

7

Following the Lethal Trail: Identifying Sources of Illicit Ammunition Holger Anders

Introduction

Ammunition for small arms and light weapons is frequently intercepted as part of illicit transfers, or recovered from ammunition caches or the sites of armed attacks. Markings, which are often found on such ammunition, provide details of the year and place of manufacture as well as a code for the manufacturer. These markings also indicate that the ammunition was produced legally but subsequently diverted into the illicit sphere. Reliable identification of the origins and supply chain of ammunition in the legal sphere strengthens the ability of states to identify sources of proliferation, combat illicit ammunition flows and transfers, and prevent future diversions.

Arms control specialists have argued since the late 1990s that states have only a limited capacity to trace illicit ammunition. This is because, even if the manufacturer can be identified, it is often not possible to identify reliably the first and subsequent recipients of the ammunition in the legal sphere. Consequently, the last legal holder of the ammunition and the point of diversion into the illicit sphere remain unknown. Specialists therefore argue that states should develop common minimum standards in the areas of marking, record keeping, and international cooperation to enable tracing of illicit ammunition in order to combat its transfer and proliferation (Stohl, 1998, p. 26; UNGA, 1999, p. 17, para. 106; Berkol, 2001, pp. 3–4).

This chapter examines the scope for tracing as a means of combating the proliferation of illicit ammunition for small arms and light weapons and discusses the key requirements, aims, and costs of relevant measures. It reviews

existing standards and practices for ammunition marking and record keeping, and considers their implications for the traceability of ammunition. This chapter also investigates the different aims of and requirements for tracing in more detail, and examines the central arguments about the cost-efficiency of measures required for tracing illicit ammunition.¹ The conclusion argues that common minimum standards targeting ammunition produced for and traded in state actor markets could make a significant and cost-effective contribution to identifying sources of diversions and illicit flows to regions of armed conflict.

Existing standards on ammunition marking and record keeping

The tracing of recovered illicit ammunition may be understood as the capacity to track ammunition recovered from the illicit sphere back to its legal manufacturer and through its line of supply to the last known legal holder and the point at which it became illicit.² Advocates of the control of small arms proliferation argue that key requirements for such tracing include adequate marking of ammunition with information that allows the competent authorities to identify reliably its manufacturer, as well as accurate record keeping on transfers to allow the manufacturer to identify reliably the ammunition's first recipient. In the case of retransfers of ammunition, the first recipient would equally need to be in a position to identify reliably the next recipient in the chain, and so on (Control Arms, 2004, p. 13–15). This section reviews existing standards and practices in these areas and identifies the extent to which these may already allow tracing of recovered illicit ammunition.

Marking ammunition

It is rarely acknowledged in policy debates that international standards on ammunition tracing could be built on a substantial amount of existing regulation and good practice. For example, many states have a military sector with modern procurement practices and that operates national defence standards, which define technical and safety requirements for ammunition that is produced for their national armed forces. The standards also specify the markings a manufacturer must apply to ammunition bodies and ammunition packaging. Such markings are required *inter alia* to 'facilitate the withdrawal of life-expired or

defective ammunition [. . .] if it becomes necessary' and to 'facilitate the establishment of technical records and surveillance' (United Kingdom, 1994, part 1, para. ii, secs. b–c). States operating such standards include the NATO member states, as well as Brazil, China, Colombia, Pakistan, Russia, South Africa, and Switzerland.³

Police forces and other non-military state actors that order ammunition from a manufacturer often also have standards that contain specifications for the markings that must be applied to the ammunition.⁴ Furthermore, in several states, including Brazil and the 13 members of the Permanent International Commission for the Proof of Small Arms and Ammunition (Commission Permanente Internationale, CIP),⁵ there are regulations on marking ammunition produced for non-state actor markets for activities such as sport shooting, hunting, and personal protection.⁶

A basic principle behind this marking is that the user of the ammunition is provided with identifying information on the ammunition itself or on the ammunition packaging in case performance-related problems occur in connection with the ammunition.⁷ The packaging of ammunition for state and non-state actor markets is marked with a manufacturer's identification and the particular production run (see below) in NATO and CIP member states and the states mentioned above. These markings allow the user to communicate with the manufacturer should problems occur and, in turn, allow the manufacturer to investigate whether, for example, faulty components such as primers or powder loads have been used in a particular production run.⁸

Ammunition from a single production run is known as a 'lot'. Should the lot be broken up into smaller quantities, these smaller quantities are known as 'sub-lots' or 'batches'. Such a lot or batch is defined as a discreet quantity of ammunition industrially assembled 'in practically identical manufacturing conditions using identical components from controlled sources' (UNGA, 1999, p. 6, para. 21). Identical conditions and components are necessary to ensure that the ammunition in the lot will function in a uniform manner. Differentiation between production runs is essential to the clear identification of a particular run and the components used should, as suggested above, malfunctions or other performance-related problems occur with ammunition from this particular run.⁹

