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Responsiveness of the Firearms Protocol and national legislation to new and emerging threats relating to the illicit manufacturing of and trafficking in firearms, their parts and components and ammunition

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Background paper prepared by the Secretariat

I. Introduction

1. Over the past two decades, new firearms design and production methods, as well as changing *modi operandi* in transferring and illicitly trafficking firearms, their parts and components and ammunition, have emerged as important challenges to lawmakers and criminal justice systems in developing efficient legislative, policy and strategic approaches and in detecting, investigating and prosecuting crimes involving those types of arms. In response, increased attention has been given to these new and emerging threats in security threat assessments and law enforcement strategies and operations, as well as in national firearms control regimes, throughout the world. More recently, greater emphasis has been placed on new and emerging threats relating to the illicit manufacturing of and trafficking in firearms, their parts and components and ammunition at the international and regional levels.
2. The Conference of the Parties to the United Nations Convention against Transnational Organized Crime, in its resolution 9/2, expressed its conviction that States parties needed to ensure that their legal frameworks and relevant measures eliminated loopholes and adequately addressed the criminal exploitation of new forms of international commerce such as online trade in firearms, their parts and components and ammunition, with a view to reducing their illicit trafficking.
3. At its sixth meeting, the Working Group on Firearms recommended that Member States revise and strengthen their national firearms legislation in order to identify legislative gaps and potential loopholes that could facilitate the access of criminal or terrorist groups to firearms and their diversion into the illicit market,

* [CTOC/COP/WG.6/2020/1](#).



taking into account emerging threats and technological developments, by reinforcing, inter alia, their provisions on manufacturing, deactivation and conversion, and strengthening national transfer and licensing controls.¹

4. Moreover, workshop 4 of the forthcoming Fourteenth United Nations Congress on Crime Prevention and Criminal Justice, to be held in Kyoto, Japan, in April 2020, is to address current crime trends, recent developments and emerging solutions, in particular new technologies as means for and tools against crime, including trafficking in firearms on the dark web, among other issues.²

5. The issue of new and emerging threats and their impact on existing arms control regimes has been raised in other United Nations forums from different and complementary angles. While discussions in the framework of the United Nations Convention against Transnational Organized Crime and the Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, supplementing the Convention, have to date focused on the impact of those threats on the manufacture and transfer control regimes of firearms, their parts and components and ammunition, discussions within the framework of the Programme of Action to Prevent, Combat and Eradicate the Illicit Trade in Small Arms and Light Weapons in All Its Aspects and the International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons have considered those topics from the perspective of the implications of new technologies on the marking, record-keeping and tracing of small arms and light weapons.

6. In particular, two open-ended governmental expert meetings, held in 2011 and 2015 in the framework of the Programme of Action and the International Tracing Instrument, highlighted the difficulty of durably marking polymer-frame firearms; the challenges posed by modular weapons design to unique identification and tracing; the 3D printing (additive manufacturing) of small arms; and the opportunities offered by new and emerging technologies for strengthened small arms control.³ As a result, many States expressed a wish to undertake focused deliberations on a supplementary annex to the International Tracing Instrument in the light of new developments in manufacturing, technology and design, in particular of polymer and modular weapons during the forthcoming seventh Biennial Meeting of States to Consider the Implementation of the Programme of Action and the International Tracing Instrument in 2020.⁴

7. As the Firearms Protocol takes a comprehensive approach to the illicit manufacturing of and trafficking in firearms, their parts and components and ammunition by providing for concrete measures related to the marking and record-keeping of firearms, by instituting a firearms transfer control regime and by providing for measures relevant to the criminal justice system, among others, discussion of the impact that new and emerging threats are having on the effective implementation of the Firearms Protocol is crucial. Building on and taking into account the continuing discussions in the framework of the Programme of Action and the International Tracing Instrument may prove to be useful.

8. In order to facilitate such a discussion, the present background paper describes the most pressing new and emerging threats relating to the illicit manufacture of and trafficking in firearms, their parts and components and ammunition, and provides several recommendations on steps and approaches to counter the identified threats for consideration by the Working Group on Firearms. The paper also provides food for thought on the responsiveness of the Firearms Protocol to the identified threats and showcases examples of national legislation that may support the deliberations of the Working Group for subsequent consideration by the Conference of the Parties to the

¹ CTOC/COP/WG.6/2018/4, recommendation 6.

² A/CONF.234/PM.1, para. 173.

³ See A/66/157, annex, and “Summary by the Chair of discussions at the second open-ended meeting of governmental experts 2015” (June 2015).

⁴ A/74/187, paras. 75 and 76.

Organized Crime Convention. To that end, the paper provides examples contained in the Firearms Directive and implementing regulations adopted by the European Union, which illustrate a dynamic regional instrument that, in the recent past, has seen several important amendments to strengthen controls over firearms and help avoid risks related to several of the identified threats.

II. Responsiveness of the Firearms Protocol and national legislation to specific new and emerging threats relating to the illicit manufacturing of and trafficking in firearms, their parts and components and ammunition

9. While the number, scope and nature of threats related to the illicit manufacturing of and trafficking in firearms, their parts and components and ammunition is continuously evolving, the present paper focuses on eight key threats identified by the Secretariat, which are often interconnected and have an impact on each other. Those threats include: (a) conversion of weapons; (b) reactivation of deactivated firearms; (c) modification of firearms; (d) polymer firearms; (e) modular firearms; (f) additive manufacturing of firearms; (g) Internet and dark web purchases; (h) use of postal and courier services.

