presence of foreign troops, and documented theft from national or private stocks, among others.<sup>58</sup> In addition, the diversity of small-calibre ammunition manufacturers and years of production, combined with information on the calibres used by different security units, make each lot more easily identifiable and attributable to one specific unit. For instance, investigations of large amounts of assault rifle ammunition seized from drug trafficking organizations in Rio de Janeiro, Brazil, in the period 2004–2006 identified the civilian police of Rio de Janeiro as the source of the illicit ammunition. While such information is not sufficient to build a criminal case, it might establish an important starting point for investigations into individual perpetrators. In the above-mentioned case, it led to the arrest of the head of the ammunition depot of the civilian police, together with nine other policemen, on charges of diversion of at least 10,000 rounds of ammunition to drug-trafficking organizations.<sup>59</sup>

## B. Ballistic examination

76. Ballistic examination is not mentioned in the Firearms Protocol. However, it is a crucial part of investigations of firearms-related criminality. Usually used to investigate violent crimes that have been conducted with a firearm, ballistic examination may also provide important evidence to trace back illicitly trafficked firearms through ballistic evidence found on cartridge cases.

### 1. Ballistic comparison and automated ballistic identification systems

77. Somewhat similar to fingerprints, every firearm has unique characteristics that leave distinct markings on the projectiles and cartridge cases that are fired. Comparing these markings on cartridge cases that are recovered at crime scenes or that have been test-fired with seized firearms can help to identify the firearm and to link it to other crime scenes or even to its last legitimate owner. Ballistic comparison allows investigators to develop new investigative leads and to find connections

<sup>55</sup> Anders, “Following the lethal trail”, p. 208.

<sup>56</sup> *Global Study*, pp. 32 and 47.

<sup>57</sup> James Bevan, “Conventional ammunition tracing” in *Conventional Ammunition in Surplus: A Reference Guide*, James Bevan, ed. (Geneva, Small Arms Survey, Graduate Institute of International and Development Studies, 2008), pp. 43 ff.

<sup>58</sup> Persi Paoli, “Ammunition marking”, p. 9.

<sup>59</sup> James Bevan and Pablo Dreyfus, “Enemy within: ammunition diversion in Uganda and Brazil” in *Small Arms Survey 2007: Guns and the City* (Cambridge, Cambridge University Press, 2007), pp. 301 ff.

between separate crime scenes, even across borders. Thus, it may also provide a starting point for investigating cases of firearms trafficking.

78. While the comparison is often done manually, automatic ballistic identification systems can significantly automate the process of matching a piece of recovered ballistic evidence with information in a database, even going beyond national boundaries. Systems currently used include the Integrated Ballistic Identification System (which is used by, among others, the International Criminal Police Organization (INTERPOL) Ballistic Information Network), ALIAS, ARSENAL and Evofinder. Recently, more countries have started to develop their own domestic systems (for example, SUCOBA in Colombia and the system of the Ballistic and Biometric Lab in the Dominican Republic). As data from INTERPOL and the United States National Integrated Ballistic Information Network shows, countries using automated ballistic matching systems can significantly increase their analytical capability in linking different crime scenes in which the same firearm has been fired.<sup>60</sup>

79. Even more ambitious attempts have been approaches to establish national reference ballistic databases of all registered firearms. Such databases have the purpose of using the ballistic fingerprints of ammunition that are recovered at crime scenes to identify the firearm from which it was fired and trace it back to its last legitimate owner. A comprehensive study in the United States in 2008 on the feasibility of developing and using a national ballistics database concluded that such a database would not be advisable but recommended the improvement and systematic use of the national ballistic information network. In the same study, it was mentioned that alternative technologies, including microstamping (as mentioned above) could complement or perhaps replace the need to examine the currently used toolmarks on ammunition.<sup>61</sup> Similar projects to maintain a reference ballistic databases at state-level in Maryland and New York were discontinued. However, because new technical advancements have been made since the publication of the study, a reassessment of the conclusions might be required. In fact, several Latin American and Caribbean countries have started to require the test-firing of all newly registered firearms for the purposes of establishing comprehensive national ballistic reference databases or have initiated legal amendments in that regard.<sup>62</sup>

## 2. Regional and subregional cooperation, and centralized units

80. The access to and maintenance of ballistic information networks, combined with the need for sophisticated equipment, can be cost-intensive. To reduce the costs, jointly used systems may be efficient at the regional or subregional levels. For instance, Governments of Caribbean Community countries approved the establishment of the Regional Integrated Ballistic Information Network, which was operationalized in 2014, based on the IBIS technology. Caribbean States and territories that lack the equipment to capture ballistic images can use double-casting technology to send replicas of recovered cartridges to IBIS workstations in partnering countries and centralize the process of populating the ballistic information network. This provides a cost-efficient solution that provides all participating governments in the region access to the network and, at the same time, establishes a large database of ballistic evidence.

### *Recommendations*

**81. With the aim of investigating illicit trafficking in ammunition, States should consider systematically collecting and analysing information provided by the**

<sup>60</sup> INTERPOL, Crimes, Firearms Trafficking, “INTERPOL Ballistic Information Network”.

Available at [www.interpol.int](http://www.interpol.int); and United States, Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF), “National Integrated Ballistic Information Network factsheet” (June 2020).

<sup>61</sup> Daniel L. Clark and others, eds., *Ballistic Imaging* (Washington D.C., National Academies Press, 2008), pp. 5 ff.

<sup>62</sup> More information (Spanish only) is available at <https://labbs.com.do/nosotros> (Dominican Republic), [www.colcrim.cl/departamento-de-balistica-y-explosivos/banco-nacional-de-huellas-balisticas](http://www.colcrim.cl/departamento-de-balistica-y-explosivos/banco-nacional-de-huellas-balisticas) (Chile) and [www.camara.gov.co/huella-balistica](http://www.camara.gov.co/huella-balistica) (Colombia).

markings on ammunition and their packaging, maintaining investigative databases on this information and tracing back ammunition.

82. States are invited to test-fire all newly registered firearms to establish ballistic reference databases, make ballistic imaging of cartridge casings recovered at a crime scene a standard procedure in criminal investigations, and engage in cross-jurisdictional use of ballistic information systems, including through the establishment of regional or subregional ballistic examination centres and ballistic information networks.

## **VI. Conclusions**

83. It is ammunition that transforms a firearm from a piece of metal to a deadly weapon. In the context of firearms ammunition, as highlighted by the present background paper, the Firearms Protocol, with its combination of preventive/regulatory measures and enforcing criminal justice responses, remains a building block in efforts to prevent and combat the illicit manufacturing of and trafficking in ammunition and ammunition diversion in general.

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