Marking packaging

As indicated above, it is a widespread practice in the ammunition industry to mark ammunition packaging to allow the manufacturer and the production run in which the ammunition was produced to be identified.¹⁰ Lot identification by marking a lot code on the packaging is a standard requirement for ammunition produced for the national armed forces and other state actors in NATO member states as well as in, for example, Brazil, China, Colombia, Pakistan, Russia, South Africa, and Switzerland.¹¹ Other marks applied to the packaging of ammunition produced under contract for state actors in these states include an identification of the manufacturer, the type or calibre of the ammunition, the quantity contained in the package, and the year of manufacture.¹² The same markings, including a lot code, are also applied to the packaging of ammunition for non-state actor markets in CIP states and a number of states that are not CIP members such as Brazil, Pakistan, and South Africa.¹³

Marking ammunition bodies

Another widespread practice is for the outer casing (body) of ammunition other than small arms ammunition to be marked with information containing the same identification markings as its packaging.¹⁴ This includes mortar ammunition, rockets for light weapons, and rifle grenades. Defence standards in NATO member states and the other states with equivalent standards listed above require the body of such ammunition to be marked with a manufacturer's identification, lot number, and year of production.¹⁵

In contrast, the bodies (cartridge cases) of small arms ammunition (defined as ammunition with a calibre smaller than 12.7 mm used e.g. in pistols, revolvers, carbines, assault rifles, and sub- and light-machine guns) are generally marked without a lot number.¹⁶ Small arms ammunition is produced not only for military forces, but also for other state actors such as the police and customs agencies as well as for non-state actor markets. Specifically, although their packaging will generally contain a lot identification (see above), the cartridges for small arms ammunition are often only marked with manufacturer information and, for military markets, the year of production or, for non-military markets, the calibre.¹⁷ One reason for the frequent absence of a lot number on cartridge cases is the general absence of a stipulation by customers that these marks should be applied.¹⁸

Box 1 Marking small arms ammunition cartridges in Brazil²⁴

On 22 December 2003 the Brazilian legislature passed Federal Law No. 10,826, known as the Statute of Disarmament (Office of the President of the Republic, OPR, 2003). Technical regulations for its implementation are regulated by Decree No. 16 of 28 December 2004 (Brazil, 2004). The new law establishes that cartridges produced in Brazil for public legal entities must be marked with information that identifies the lot number and the entity that purchased the ammunition. Public legal entities are defined as law enforcement agencies (Brazil is a federal country with 64 police forces plus a federal police force)²⁵ and the armed forces. Lots for these clients are manufactured only in response to a specific request by the client.²⁶ Each sub-lot (batch) of 10,000 rounds or less must be marked with a unique code and will be transferred to a single entity (Brazil, 2004, arts. 2 and 3). The regulation has been in force since 1 January 2005 for .40 and .45 ammunition and since July 2005 for 5.56 mm, 7.62 mm, 9 mm, .380, .38, and .50 cartridges (Brazil, 2004, art. 4).

For example, a batch of 10,000 rounds of 5.56x45 mm ammunition for assault rifles is manufactured for the Brazilian Army by the main domestic manufacturer, Companhia Brasileira de Cartuchos (CBC). The batch number is engraved using laser technology on the base of each cartridge after the assembly of the ammunition components and will only be sold to the Brazilian Army.²⁷ Domestic manufacturers are obliged to keep adequate records that allow for the reliable identification of the recipient of the marked ammunition (Brazil, 2004, art. 6.1–7). Ammunition of the calibers named above imported into Brazil by public legal entities also has to conform to the marking requirements stipulated under Brazilian law (Brazil, 2004, arts. 7.2–3). This means that recovered illicit ammunition that was diverted from the jurisdiction of public legal entities in Brazil can be reliably tracked from the manufacturer to its first recipient.

The new Brazilian legislation was the result of a decade of campaigning for a federal law on the tight control of the circulation and use of small arms and ammunition. The specific focus on ammunition in this campaign was driven by concerns about diversions of ammunition from the stockpiles of state actors (Dreyfus, 2004, p. 3). One of the key challenges for campaigners for ammunition tracing standards such as the Brazilian NGO Viva Rio was scepticism in the Brazilian Congress and in industry regarding the technical feasibility of marking cartridge cases for small arms ammunition to identify the state actor that ordered the ammunition. In particular, CBC claimed that such marking was not possible because there would not be enough space on the base of the cartridge case. To advise pro-Statute Congress members, Viva Rio demonstrated that this was factually incorrect by showing that CBC had marked ammunition cartridge cases with information identifying the recipient for state actors in the 1950s (Dreyfus, 2004, p. 7).