10. It should be noted that given the evolving nature of the topic at hand, some explanations on the Firearms Protocol are not reflected in existing tools developed by the United Nations Office on Drugs and Crime (UNODC), such as the *Travaux Préparatoires of the Negotiations for the Elaboration of the United Nations Convention against Transnational Organized Crime and the Protocols Thereto* and the *Legislative Guide for the Implementation of the Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition*, and are based on the interpretation of the Secretariat. It is the hope of the Secretariat that the discussions of the Working Group will be continued at the expert level to develop a clear picture on the responsiveness and the applicability of the Firearms Protocol to the identified threats.

11. It should also be noted that references to national legislation and regional frameworks are provided by the Secretariat as illustrative examples only. While the Secretariat sought to provide examples from different regions, the exercise was limited by the scope of legislation available to the Secretariat. Owing to the emerging nature of the threats under discussion, the countries referred to are predominantly those that have amended their legal frameworks on firearms in the recent past.

A. Conversion of firearms

1. Description of the issue

12. The international community and countries throughout the world are paying increased attention to convertible and converted weapons and related security threats. The UNODC *Global Study on Firearms Trafficking 2019* reveals that an average of 15 per cent of firearms reported as seized by Member States in 2016 and 2017 were seized in non-factory condition, which includes seizures of converted, modified, assembled and reactivated firearms, as well as artisanal manufactured firearms. While concrete data on seizures of converted firearms is scarce, proportionally high numbers of seizures of converted weapons were reported by Azerbaijan, Denmark, the Republic of Moldova, Sweden, Ukraine and the United Kingdom of Great Britain and Northern Ireland.

13. Of particular interest are so-called “alarm weapons”, which are defined as “portable devices not designed to fire solid projectiles”,⁵ including gas and blank firing weapons. Traditionally, alarm weapons have not been considered to be firearms as they are not intended to fire live ammunition, i.e., ammunition composed of primer, gunpowder and bullet, and that use the effect of an explosion to propel gases and residues. However, by modifying or changing individual components of such weapons, most notably their barrel, they can be transformed into firearms capable of firing live ammunition. Such changes can often be made with basic tools and a rudimentary technical understanding of weapons.

14. In many countries, alarm weapons are accessible on the legal market without any or only minimal control mechanisms. Owing to their easy convertibility into firearms capable of firing live ammunition, the free circulation of this type of weapon creates important opportunities for the illicit manufacturing of and trafficking in firearms, as well as their subsequent misuse. Moreover, converted firearms are more difficult to trace, as marking and record-keeping regimes are often less stringent for alarm, gas and blank-firing weapons than for firearms that are intended for firing live ammunition. In addition, there is no internationally recognized definition of what constitutes a “converted firearm” or a “convertible weapon”.

2. Responsiveness of the Firearms Protocol

15. The Firearms Protocol provides a highly relevant framework to address the issue of conversion in two ways:

(a) First, the Firearms Protocol uses the term “converted” when defining a “firearm”, by stipulating, in its article 3 (a), that “Firearm” is to mean any portable barrelled weapon that expels, is designed to expel or may be readily converted to expel a shot, bullet or projectile by the action of an explosive, excluding antique firearms or their replicas. Consequently, alarm weapons that “may be readily converted” into a firearm that expels a shot, bullet or projectile by the action of an explosive, should be considered to be firearms and fall under the same legal regime, including its provisions on marking, record-keeping, security measures, transfer controls and the criminal justice response. While the term “readily” may signify that not all alarm weapons may fall under the definition of firearm, there are currently no international technical guidelines in place that determine when a weapon may be considered to be “readily convertible”. Applying national firearms regimes to alarm weapons that are considered readily convertible to live-firing firearms would constitute an important measure to prevent the illicit manufacture and trafficking – and subsequent misuse of – such weapons. It would also provide criminal justice practitioners with important leads, such as markings on the weapons and information on end-users in databases, when tracing weapons and investigating crimes committed with them, as well as with stronger enforcement measures to curtail this emerging practice;

(b) Second, should national legal regimes not consider portable barrelled weapons that may be readily converted to expel a shot, bullet or projectile by the action of an explosive as a firearm and, therefore, not apply the legal regime to those items, the mere act of converting alarm or gas weapons into such a firearm without the authorization of a competent authority or without respecting the marking requirements under article 8 of the Firearms Protocol, should still be considered a form of illicit manufacture in accordance with article 3 (d) and be punishable as a criminal offence under article 5 of the Firearms Protocol.

3. Legislative and regulatory examples

16. In the recent past, numerous countries and regions throughout the world have introduced the notion of alarm, gas and blank-firing weapons as well as of convertible weapons into their legal regimes. For example, in 2016, Cameroon introduced a

⁵ Nicolas Florquin and Benjamin King, *From Legal to Lethal, Converted Firearms in Europe* (Geneva, Small Arms Survey, Graduate Institute of International and Development Studies, 2018), p. 19.

definition of “sound and blank arms” and classified such weapons under category 6 of its legal regime, which subjects their manufacture to authorization and their use during funerals and cultural ceremonies to prior declaration.⁶

17. In 2008, the Bahamas adopted a definition of “firearms” which includes “any dummy pistol or revolver capable of being converted or used as a firearm” and introduced a penalty for the illicit conversion of firearms.⁷ The country then complemented the regime by adopting, in 2014, a definition of a “readily convertible firearm”, which comprises “an object which can be converted into an imitation firearm without special skill on the part of the person converting it and the work involved in converting it does not require equipment or tools other than such as are in common use”.⁸

