



British military police examine an AKM-pattern rifle.
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Revealing Provenance

WEAPONS TRACING DURING AND AFTER CONFLICT

INTRODUCTION

Weapons are evidence. Most carry marks that, combined with their structural characteristics, identify them uniquely. If they can be identified uniquely, their ownership history may be traced and the point at which they were diverted into the illicit sphere revealed. Weapons tracing can help uncover illicit supply channels, providing a firm basis for disrupting such trade and prosecuting those involved in it.

In recent years, the international community has come to recognize that weapons tracing can be central to efforts designed to detect, and hence address, the illicit proliferation and misuse of small arms. For now, however, it remains primarily a law enforcement tool. Its potential application to conflict and post-conflict settings remains poorly understood.

This chapter explores the process and promise of weapons tracing in conflict and post-conflict situations. It is designed as a practical guide to the tracing of small arms, light weapons, and their ammunition in conflict and post-conflict settings. Its principal conclusions include the following:

- Between 1998 and 2008, the international community spent USD 2.3 billion on disarmament, demobilization, and reintegration (DDR) and other initiatives designed to address the problem of illicit small arms proliferation;
- There is no evidence to suggest that any of the 330,000 weapons registered during these initiatives have been comprehensively analysed to ascertain their types and origins;
- About 75 per cent of United Nations and associated weapons collection records reviewed for this chapter are too ambiguous to allow for weapons tracing;
- Few states import-mark military weapons in ways that would allow a non-expert to identify the manufacturer;
- Although they have a legal obligation to mark weapons, few of the 74 signatories to the *UN Firearms Protocol* do so.

The chapter's main conclusion is that, despite more than a decade of attention to small arms identification and tracing, the international community has yet to make significant use of these important tools in conflict and post-conflict contexts.

Organizations with post-conflict peacekeeping or disarmament mandates, such as the UN, devote very little attention to monitoring, recording, and tracing weapons. The international community, more generally, has given little thought to the value of weapons tracing or how to improve international cooperation with respect to tracing requests.

Efforts to control the illicit proliferation of small arms and light weapons need to be founded upon firm evidence of illicit trade and its specific dynamics. The weapons themselves can often provide such evidence—but only if organizations record weapons information comprehensively and states and commercial entities cooperate fully with tracing requests.

THE PROMISE OF TRACING

In 2003, the United Nations Panel of Experts on Liberia noted a significant number of Serbian manufactured Zastava M70 assault rifles in the hands of warring factions throughout Liberia, including government troops loyal to then President Charles Taylor and fighters belonging to the rebel group Liberians United for Reconciliation and Democracy, or LURD (UNSC, 2003a, paras. 71–73).¹

The Panel recorded serial numbers from some of the weapons and provided them to the Serbian Ministry of Defence in Belgrade. The Serbian authorities confirmed that all of the serial numbers submitted by the Panel belonged to weapons that had been manufactured by the Serbian arms producer Zastava in 2001 and 2002. Their date of manufacture suggested that they had been manufactured (and hence transferred) either after or immediately prior to the March 2001 UN arms embargo on Liberia.²

The Serbian authorities reported that the serial numbers matched those of a shipment to Nigeria that had been brokered by the Belgrade-based company Temex. The Panel's earlier enquiries had revealed that the shipment to Nigeria declared by Temex had been arranged under a forged end-user certificate and that the arms had not been delivered to Nigeria, but had instead been supplied directly to forces under the control of Charles Taylor, in violation of the UN arms embargo (UNSC, 2002, paras. 64–82; 2003a, paras. 69–70).³

In response to the Panel's findings, in April 2003 the Government of Serbia reported that it had revoked all licences granted to Temex for the trade in arms and military equipment and had ordered all military manufacturers to cease cooperation with the company (UNSC, 2003b, para. 94).

The Panel's ability to identify the M70 assault rifles by their marks, and to trace their origins back to the manufacturer, yielded vital evidence in the investigation. The trace established a direct link between weapons in the hands of warring parties, the company that had manufactured them, and the illicit supply channels that had brought them to Liberia.

Weapons tracing is a powerful lever in efforts to control the illicit proliferation of small arms and light weapons because it can provide hard evidence of parties' involvement in illegal activities. The Liberia Panel's work is a textbook example of weapons tracing, but it remains a rare success. As the following sections note, weapons tracing is not always a difficult task, but it is one that requires much greater attention by the international community.

TRACING BASICS

Small arms tracing has been defined as the

systematic tracking of illicit small arms and light weapons found or seized on the territory of a State from the point of manufacture or the point of importation through the lines of supply to the point at which they became illicit. (UNGA, 2005a, para. 5)

The first step in any tracing operation is to identify the weapon of interest uniquely on the basis of its physical characteristics and markings. Then, with the cooperation of the states that manufactured and imported the weapon, the second step is to track changes in ownership through available documentary records. The ultimate, but often elusive, goal of weapons tracing is to identify the point in the transfer chain at which the (typically) legal weapon entered the illicit market. The three pillars of marking, record-keeping, and cooperation are essential to successful tracing.