Record keeping on transfers

Marking ammunition can only contribute to the reliable tracing of recovered ammunition if complemented by adequate record-keeping practices. It is notable in this context that, at least among ammunition manufacturers with modern management practices, it is usual to keep electronic records that allow the reliable identification of the recipients of ammunition produced under contract.²⁸ Modern manufacturers competing on regional and international state actor markets can usually identify the individual army battalion and army or police depot to which an ammunition order was transferred.²⁹

This practice is often complemented by requirements under national defence standards. For example, the 1998 US Defense Standard on Ammunition Lot Numbering stipulates that each ammunition lot produced for the US Department of Defense be identified by a unique alphanumeric code. The identity code must be used in all correspondence and records pertaining to a lot, including manufacturing, transportation, and stockpile records (United States, 1998, paras. 4.1, 5.3, 5.4, 5.5, and 6.1). This requirement mirrors stipulations contained in defence standards in other NATO member states.³⁰

At the same time, it should be acknowledged that record-keeping practices may be less specific in relation to ammunition that is not produced under contract or that is retransferred. For example, ammunition for non-state actor markets is usually produced in response to perceived market demands rather than under a contract with a particular client. This is because end-users in non-state actor markets, such as sport shooters or hunters, will only purchase a small quantity of ammunition at a time.³¹ This ammunition, while pertaining to a particular lot number, will be sold to various end-users in various non-state actor markets without manufacturers necessarily keeping records that would identify the initial individual purchasers of ammunition from this lot. In addition, trading companies and others who retransfer ammunition may keep records that identify quantities, types, and destinations of transferred ammunition, but not necessarily their lot numbers.³²

Implications for tracing illicit ammunition

Existing marking and record-keeping standards, as well as the differences between them, can have important implications for the traceability of recovered

illicit ammunition. Weaknesses that exist in relation to the traceability of small arms ammunition are of particular concern in this context. Small arms ammunition cartridges are generally marked not with a lot number but with basic identifying information engraved in a 'headstamp', such as the manufacturer's code and the year of production and calibre. This means that, if taken out of its original packaging, manufacturers may no longer be able to identify reliably the first recipient of ammunition marked in this way.

For example, recovered cartridge cases used in an attack in August 2004 on unarmed civilians sheltering in the refugee camp of Gatumba, Burundi, were marked with a manufacturer's code (identifying producers in south-eastern Europe and China) and identification of the year of production, but no further information (Control Arms, 2004, p. 7). This means that the manufacturers were not able to relate the cases to a particular lot produced in that year. As ammu-

Mourners gather around the coffins of 163 Congolese Tutsi massacred at Gatumba, a UN-run refugee camp in Burundi, in August 2004. © AP Photo/Aloys Niyoyita



munition produced during that year is likely to have been sold to more than one client, the manufacturers were also not able to identify reliably the customer who received the ammunition when it was initially transferred (Control Arms, 2004, p. 7).

In sum, tracing ammunition is severely impeded in situations where transfers are not recorded in a way that links lot numbers to specific transfers and recipients, or where a manufacturer or other actor transfers identically marked ammunition to multiple recipients. As suggested above, this occurs especially in relation to small arms ammunition sold in non-state actor markets.

For instance, a typical lot of small arms ammunition contains 500,000 rounds. These rounds will, depending on calibre size, be packaged in quantities of, for example, 20, 30, or 50 individual rounds.³³ A single lot of small arms ammunition may therefore be packaged in 10,000 or more identically marked packages. With individual sport shooters buying only a few of the packages at a time there may consequently be thousands of individual recipients of ammunition from a particular lot.³⁴ Because the packaging of this ammunition will bear exactly the same markings it is not possible to trace reliably the legal supply chain and identify the last legal holder of a package that is recovered from the illicit sphere.

Requirements for reliable tracing

If it is rarely acknowledged that there are existing standards and practices that could assist with tracing illicit ammunition in certain situations, it is also rarely acknowledged that requirements of tracing may differ according to the reason for tracing. For example, a basic reason for tracing illicit ammunition is to identify and combat diversions of ammunition from state actor stockpiles and markets—particularly illicit ammunition that is recovered in the context of armed conflict. Such ammunition is often assumed to have been produced for, transferred to, or held by state actors (see Chapter 5).³⁵ It can be safely assumed that ammunition that is not small arms ammunition recovered in the context of armed conflict originated from military markets because these calibres are not produced for non-military clients.³⁶ Diverted small arms ammunition made for use in ‘military’ small arms such as assault rifles and machine guns is also

likely to have originated from state actor markets. This is because the legal ownership and use of 'military' small arms and their ammunition is restricted in many countries to state actors.³⁷

When small arms ammunition is diverted to an armed conflict it is likely to be diverted in large quantities.³⁸ Those seeking to engage in sustained armed conflict will often require the supply of many thousands or hundreds of thousands of rounds. This is especially the case for irregular forces with poor firing discipline (Germany, 2005, p. 1). These quantities may be found more easily in state actor stockpiles and on state actor markets than in the stores of non-state actors. This is because, as mentioned above, end-users such as sport shooters will hold only limited stocks—often only a few packages of small arms ammunition at a time.