18. In 2008, the European Union harmonized its definition of “firearm” with the one provided by the Firearms Protocol by stipulating that “‘firearm’ means any portable barrelled weapon that expels, is designed to expel or may be converted to expel a shot, bullet or projectile by the action of a combustible propellant, unless it is excluded from that definition for one of the reasons listed in Part III of Annex I.” The relevant amendment further defines that “an object shall be considered to be capable of being converted to expel a shot, bullet or projectile by the action of a combustible propellant if: (a) it has the appearance of a firearm; (b) as a result of its construction or the material from which it is made, it can be so converted.”⁹ Conversion was also a key topic of the 2017 amendment to the Firearms Directive of the European Union, which acknowledged that the risk of acoustic weapons and other types of blank-firing weapons being converted into real firearms was high and underscored the importance of including those weapons in the scope of application of the Directive.¹⁰ In a similar vein, in January 2019 the European Union adopted technical specifications for alarm and signal weapons, which are intended to increase understanding of which of these weapons are capable of being converted to expel a shot, bullet or projectile by the action of a combustible propellant and are therefore considered to be a firearm.¹¹

B. Reactivation

1. Description of the issue

19. The deactivation of firearms is recognized in many countries to allow the possession of such items by owners, including collectors and museums, who do not wish to possess functioning firearms, under less restrictive conditions than those pertaining to the possession of functioning weapons. Depending on the specific deactivation measures undertaken, the weapon may, however, be returned to functioning status by removing obstacles introduced into the firearm as part of the deactivation process or by replacing specific parts and components that were previously rendered inoperable.

20. The Flemish Peace Institute, in its report *Firearms Acquisition by Terrorists in Europe: Research Findings and Policy Recommendations of Project SAFTE*, describes the reactivation of deactivated firearms and acoustic expansion weapons as one of the most important illicit supply mechanisms for firearms in the European

⁶ See sections 2, 31 and 32 of law 2016/015 of 14 December 2016.

⁷ See articles 2 and 36 of the 2008 Act to Repeal and Replace the Firearms Act of 1969.

⁸ See “Amendment of section 2 of the principal Act”, Firearms (Amendment) Act, 2014.

⁹ See article 1, paragraph 1 (a) of Directive 2008/51/EC of the European Union Parliament and of the Council of 21 May 2008 amending Council Directive 91/477/EEC on control of the acquisition and possession of weapons.

¹⁰ See Directive 2017/853 of the European Union Parliament and of the Council of 17 May 2017 amending Council Directive 91/477/EEC on control of the acquisition and possession of weapons (*Official Journal of the European Union*, L 137/22).

¹¹ See Commission Implementing Directive 2019/69 of 16 January 2019 laying down technical specifications for alarm and signal weapons under Council Directive 91/477/EEC on control of the acquisition and possession of weapons (*Official Journal of the European Union*, L 15/22).

Union, together with cross-border smuggling, change of ownership through theft and the conversion of blank-firing guns.¹²

21. The Modular Small-arms-control Implementation Compendium – a collection of non-binding good practices in small arms control, developed through the United Nations Coordinating Action on Small Arms Mechanism – defines a deactivated small arm as a “small arm that has been rendered incapable of expelling or launching a shot, bullet, missile or other projectile by the action of an explosive, that cannot be readily restored to do so, and that has been certified and marked as deactivated by a competent State authority.”¹³ In the Compendium it is further noted that deactivation requires that all pressure-bearing components of a small arm be permanently altered in such a way as to render the weapon unusable, including modifications to the barrel, bolt, cylinder, slide, firing pin and/or receiver/frame.

2. Responsiveness of the Firearms Protocol

22. Article 9 of the Firearms Protocol provides some flexibility with regard to national control regimes on deactivated weapons. On the one hand, it implies the possibility for States parties to recognize a deactivated firearm as a firearm in accordance with its domestic law. In such a case, the firearms control regime, including provisions on marking, record-keeping, security measures, transfer controls and the criminal justice response, would also apply to deactivated firearms.

23. On the other hand, the Firearms Protocol provides a set of general principles of deactivation that States parties should abide by, should they not recognize a deactivated firearm as a firearm, and requires States parties to take necessary measures, including the establishment of specific offences if appropriate, to prevent the illicit reactivation of deactivated firearms. Those principles are intended to ensure that any deactivation resulting in a firearm that is no longer treated or recorded as such must also be essentially irreversible,¹⁴ and relate to the result of the deactivation process as well as its verification.

24. In the absence of a specific offence of illicit reactivation of firearms, the process of reactivating a weapon that does not fall under the firearms regime may also qualify as illicit manufacturing of firearms under article 3 (d) of the Firearms Protocol. In addition to establishing specific offences, it is recommended that countries retain records and extend the transfer control system under article 10 of the Firearms Protocol to deactivated firearms to ensure their traceability.¹⁵

3. Legislative and regulatory examples

25. In practice, a vast number of countries do not apply their firearms control regimes to deactivated firearms. For instance, in Canada, once a firearm is properly deactivated, it no longer requires registration. In order to standardize the deactivation process, the authority administering the firearms registry has adopted the Canadian Firearms Registry Deactivation Guide and strongly recommends that it be followed during the process of deactivation. For the deactivation of firearms of calibre 20mm or less, including semi-automatic, fully automatic, selective fire and converted firearms, a hardened steel blind pin of a certain diameter must be force fitted through the barrel at the chamber, and where practical, simultaneously through the frame or receiver, to prevent the chambering of ammunition. In addition, the barrel must be welded to the frame or receiver to prevent replacement and the receiver must be welded closed to prevent replacement of the breech bolt.