A more comprehensive focus on tracing illicit ammunition would cover not only ammunition on state actor markets, but also ammunition on non-state actor markets. This would include the ability to trace a cartridge case recovered in the context of a criminal act. Such comprehensive tracing would require all ammunition to be reliably traceable throughout its legal supply chain. Specifically, it would require even the smallest quantity of ammunition transferred to an individual recipient to be marked with a unique code. In relation to sports shooting markets, this would imply that each of the 10,000 or more individual packages described above would receive a unique code. Such marking would then need to be complemented by appropriate record keeping on transfers to allow for reliable tracing of the supply chain of each individual package should any one of them be recovered from the illicit sphere.

Levels of traceability

Other important distinctions can be made between the levels of traceability that are required in order to achieve different aims. For instance, a primary requirement when tracing illicit ammunition is the ability to identify reliably the initial transfer by the manufacturer. An international standard to improve the ability of states to trace the initial transfer of ammunition produced under contract with a state actor could make a considerable contribution to combating illicit ammunition flows. This is because much of the ammunition for state actors is produced under contract and is transferred by manufacturers to clients who

are also the end user of the ammunition.³⁹ This means that ammunition diverted from the stockpiles of these actors could be reliably traced through its complete legal supply chain because this chain is limited to only the manufacturer and the client who ordered the ammunition.

A standard that identifies the initial recipient of ammunition produced under contract would, by itself, not enable ammunition that was retransferred by the first or subsequent recipients to be traced. Nor would it allow identically marked ammunition transferred to multiple state actor recipients to be traced. A more comprehensive approach would require not only lot-marking and adequate record keeping by the manufacturer but also each quantity of transferred ammunition to be marked and recorded in a way that links the ammunition to a particular (re)transfer and recipient.

In addition, a distinction between requirements could be made between standards on tracing illicit ammunition that seek to enhance the traceability of packaged ammunition, and those that apply to ammunition that has been removed from its packaging. A standard on adequate marking of ammunition packaging could make an important contribution to combating diversions because ammunition recovered during illicit transfers or from ammunition caches is frequently still in its original packaging.⁴⁰ A standard on adequate marking of packaging will not be of assistance, however, if the aim is to trace small arms ammunition cartridges that have been left behind at the scene of an armed attack or crime. To allow for tracing of individual cartridges, it would be necessary for (in relation to, for instance, small arms ammunition sold in non-state actor markets) every quantity of 50 cartridges or fewer to be marked with a unique code on the cartridges themselves. Again, this would need to be linked to record-keeping practices that allow for the reliable linking of the code marked on the cartridges to their individual recipient.⁴¹

In short, a fully comprehensive approach to tracing illicit ammunition would require that every single ammunition package and round of ammunition be reliably traceable through its chain of transfer. It should not be forgotten, however, that there is significant scope for more limited standards that, while not necessarily allowing for the reliable tracing of all ammunition in every situation, would make a substantial contribution to combating illicit ammunition trafficking by limiting the leakage of ammunition from state actor markets.

Concerns about ammunition tracing

Critics of proposals to strengthen the ability of states to trace illicit ammunition argue that ammunition marking for the purposes of tracing may pose technical difficulties, require expensive redesigns of production equipment, slow production, and increase the cost of ammunition. Furthermore, because of the large quantity of ammunition produced annually, establishing and maintaining the required record-keeping protocols would be highly resource intensive. It is also argued that loopholes and weaknesses in traceability would inevitably remain and these would allow controls to be easily circumvented.⁴² In short, the measures would be costly without being effective.

Critics such as the pro-gun US National Rifle Association, however, do not make a distinction between small arms ammunition for non-state actor markets and small arms and other ammunition produced for state actor markets (see Mason, 2004; Rowe, 2005). Their criticisms and cost-assessments are rarely made on the basis of a differentiated understanding of the specific aims and requirements of reliable tracing. There are however major differences between the practical requirements for tracing tons of illicit ammunition recovered in the context of armed conflict, violations of arms embargoes, or post-conflict situations, and those for tracing a single ammunition cartridge stolen from a sport shooter and used in an armed robbery in the United States. It might be easier and cheaper to develop international standards that allow large quantities of illicit ammunition recovered in the context of armed conflict to be traced than standards for tracing a cartridge produced and traded on non-state actor markets and recovered in the context of armed crime. Ignoring such a differentiation blurs the fact that targeted measures to enhance the traceability of ammunition in *some* situations will be more cost-efficient than measures required to enhance ammunition traceability in *all* situations.

General concerns about ammunition tracing

An often heard argument is that the volume of small arms ammunition produced annually is too large to make record keeping on transfers a practical undertaking.⁴³ For example, annual global production of military-calibre small arms ammunition in 2005 was estimated by one source to amount to roughly 13 billion rounds (Forecast International, 2005).⁴⁴ However, it should not be forgotten

that basic traceability of military-calibre small arms ammunition in state actor markets would focus on tracing transferred *lots* of ammunition. This means that record keeping would focus on recording the (initial) transfer of around 26,000 lots each year, rather than billions of individual rounds.⁴⁵ Record-keeping requirements for tracing transfers of ammunition lots in state actor markets would therefore require significantly fewer resources than is sometimes suggested by critics of ammunition tracing.