¹² See Nils Duquet and Kevin Goris, *Firearms Acquisition by Terrorists in Europe: Research Findings and Policy Recommendations of Project SAFTE* (Brussels, Flemish Peace Institute, 2018), p. 19.

¹³ See United Nations, Office of Disarmament Affairs, *Modular Small-arms-control Implementation Compendium*, “Glossary of terms, definitions and abbreviations” (MOSAIC 01.20:2018(E)V1.5).

¹⁴ *Legislative Guides for the Implementation of the United Nations Convention against Transnational Organized Crime and the Protocols Thereto* (United Nations publication, Sales No. E.05.V.2), part four, para. 150.

¹⁵ *Ibid.*, paras. 155–156.

26. Similarly, in 2014, South Africa adopted standards for the deactivation of firearms, detailing specific modifications to be undertaken to render the barrel and chamber, revolver cylinder, firing pin, breech face, slide, bolt or breech block and frame or receiver permanently inoperable.¹⁶ The regulation describes specific administrative steps linked to the deactivation process and provides that the registrar must cause the licence, authorization or permit to be cancelled and destroyed on receipt of the deactivation certificate and after inspection of the firearms by the designated firearms officer.¹⁷

27. At the regional level, in December 2015 the European Union established common guidelines on deactivation standards and techniques for ensuring that deactivated firearms are rendered irreversibly inoperable via Commission Implementing Regulation (EU) 2015/2403.¹⁸ The guidelines introduce the verification and certification of the deactivation of firearms, establish the requirement to mark all deactivated firearms with a common unique marking and provide a list of specific operations to be performed for each component as part of the deactivation process.

C. Modification of firearms

1. Description of the issue

28. Closely linked to the issue of conversion is the problem of illicit modification of firearms. Countries may see various types of illicit modification, such as shortened barrels of shotguns to ease their concealment and make manoeuvring arms easier in cramped spaces or firearms where the functioning mode has been transformed from semi-automatic to fully automatic.

29. An emerging phenomenon is the illicit modification of so-called “Flobert” firearms, which are characterized by their typically limited fire power (up to 7.5 joule) and use of rimfire ammunition of a small calibre (generally 6 mm or 4 mm M20). Flobert firearms can be bought legally in many countries without authorizations, as legislators often associate this kind of firearm with a lower security risk.¹⁹ The Flemish Peace Institute revealed a link between the passing of more strict regulations on deactivated firearms by the European Union in 2015 and the increase in the availability of firearms that have been modified to turn them into Flobert firearms, stating that “with the new EU deactivation procedures, arms dealers who own large numbers of firearms that were deactivated according to older standards now generally have two options if they wish to keep selling them legally to people without authorizations: either deactivate them again, but this time according to the new EU procedures, or convert them into Flobert guns. Many of these arms dealers will probably choose the second option because the firearms will be worth more.”²⁰ However, several countries have started to seize either original Flobert firearms or firearms modified to meet the Flobert characteristics that did not comply with the current specifications of a Flobert firearm and were actual firearms with high firing power. This development attests to the feasibility of modifying Flobert firearms into high-performing firearms that fire more powerful ammunition, which poses a security threat beyond that anticipated by legislators.

¹⁶ See South Africa, Firearms Control Act, 2000 (Act No. 60 of 2000), article 195 of the regulations issued in terms of section 145 of the Act.

¹⁷ Ibid.

¹⁸ See Commission Implementing regulation (EU) 2015/2403 of 15 December 2015 establishing common guidelines on deactivation standards and techniques for ensuring that deactivated firearms are rendered irreversibly inoperable (*Official Journal of the European Union*, L 333/62).

¹⁹ See also explanations provided by Duquet and Goris, *Firearms Acquisition by Terrorists in Europe*, p. 103.

²⁰ Ibid, p. 104.

2. Responsiveness of the Firearms Protocol

30. The issue of modification of firearms is not explicitly addressed in the Firearms Protocol, the *Travaux Préparatoires* of the Convention or the *Legislative Guide*. The UNODC Global Programme on Firearms, in its programmatic work, distinguishes the modification of a firearm from the conversion of a weapon by examining the original item. If the weapon that was altered constituted a firearm from the outset, the alteration should be considered a modification. If the weapon that was altered was not designed as or did not constitute a firearm but was turned into one, the alteration should be considered a conversion.

31. The criminal classification of the act of modification seems to constitute a grey area under the Firearms Protocol. While changing essential parts and components of a firearm during the modification process without authorization could be considered to be the unauthorized assembly of a firearm (art. 3 (d) of the Firearms Protocol), the same is not the case for other forms of modification, such as cutting a barrel. In a similar vein, it is noted in the Modular Small-arms-control Implementation Compendium that the manufacture of small arms and light weapons may include the substantial modification of the function of a small arm or light weapon.²¹ Therefore, whether or not the Firearms Protocol provides an adequate legislative basis to address the act may depend on the exact type of modification.

3. Legislative and regulatory examples

32. Regarding specific types of modification, Trinidad and Tobago, for example, criminalizes the act of shortening the barrel of any firearm without the prior written approval of the Commissioner of Police.²² A similar provision is contained in the 1996 Firearms Act of the Australian Capital Territory. However, Australian law also addresses modifications that shorten the overall length of certain firearms or the stock of certain firearms to a specific level.²³

D. Polymer firearms

1. Description of the issue²⁴

33. The report of the Secretary-General on recent developments in small arms and light weapons manufacturing, technology and design and implications for the implementation of the International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons (A/CONF.192/BMS/2014/1) provides an overview of the historical use of various materials to manufacture firearms. It identifies a range of advantages of polymer compared to traditional materials, such as steel, wood and Bakelite, a liquid resin, which include lower cost, lighter weight, resistance to moisture, ergonomic design and thermal neutrality.

34. The Secretary-General notes that for weapons made of polymers, such markings as the manufacturer's name and logo can be applied directly in the cast or mould at the time of manufacture, but that serial numbers cannot be included in the cast since each weapon requires a unique serial number. Potentially suitable marking solutions, such as laser marking and micro-percussion, whereby markings are applied by deforming the surface either by compression or using a hardened punch that prints a series of individual dots to reproduce alphanumeric characters, present additional

²¹ See Modular Small-arms-control Implementation Compendium, "Glossary of terms, definitions and abbreviations".

²² See article 15 of the 2015 Amendment to the 1970 Firearms Act of Trinidad and Tobago.

²³ See sections 250 and 251 of the Firearms Act 1996 of the Australian Capital Territory.

²⁴ For a general discussion on the topic see, for example, Giacomo Persi Paoli, "Techno-polymers in firearms manufacturing: challenges and implications for marking, record-keeping, and tracing", in *Behind the Curve: New Technologies, New Control Challenges*, Benjamin King and Glenn McDonald, eds. (Geneva, Small Arms Survey, Graduate Institute of International and Development Studies, 2015).

challenges, as laser marking may have an impact on the possibility of recovering markings erased by criminals and marking by micro-percussion may have consequences for the integrity of the firearm and its components.

35. The Modular Small-arms-control Implementation Compendium foresees primarily the marking of polymer weapons to be applied to a metallic insert in the main plastic components of the firearm on which markings, additional to the manufacturer and the logo, could be added.²⁵ It specifies that the metal plate should be permanently embedded in the material of the frame in such a way that (a) the plate cannot be easily or readily removed; (b) removing the plate would destroy a portion of the frame. It also specifies that the plate should provide enough space to receive at least one import marking.

36. In addition to challenges related to the marking and traceability of polymer firearms, Member States face security challenges because such firearms are not detectable by metal detectors or X-ray machines, such as those used in airports.²⁶

2. Responsiveness of the Firearms Protocol

37. While the Firearms Protocol does not explicitly provide measures related to the manufacture of polymer firearms, the fact that the Protocol, in its definition of illicit manufacturing, subjects the manufacturing or assembly process to a licence or authorization, implies that such a control regime should be established in each State party for firearms and ammunition, regardless of the material used in manufacture.²⁷

38. Challenges in the implementation of the Firearms Protocol related to the use of polymers for firearms manufacture arise in particular with regard to the marking provisions of article 8 of the Protocol, which requires that each firearm be readily identifiable by means of markings applied at the time of manufacture as well as at other stages of its life cycle. Attention must therefore be paid to ensuring that regardless of the material used for the manufacture of the firearm, the required markings can be applied at various stages thereafter.

3. Legislative and regulatory examples

39. The legislation and regulations of most countries reviewed by the Secretariat apply the same marking requirements regardless of the materials a firearm is made of. However, some national regimes address specifically the issue of marking and manufacturing of polymer firearms. For example, in 2018, Bosnia and Herzegovina adopted a regulation requiring that the identification marks of weapons as well as transfer or export marks should be in a prominent place and at least 2 mm in size, at least 0.1 mm deep if placed on metal and 0.2 mm if placed on non-metal (polymer), and should be permanent and resistant throughout their lifetimes under normal operating conditions as well as resistant to deletion, alteration or removal.²⁸

40. Moreover, in 2001, the United States of America amended its regulations to prescribe minimum height and depth requirements for identification markings placed on firearms by licensed importers and licensed manufacturers and required manufacturers and importers using polymer plastic frames to mark serial numbers in a steel plate embedded within the plastic.²⁹

²⁵ See United Nations, Modular Small-arms-control Implementation Compendium, “Marketing and recordkeeping” (MOSAIC05.30:2012(E)V1.0).

²⁶ See, for example, United States, Undetectable Firearms Act of 1988, Public Law 100–649 (10 November 1988) and Undetectable Firearms Modernization Act of 2013, H. R. 3643 (3 December 2013).

²⁷ See article 3, subparagraph (d), of the Firearms Protocol and *Legislative Guide for the Implementation of the Firearms Protocol*, para. 192.

²⁸ See article 7 of the 2018 rules on procedures and methods of marking of weapons and ammunition implementing Law No. 83/16 on Marking of Small Arms, Light Weapons and Related Ammunition and Laws No. 32/02 and No. 102/09 on Administration.