Furthermore, it is sometimes claimed that marking small arms ammunition cartridges with lot numbers and other information necessary for reliable tracing is not feasible because of the limited space available on the base of a cartridge case. That this is factually incorrect is proved by the annual production of millions of rounds of lot-marked small arms ammunition for military forces and law enforcement agencies in, for example, Europe and South America (see Box 1). Even small calibre sizes such as 5.56 mm can be marked with comprehensive information by traditional stamping methods. For example, cartridges of this calibre produced for the German Army are stamped with a 17-character alphanumeric code that identifies the manufacturer, year and month of production, lot number, and calibre size.⁴⁶ Consequently, there would be sufficient space for lot-marking cartridges of small arms ammunition with larger calibres such as 7.62 mm and 9 mm.

Another argument made by critics of international standards on ammunition tracing is that they would not prevent those intent on circumventing controls from using illicit ammunition that cannot be adequately traced. One issue often mentioned in this context is that of hand-loaded ammunition (Mason, 2004, p. 2). A person may go to a sport-shooting range and pick up empty cartridge cases which can then be reloaded by hand (see Chapter 2). If recovered later, the markings on the cartridge cases would identify the manufacturer of the cartridge but not the identity of the person who reloaded and then misused the ammunition.

Nevertheless, while the issue of reloaded small arms ammunition may sometimes pose a challenge to traceability with respect to individual crimes,⁴⁷ it does not follow that this would make it a bad idea to develop standards to facilitate the tracing of industrially produced small arms ammunition for state actor markets. It seems unlikely that those seeking illicit ammunition in the context

of an armed conflict would, ignoring the possible difficulties in obtaining the required components in sufficiently large quantities, spend days and weeks reloading the tens or even hundreds of thousands of rounds of small arms ammunition required to sustain a conflict.

Concerns about lot marking small arms ammunition cartridges

One of the most contested measures in policy debates on enhancing the traceability of ammunition is the marking of cartridges of small arms ammunition with information that would allow manufacturers to reliably identify the first recipient of the ammunition.⁴⁸ This is mainly because of the implications of lot marking for the production process. Cartridge cases are traditionally stamped at the case production stage, that is, before the empty case is put together with the bullet, primer, and powder (see Chapter 2).⁴⁹

Procedural steps and costs of lot marking by stamping

Lot marking cartridge cases at the case production stage requires certain procedural steps. Before the production run for the cartridge cases begins, a stamp is inserted in the production line that carries not only the basic identifying information, but also the lot number.⁵⁰ After each production run, case production and ammunition assembly lines have to be stopped and cleared. This step is necessary because some cases may remain in the production machines and could become mixed with cases bearing a different marking during the assembly of a subsequent lot.⁵¹ In contrast, production lines do not need to be stopped after individual production runs if the cartridge cases do not bear a lot marking. This is because cases that are only marked with a manufacturer's code and year of production/calibre can be used for various production runs during a given year without posing the problem of mixing cases with different markings. A manufacturer may produce several million empty cartridge cases at the beginning of a year, and these may be used to assemble different lots during that year. The use of such 'pre-produced' cartridge cases in the assembly of different lots by the same manufacturer is a typical aspect of ammunition production for non-state actor markets since it provides greater cost-efficiency and flexibility in relation to the use of the cases during assembly.⁵²

The implications for the production process of stamping cartridge cases with lot codes for non-state actor markets would be significant. This is because, as indicated above, comprehensive traceability of such ammunition would require that the rounds in every box of 50 rounds or less receive a unique code. This implies not only that pre-production of cartridge cases for use in different lots would no longer be possible but, more importantly, also that production and assembly processes would have to be repeatedly interrupted. In turn, this would unquestionably increase the purchase price of ammunition.⁵³

Lot marking cartridges for state actor markets

At the same time, it has to be stressed that these concerns relate mainly to ammunition for non-state actor markets and are less relevant to ammunition produced for state actor markets. Small arms ammunition for state actors is predominantly produced under contract.⁵⁴ This means that, for every lot, the manufacturer will adjust the production lines in such a way as to produce ammunition that conforms to the particular technical specifications of the customer. This implies that manufacturers of ammunition for state actors generally stop and clear production lines after the completion of a lot in any case.⁵⁵

Manufacturers that use traditional stamping and annually produce millions of rounds with lot markings, when contacted for the purpose of this study, confirmed that marking need not slow production down or increase the unit price of the ammunition as long as the quantity ordered is sufficiently large; that is, 200,000 to 300,000 rounds or more.⁵⁶ This is because for smaller quantities, as is also suggested above in relation to production for non-state actor markets, the procedural steps required would unduly interfere with the production process.⁵⁷