²⁹ See United States, Bureau of Alcohol, Tobacco and Firearms, Department of Treasury, Identification Markings Placed on Firearms (98R-341P), *Federal Register*, vol. 66, No. 150

E. Modular firearms

1. Description of the issue

41. The main benefit of a modular weapon over its standard counterpart is reported to be that a single weapon can be deployed in multiple scenarios or environments by means of simple reconfiguration allowing its key features to be altered.³⁰ Although modularity has progressed since the mid-2000s, the international community has paid only limited attention to its potential implications for firearms control.³¹

42. New technologies, initially developed for military application, have increased the availability of modification, conversion and manufacturing kits in both the licit and illicit markets. Private gun owners with minimal technical knowledge can transform their firearms, for example from a semi-automatic pistol to a fully automatic machine gun, by purchasing a firing converter, a carbine kit and a dual drum magazine. Modularity has rendered the self-manufacture of a functional firearm easier, through the use of one or multiple “Do it yourself” kits. Moreover, the fact that modular weapons can be fitted with different components, including from other weapons, could result in different serial numbers appearing on different parts of the same weapon, increasing the risk of misidentification.³² In addition, the easy change of essential components of a firearm, such as its barrel, may result in misleading ballistic results.

43. In attempting to develop standardized language and approaches on the issue of modularity, the 2019 report of the Secretary-General on the illicit trade in small arms and light weapons in all its aspects and assistance to States for curbing the illicit traffic in small arms and light weapons and collecting them (A/74/187) suggests defining a modular weapon as a weapon that consists of an essential “control component” to which other “essential modular components” are affixed and can be reconfigured to alter the weapon’s functions to suit differing operational contexts, which is achieved primarily through changing calibres (by changing receivers in whole or in part) and by exchanging barrels of differing types.

2. Responsiveness of the Firearms Protocol

44. The Firearms Protocol addresses the challenges related to modular firearms only partially. On the one hand, the assembly of modular firearms without licence or authorization may be considered to be illicit manufacture under article 3 (d) of the Firearms Protocol. Challenges arise in terms of the effective implementation of the marking provisions of article 8 of the Firearms Protocol, which require each firearm to receive a unique marking at the time of manufacture, among other markings. Further discussion is necessary of whether the requirement can still be met if the nature of modular firearms facilitates the assembly of a firearm with varying markings on its parts and components.

45. On the other hand, although the Firearms Protocol applies also to parts and components, its detailed marking requirements apply only to a firearm as a whole. While the lack of measures to specifically address parts and components has a limited impact in the case of standard firearms, it is particularly problematic in relation to modular weapons.

3. Legislative and regulatory examples

46. No relevant legislative and regulatory examples were available to the Secretariat.

(3 August 2001).

³⁰ See Paoli, “Techno-polymers in firearms manufacturing”, in *Behind the Curve*, p. 27.

³¹ *Ibid.*, p. 23.

³² A/CONF.192/BMS/2014/1, para. 14.

F. Additive manufacture of firearms (3D printing)

1. Description of the issue

47. Additive manufacturing – known colloquially as three-dimensional, or 3D, printing – is an emerging technology and a significant innovation in small arms manufacturing, which could substantially accelerate the proliferation of firearms and have dramatic effects on conflict, terrorism, violent extremism and everyday crime.

48. To create a 3D printed object, a 3D printer reads the design from a 3D printable file and lays down successive layers of various materials to build a model from a series of cross sections. The layers are joined or automatically fused to create the final shape. In addition, computer numerical control machines, such as “Snapmaker”, known as the “3-in-1 3D printer”, allow the combined production of plastic parts and the carving of firearms components made of metal and wood. With the availability of such production techniques, almost all the parts and components of a firearm can be manufactured at home, which may lead to greater challenges in firearms control and tracing.

49. 3D printed firearms may have a negative impact on the operation and efficacy of firearms registration and licensing schemes and ballistic databases used for police investigations. The Internet and the dark web can provide ordinary citizens, criminals and terrorists alike with ready access to printable designs of new and ever more dangerous weapons. Moreover, persons with access to industrial grade equipment may be in a position to print guns by making unauthorized use of company 3D printers.

2. Responsiveness of the Firearms Protocol

50. In general, the provisions of the Firearms Protocol apply to 3D printed firearms in the same way as they do to traditionally manufactured firearms, but the new technology poses new challenges in the area of enforcement.

51. 3D printed firearms, their parts and components and ammunition fall within the scope of the control and transfer regime of the Firearms Protocol and are subject to the corresponding marking, record-keeping, transfer and criminal justice provisions. Printing firearms without a valid licence or authorization or without applying the required markings at the time of manufacture is therefore to be considered to be illicit manufacture of the weapon (art. 3 (d) of the Firearms Protocol). However, the transfer and download of digital files for 3D printing of firearms seem to fall outside the scope of the Firearms Protocol, representing a gap that requires an urgent legislative response.

3. Legislative and regulatory examples

52. The legal approaches followed in response to the emergence of 3D printed firearms in various jurisdictions range from the criminalization of the manufacture of 3D printed firearms and licensing or registration schemes for 3D printers and 3D printed firearms, to the introduction of new offences for the possession of design files for 3D printed firearms. Many existing laws and offences relating to the unlicensed manufacture, creation and possession of firearms cover 3D printed firearms, although not necessarily the possession or distribution of design files for 3D printing of firearms.

53. For example, in Australia, the state law of New South Wales criminalizes the possession of digital plans and files for printing 3D firearms, unless the person is (a) authorized by a licence or permit to manufacture the firearm concerned; (b) acting in the ordinary course of the person’s duties as a member (other than a police officer) of the Police Force.³³ The law further defines a “digital blueprint” as any type of digital (or electronic) reproduction of a technical drawing of the design of an object, and defines the possession of a digital blueprint to include (a) the possession of a computer

³³ See Australia, New South Wales, Firearms Act 1996 No. 46, 1 July 2019, sect. 51F.

or data storage device holding or containing the blueprint of a document in which the blueprint is recorded; (b) the control of the blueprint held in a computer that is in the possession of another person (whether the computer is in the relevant jurisdiction or outside the relevant jurisdiction).³⁴

54. While the self-manufacture of firearms is generally legal in the United States, the State of California, in a consumer alert, reminded its citizens that if they intended to manufacture or assemble their own firearms, including through the use of 3D printing, they were to ensure that the firearm was legal to possess or manufacture in California. The consumer alert highlighted that California law also required individuals who possessed, manufactured or assembled firearms in the State to apply to the Department of Justice for a unique serial number for each self-made firearm, to be permanently placed on the firearm. Citizens were directed to upload photographs through the Department of Justice's website after permanently placing the serial number on the firearm, and were reminded that, with limited exceptions, the sale or transfer of ownership of self-manufactured or self-assembled firearms was prohibited under California law.³⁵

G. Internet and dark web purchases

1. Description of the issue

55. The dark web, which constitutes the part of the Internet not searchable by traditional search engines and which is hidden behind anonymity software, has become a focus of attention as a possible vehicle for persons wishing to illegally and anonymously acquire firearms, their parts and components and ammunition, and other relevant items, such as 3D printing files, to do so under the radar of national authorities.

56. A 2017 report³⁶ found that there are currently two types of marketplace on the dark web where firearms and related products are offered and sold: cryptomarkets and vendor shops. Cryptomarkets bring together multiple sellers, known as "vendors", and are managed by marketplace administrators in return for a commission on sales. Vendor shops, also known as "single-vendor markets", are set up by specific vendors to host sales for that vendor alone. The study highlighted the fact that, among firearms-related listings, which made up only 0.5 per cent of the total number of listings identified, firearms listings were the most common listings on the dark web (42 per cent), followed by arms-related digital products (27 per cent) and other related products, such as ammunition (22 per cent).³⁷

2. Responsiveness of the Firearms Protocol

57. The transfer regime provided by article 10 of the Firearms Protocol, and reinforced by the requirement of the Protocol that acts of trafficking be criminalized, is based on a broad concept of transfer, which includes the import, export, acquisition, sale, delivery, movement or transfer of firearms, their parts and components and 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 Protocol, or if the firearms are not marked in accordance with article 8 of the Protocol (art. 3 (e) of the Firearms Protocol).

58. While most of the transfer modalities imply a physical movement of the items, nominal transfers of the ownership of firearms, their parts and components and ammunition seem to be covered by the modalities of "acquisition" and "sale". In order

³⁴ Ibid.

³⁵ See "Legal requirements for self-made firearms", consumer alert issued by the California Department of Justice.

³⁶ Giacomo Paoli and others, in *Behind the Curtain: The Illicit Trade of Firearms, Explosives and Ammunition on the Dark Web* (Santa Monica, California, RAND Corporation, 2017).

³⁷ Ibid., p. 29.

to constitute an act of illicit trafficking, it is therefore necessary that the buyer and seller be registered or at least based in different States parties, a fact which can be established only with difficulty when it comes to contracting on the dark web. The act of illicit trafficking is completed at the latest once the acquired or sold items are physically shipped from one State party to another.

59. Moreover, given the important role that marketplace administrators play in creating business opportunities and enabling their materialization, it would be worth considering whether such administrators could be considered to be brokers, and whether existing brokering regulations under article 15 of the Firearms Protocol could and should be applied to them.³⁸

3. Legislative and regulatory examples

60. No relevant legislative and regulatory examples were available to the Secretariat.

H. Use of postal and courier services

1. Description of the issue

61. The increased use of the Internet and the dark web for illegally acquiring firearms, their parts and components and ammunition has resulted in a significant increase in the use of postal and courier services to traffic firearms and firearm components. According to the European Union 2017 *Serious and Organised Crime Threat Assessment: Crime in the Age of Technology*, the use of post and parcel services is now the most common way of trafficking firearms in the European Union.³⁹

62. There are several pull factors that may be related to the increase in the use of postal and courier services for illicit trafficking in firearms, including the possibility of concealing firearms in parcel deliveries by disassembling them and shipping several parcels with parts and components; the challenges to verifying whether information provided by the sender is valid (the possible use of false names, false descriptions of firearms parts, undervaluation of postal shipments); the possibilities for avoiding direct contact with postal services staff; the lack of capacity among customs officers to detect and identify parts and components shipped via parcels; and a potential correlation between the increase of transnational parcel shipments and the capabilities of customs officers to thoroughly inspect the parcels.

2. Responsiveness of the Firearms Protocol

63. The provisions of the Firearms Protocol relating to the transfer control regime, in particular article 10 and the offence of illicit trafficking (art. 3 (e) of the Firearms Protocol) apply to the transnational transfer of firearms, their parts and components and ammunition, regardless of the mode of transportation. The system underscores the central principle underlying the Firearms Protocol, namely that firearms and related items cannot be imported or exported without the awareness and consent of all the States involved and that non-compliance in that regard will attract criminal investigation, prosecution and punishment.⁴⁰

64. The Firearms Protocol therefore requires States parties: (a) to establish a system to ensure that firearms are not exported to or through countries that have not authorized such transfer; (b) to ensure that the content of the documents used for legal import and export comply with the requirements of article 10 of the Protocol; (c) to

³⁸ See discussion of this issue in “Overview of international legal instruments and their applicability to illicit firearms trafficking on the dark web”, prepared by the UNODC Global Firearms Programme, in *Behind the Curtain*, p. 100.