Laser marking at the post-assembly stage

Importantly, with the development of laser-marking technologies, there now exist alternatives to stamping small arms ammunition cartridge cases at the stage of cartridge case production. A pioneer in this area is the Brazilian manufacturer CBC, which has developed and integrated a laser marking stage into its automated packaging machinery. This means that, rather than lot marking empty cartridge cases before their assembly, CBC can apply lot marks to the cartridges after their assembly and just before the rounds are packaged for

transfer to the customer. The information marked on the cartridges at this post-assembly stage allows CBC to identify the state actor recipient of quantities of 10,000 rounds or less (Box 1). As indicated above, marking of such small quantities with unique codes would not be possible in a cost-efficient manner with traditional stamping at the cartridge case production stage. According to the technical director of CBC, laser marking fully assembled rounds does not slow production down, pose a risk of explosion, or increase production costs.⁵⁸ Instead, computer-based laser marking at the packaging stage, and the automated recording of this marking and the customer for the ammunition, has led to a rationalization of marking and record-keeping practices at CBC.⁵⁹ An added advantage to CBC is that it can use pre-produced cartridge cases to produce different lots and still apply markings at a later stage that will relate the cartridges to a single recipient.⁶⁰

Conclusion

This chapter provides an overview of the requirements and complexities in relation to the marking and record keeping of ammunition for small arms and light weapons as a means of combating the illicit trade in such ammunition. It argues that a useful measure would be the development of common minimum standards allowing for the reliable identification of the first recipient of ammunition produced by manufacturers under contract with state actors. Even such a limited measure would provide an important tool for state actors to ensure that, should ammunition be diverted from their stockpiles, they can be made aware of the fact if the ammunition is later recovered from the illicit sphere. This standard could build on regulations and practices already in place in those states with modern procurement practices and manufacturers with modern production processes.

A more comprehensive approach would complement this standard with record-keeping measures that enable the reliable identification of subsequent recipients of ammunition in a legal transfer chain in state actor markets. Such record keeping is important because non-state groups engaged in armed conflict are able to obtain illicit ammunition through diversion from state actor stockpiles and, importantly, from ammunition traded in state actor markets

as surplus to the requirements of the state actor that originally ordered this ammunition.⁶¹

In addition, while adequate marking of and record-keeping standards on ammunition would contribute to the traceability of ammunition that is diverted and recovered inside the national territory of the producing state, there is also a need for greater international cooperation in tracing. This means that states need to agree on common minimum standards for the timely and reliable exchange of information in the context of bilateral tracing operations. This is especially important in the light of the assumption that armed groups seeking illicit ammunition will not necessarily obtain all of this ammunition from domestic sources. This is indicated by, for example, the ammunition that was recovered at the location of the 2004 Gatumba massacre in Burundi, which was produced in south-eastern Europe and China.

Finally, it must be emphasized that tracing illicit ammunition for small arms and light weapons, although providing a potentially substantial contribution to combating the illicit ammunition trade, would not suffice. This is because such tracing focuses on ammunition that is recovered from the illicit sphere, and therefore on ammunition that has already been diverted and possibly used in illicit activity. States must also combat such diversion by seeking strengthened norms, measures, and principles in the areas of ammunition stockpile security and the destruction of ammunition surpluses. Only a comprehensive approach to combating illicit transfers of ammunition for small arms and light weapons that adequately prioritizes available resources is capable of effectively countering the continuing proliferation of such ammunition. ■

List of abbreviations

CBC	Companhia Brasileira de Cartuchos (Brazil)
CIP	Permanent International Commission for the Proof of Small Arms
GRIP	Groupe de Recherche et d'Information sur la Paix et la Sécurité (Belgium)
MG	Marinha de Guerra (Brazilian Navy)
NICC	National Institute on Crime and Criminology (Belgium)

OPR	Office of the President of the Republic (Brazil)
STANAG	Standardization Agreement
UNGA	United Nations General Assembly