³⁹ See European Police Office, *European Union Serious and Organised Crime Threat Assessment: Crime in the Age of Technology* (The Hague, 2017), p. 54.

⁴⁰ See *Legislative Guide for the Implementation of the Protocol of the Firearms Protocol*, p. 436.

enhance the accountability and security associated with the import and export system.⁴¹

65. Within this transfer system, some countries face challenges in the transposition and implementation of article 10, paragraph 2 (b), in particular, with regard to the requirement that the transit States, at a minimum and prior to shipment, are to provide written notice that they have no objection to the transit. A thorough analysis of efficient ways and means of implementing the requirement in practical terms, including when the transfer is undertaken by means of postal or courier services, may facilitate its more effective implementation.

66. Moreover, the Firearms Protocol and its parent Convention provide a range of investigative and law enforcement measures that may enable police and customs officers to detect and seize illicitly shipped parcels, including police and customs transborder cooperation (art. 11 (b) of the Protocol), information exchange (art. 12 of the Protocol), joint investigations (art. 19 of the Convention), special investigative techniques (art. 20 of the Convention), measures to enhance cooperation with law enforcement authorities (art. 26 of the Convention), and transnational law enforcement cooperation (art. 27 of the Convention).

3. Legislative and regulatory examples

67. According to an announcement by the New Zealand police, since the 2013 Arms Code was published, there has been a change to processes for purchasing or acquiring a firearm by means of mail order and Internet sales.⁴² The change requires that if a person purchases a firearm or ammunition in any non-face-to-face transaction, they must provide an order form to the police, who will verify the firearms licence details, certify the order form and provide the certified order form direct to the seller. The announcement specifies that the change does not apply to transfers of pistols, restricted weapons or military style semi-automatic firearms, which have their own process, requiring a permit to procure issued by the police to the person wishing to acquire those items.

III. Conclusions and recommendations

68. As described in the present paper, there is a variety of new and emerging threats related to illicit manufacturing of and trafficking in firearms, their parts and components and ammunition that require increased attention to determine their impact on the effective implementation of the Firearms Protocol.

69. The different phenomena are often interlinked and reinforce each other. For example, the increased availability of assembly kits and new methods for manufacturing parts and components of firearms may be linked to the increasing phenomenon of firearms conversion. The rise in contracting on the Internet and the dark web may also be linked to the increased use of postal and courier services to transfer firearms, their parts and components and ammunition.

70. One of the major obstacles to an efficient and coordinated response to the threats is the lack of common understanding and guidelines, as well as of systematic information exchange on specific identified threats among the stakeholders concerned.

71. While several research institutions are looking into aspects of the emerging issues, they tend to focus on specific regions. Strengthening research at the global level could help in identifying common trends and solutions. One major obstacle in that regard is the fact that many countries have data collection mechanisms and tools that are not capable of capturing and monitoring the phenomenon of illicit firearms trafficking and related offences, including new or emerging threats related thereto. Member States may wish to explore ways in which new technologies could be used

⁴¹ Ibid., p. 437.

⁴² Available at www.police.govt.nz/advice-services/firearms-and-safety/arms-code.

to address new and emerging threats and support the effective implementation of the Firearms Protocol.

72. The Working Group may wish to consider recommending to the Conference that it:

(a) Request UNODC to analyse further the impact of new and emerging threats on the implementation of the Firearms Protocol, as well as the responsiveness of the Firearms Protocol to the identified threats, including by means of expert discussions and comparative analysis of national legislation and case law on the relevant themes, with a view to supporting countries in addressing the threats, and to update the UNODC Legislative Guide and Model Law on Firearms, to reflect the emerging threats and state-of-the art solutions thereto;

(b) Encourage stakeholders to increase the exchange of information among legislators, practitioners and the private sector on the identified issues and request UNODC to facilitate such exchanges, including with government and technical experts, the private sector and research institutions;

(c) Request UNODC to develop legislative and operational tools to help countries in countering the identified threats and better regulating related activities, as appropriate, taking into account and building synergies with the ongoing discussions in the context of the International Tracing Instrument. Such tools may include: (i) a glossary of terms relevant for the discussion of new and emerging threats related to the illicit manufacturing of and trafficking in firearms, their parts and components and ammunition, (ii) relevant issue papers, (iii) common technical guidelines on the issues of manufacturing of convertible weapons, irreversible deactivation of firearms, manufacture and marking of polymer firearms and modular weapons;

(d) Invite States parties to review and revise, as appropriate, their domestic legal frameworks to counter the threats posed by new technologies and modalities of illicit manufacturing of and trafficking in firearms, their parts and components and ammunition, and to pay attention, in particular, to the importance of adopting relevant legal control and interdiction regimes, including, where appropriate, through criminalization provisions, such as on readily convertible weapons, polymer firearms, modular weapons, the transfer of 3D printable files and other emerging aspects, and to build the required capacities of the criminal justice system to enforce the applicable laws;

(e) Urge Member States to enhance their related data collection and analytical capacities and exchange the findings of such data collection and analysis with each other in order to identify transnational issues that require a coordinated response, and request UNODC, to that end, to further enhance its capacity to support and promote relevant global data collection and analysis efforts.