Endnotes

- 1 This chapter largely relies on interviews undertaken by the author in 2005 with manufacturers and other actors in the ammunition industry. The interviews were held over the telephone and by email as well as at meetings during international trade fairs in France and the UK and visits to manufacturing sites in Belgium and Germany. The interviewees included representatives from 11 companies that produce ammunition for small arms and light weapons for state and non-state actor markets, including four companies which regularly supply customers that require lot markings on their small arms ammunition cartridges. Three companies are global providers of ammunition production machinery, including marking technologies based on stamping and laser-marking. Other companies are commercial or state-owned trading companies. The companies are located in Austria, Belgium, Brazil, China, Finland, France, Germany, Italy, Pakistan, Russia, South Africa, and Switzerland.
- 2 See 'Draft Instrument' (Annex to UNGA, 2005, section II, para. 5) for a similar definition of tracing that was adopted by states in 2005 in relation to tracing illicit small arms and light weapons.
- 3 Relevant regulations in the 26 NATO member states are based on *inter alia* NATO Standardization Agreements (STANAG) such as STANAG 2316 *Marking of Ammunition and Its Packaging of a Calibre Below 20 mm*, 24 July 1995; and STANAG 2322 *Minimum Markings for the Identification of Ammunition (and Its Packaging)*, 10 March 1993. Additional information was provided by email or telephone in 2005 by ministries of foreign affairs or defence in Estonia (9 March), Lithuania (14 March), Latvia (16 March), Finland and Germany (17 March), the Czech Republic (29 April), Switzerland (10 May), Spain (23 August), and the UK (25 August). Information on national defence standards on marking in the other states listed above was provided by ammunition manufacturers and trading companies (note 1).
- 4 Interviews (note 1).
- 5 The convention establishing the CIP was drawn up in 1914 to guarantee the safety of arms users. A new convention was signed on 7 July 1969. The CIP member states are Austria, Belgium, Chile, the Czech Republic, Finland, France, Germany, Hungary, Italy, the Russian Federation, Slovakia, Spain, and the United Kingdom. CIP regulations stipulate minimum standards for identification markings on ammunition packaging sold in non-state actor markets. Source: interviews (note 1).
- 6 Interviews (note 1).
- 7 Interviews (note 1).
- 8 Interviews (note 1).
- 9 Interviews (note 1).
- 10 Interviews (note 1).
- 11 Interviews (note 1).

- 12 Interviews (notes 1 and 3).
- 13 Interviews (notes 1 and 3).
- 14 Interviews (note 1).
- 15 Interviews (notes 1 and 3).
- 16 Interviews (note 1).
- 17 Interviews (note 1).
- 18 Interviews (note 1).
- 19 Interviews (notes 1 and 3).
- 20 Interviews (note 1).
- 21 Information kindly provided by Pablo Dreyfus, September 2005.
- 22 These customers include public legal entities in Brazil as well as the armed forces in Colombia and Germany. Interviews (notes 1 and 3). Additional information kindly provided by Pablo Dreyfus, September 2005.
- 23 Telephone interview, German Federal Armed Forces, 17 May 2005.
- 24 Information provided by Pablo Dreyfus.
- 25 Information held at Viva Rio, Brazil.
- 26 Telephone interview by GRIP with representative of Companhia Brasileira de Cartuchos (CBC), the main Brazilian supplier of arms and ammunition to public legal entities, 2 May 2005.
- 27 Interview by Pablo Dreyfus with representative of CBC, September 2005.
- 28 Interviews (note 1).
- 29 Interviews (note 1).
- 30 Interviews (notes 1 and 3).
- 31 Interviews (note 1).
- 32 Interviews (note 1).
- 33 Interviews (note 1). For state actor markets the primary packaging containing 50 rounds or less is put in parent packs containing 1,000–2,000 or more individual rounds. The parent packs, which are designed to allow easy carriage by a single person, are marked with information that is identical to that on the primary packaging. Source: interviews (notes 1 and 3).
- 34 Interviews (note 1).
- 35 Interview, UN arms embargo investigators, Geneva, 2 July 2005.
- 36 Interviews (note 1).
- 37 Interview with policy researcher at the International Action Network on Small Arms, London, 13 September 2005.
- 38 Interview, UN arms embargo investigators, Geneva, 2 July 2005.
- 39 Interviews (note 1).
- 40 Interview, UN arms embargo investigators, Geneva, 2 July 2005. See also Small Arms Survey, 2005, p. 26, box 1.11.
- 41 Proposals for a system of marking and tracing of the smallest retail packages of small arms ammunition in non-state actor markets have been made recently in the Californian legislature. As of April 2006, the Californian legislature had neither adopted nor rejected the proposed tracing regime (California, 2005).
- 42 These criticisms of proposals for ammunition tracing standards were raised in informal interviews with government delegations in 2004 and 2005 in the framework of the negotia-

tions of the UN Draft International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons (UNGA, 2005). See also Mason, 2004; and Rowe, 2005.

- 43 Interviews (note 42).
- 44 The figure of 13 billion rounds was calculated by the author by the addition of the figures from Forecast International for production in Europe, the United States, and by non-US and non-European producers. Forecast International includes in its figures ammunition with calibres of 12.7 mm up to 15.5 mm. The global annual figure for small arms ammunition as defined in this chapter is therefore likely to be lower than 13 billion.
- 45 The figure of 26,000 lots was calculated on the basis of an average lot size of 500,000 rounds.
- 46 Visit to manufacturer's site, Germany, 20 May 2005.
- 47 In an interview with an official of the Belgian National Institute on Crime and Criminology (NICC), it was indicated that in Belgium, and probably in Europe more broadly, around 5–8% of recovered cartridge cases analysed in the context of law enforcement investigations are hand-loaded. This figure may be higher in the USA. Interview, NICC, Brussels, 10 November 2005.
- 48 Interviews (note 42).
- 49 Interviews (note 1).
- 50 The stamps required for this marking are made in standard metallurgical workshops and do not require any sophisticated knowledge or special investment. Interviews (note 1).
- 51 Interviews (note 1).
- 52 Interviews (note 1).
- 53 Interviews (note 1).
- 54 Interviews (note 1).
- 55 Interviews (note 1).
- 56 Interviews (note 1).
- 57 Interviews (note 1).
- 58 Telephone interview, CBC, 2 May 2005.
- 59 Telephone interview, CBC, 2 May 2005.
- 60 Telephone interview, CBC, 2 May 2005.
- 61 Interview (note 35).

Bibliography

- Berkol, Ilhan. 2001. *Marking, Record-Keeping, and Tracing of Small Arms and Light Weapons*. Contribution to the Third Session of the Preparatory Committee to the United Nations Conference on the Illicit Trade in Small Arms and Light Weapons in All Its Aspects, New York, 19–30 March, Special Issue. Brussels: Groupe de Recherche et d'Information sur la Paix et la Sécurité, March. <<http://www.grip.org/bdg/pdf/g1882.pdf>>
- Brazil. 2004. *Aprova a Norma Reguladora da Marcação de Embalagens e Cartuchos de Munição* [Approving the standards regulating the marking of ammunition packaging and cartridges]. Decree No. 16 D LOG. 28 December 2004. Brasília: Ministry of Defence.

- California. 2005. *Bill SB 357* (Serialization of handgun ammunition). <http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=sb_357&sess=CUR&house=B&author=dunn>
- Control Arms. 2004. *Tracking Lethal Tools: Marking and Tracing Arms and Ammunition*. London: Control Arms (Amnesty International, Oxfam GB, and International Action Network on Small Arms, IANSA), December. <<http://www.controlarms.org/documents/mtfinaljan05.pdf>>
- Dreyfus, Pablo. 2004. *Tracking Bullets in a Violent Place: The Statute of Disarmament and Ammunition Marking Regulations in Brazil*. Background paper, not published. Geneva: Small Arms Survey. November.
- Forecast International. 2005. *Ordnance & Munitions Forecast 2005: Small Arms Ammunition, United States, Europe, International*. Newton, Conn.: Forecast International, October.
- Germany. 2005. 'Marking of German SALW [small arms and light weapons] Ammunition'. Presentation to the UN Open-ended Working Group. New York, 28 January.
- GRIP (Groupe de Recherche et d'Information sur la Paix et la Sécurité). 2005. *Scope for International Minimum Standards on Tracing Illicit SALW Ammunition*. Note d'Analyse. Brussels: GRIP. <<http://www.grip.org/bdg/g4575.html>>
- Mason, Thomas. 2004. 'Statement to the UN Open-Ended Working Group on Tracing Illicit SALW'. New York, 17 June. <<http://disarmament.un.org:8080/cab/owwg/First%20session/NGOs/WFSA.pdf>>
- Office of the President of the Republic (OPR, Brazil). 2003. *Dispõe sobre registro, posse e comercialização de armas de fogo e munição, sobre o Sistema Nacional de Armas-Sinarm, define crimes e dá outras providências* [The Statute of Disarmament]. Law No. 10,826/03 of 22 December 2003. Brasília: OPR.
- Rowe, Edward. 2005. 'Statement to the UN Second Biennial Meeting of States to Consider the Implementation of the UN Programme of Action'. New York, 13 July. Accessed March 2006. <<http://www.un.org/events/smallarms2005/NGOs/Rowe%20-%20Manufacturers%20Advisory%20Group.pdf>>
- Small Arms Survey. 2005. *Small Arms Survey 2005: Weapons at War*. Oxford: Oxford University Press.
- Stohl, Rachel. 1998. *Deadly Rounds: Ammunition and Armed Conflict*. Washington, DC: British American Security Information Council.
- United Kingdom. 1994. *Defence Standard Lotting and Batching of Ammunition*. Doc. 3-96 of 29 April 1994. <<http://www.dstan.mod.uk/data/13/096/01000300.pdf>>
- UNGA (United Nations General Assembly). 1999. *Report of the Group of Experts on the Problem of Ammunition and Explosives*. UN Document A/54/155 of 29 June. <<http://disarmament.un.org/cab/salw-sggarep.htm>>
- . 2005. *Report of the Open-ended Working Group to Negotiate an International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons*. UN Document A/60/88 of 27 June. <<http://disarmament.un.org:8080/cab/owwg/Report.pdf>>
- United States. 1998. *Department of Defense Standard Practice: Ammunition Lot Numbering and Ammunition Data Card*. US Military Standard 1168B. 10 June. <<http://www.osc.army.mil/ib/ibq/surv/gen/..%5Cmil%20std%201168b%5Cmil1168b.rtf>>



Destroyed buildings in the Ikeja army barracks in Lagos, Nigeria, January 2002. The damage was caused by the explosion of an ammunition dump. © George Esiri/Reuters