Marking: Unmarked weapons cannot be identified uniquely. While a weapon's design may enable interested parties to identify its manufacturer, marks indicating the manufacturer and country of manufacture are usually indispensable. In all cases, the presence of a unique serial number allows one weapon to be distinguished from hundreds or thousands of others that may have been produced at a particular factory. Moreover, if countries mark the weapons that they import, tracing efforts are far more likely to succeed.

Record-keeping: Key elements of a weapon's history—in particular, changes in ownership—must be recorded for tracing to be possible. Records must be accurate, comprehensive, and retrievable if investigators are to have any chance of piecing together the weapon's history. Essential information includes the weapon type and model, its serial number, and the party to which it was transferred.

Cooperation in tracing: Even if the necessary marking and record-keeping requirements have been met, tracing efforts will be brought to a swift halt if the countries of manufacture or import—or trading entities within those countries—do not cooperate with tracing requests. After having identified the weapon uniquely, an investigator seeking tracing assistance typically approaches the countries of manufacture and import for help. Sometimes investigators contact relevant trading companies directly. Thereafter they follow the record-keeping chain forward in time—if possible to the point at which the weapon was diverted to the illicit sphere.

Both the *International Tracing Instrument (ITI)*⁴, adopted by the UN General Assembly on 8 December 2005 (UNGA, 2005a; 2005b), and the outcome of the first meeting to consider the implementation of the ITI underline the fundamental, mutually reinforcing nature of these three pillars of weapons tracing (UNGA, 2008, annex, para. 9(a)).⁵ They also note that weapons tracing 'may be required in the context of all forms of crime and conflict situations' (UNGA, 2005a, preamb. para. 2).⁶ Law enforcement officials often trace small arms when conducting criminal investigations. The tracing of weapons in conflict situations is rare, however, and usually restricted to the activities of some UN embargo-monitoring groups and a handful of research organizations.

Unmarked weapons cannot be identified uniquely.

CONFLICT TRACING: A USER'S GUIDE

Why attempt a weapons trace in a country experiencing ongoing armed conflict or having recently emerged from conflict? Illicit arms transfers fuel conflict and, in post-conflict situations, they allow protagonists to rearm for war or for crime. Whether at the height of warfare or in societies that have recently emerged from armed conflict, 'conflict tracing' may be used to monitor potentially escalatory influxes of weapons and to investigate particular cases of concern.

The application of conflict tracing is not limited to identifying direct transfers to warring parties. The process may also be applied in cases of weapons loss by armed forces. Whether through negligence or theft, loss is a type of diversion, and diverted weapons fuel crime and insurgency across the world (Bevan, 2008c, pp. 47–56). Conflict tracing can play a critical role in identifying which security forces leak weapons and, by extension, where the security of weapons needs to be improved.

Recent evidence indicates that in the post-conflict environment, peacekeepers are no less susceptible to diversion than state security forces. In 2006, for instance, the South African defence minister reported that 50,000 rounds of ammunition, 97 mortar bombs, 46 R-4 assault rifles, 3 light machine guns, 2 pistols, and 2 grenades had been lost or stolen in the course of peace support missions in Burundi (Glatz and Lumpe, 2007, p. 86). In such cases, tracing may also help identify weapons diverted from peacekeeping forces and highlight weaknesses in arms management.

Conflict tracing, regardless of the context in which it is applied, relies on observing the types of weapons in use (whether legally or illegally). This provides a baseline of weapons in a given region, one that can become the basis for detecting influxes of new or more numerous weapons—which might provide the ‘seed’ evidence for a subsequent, more detailed investigation. In the Liberia case described above, the large number of distinctive M70 assault rifles served as such evidence. These weapons stood out against the many older Kalashnikov-pattern weapons in the region and called for further investigation.

The following sections provide a detailed, operationally oriented description of conflict tracing procedures—from observing and monitoring the weapons in use, to uniquely identifying weapons of concern and tracing their transfer history through documentary evidence.

Weapons identification

Weapons identification is the process of observing and recording the physical characteristics of a weapon, including its type and design, along with any marks that have been applied to it (see Table 3.1). Three pieces of information are critical to weapons identification: the model of the weapon (including the calibre, which often differentiates one model from another), the manufacturer’s marks, and the serial number. When available, import marks provide a crucial fourth piece of information.

Given the millions of weapons used in contemporary armed conflict, why choose to trace one weapon and not another? The decision often requires some basic knowledge of weapon types, manufacturers of these weapons, and where they are likely (or not likely) to be used.

Table 3.1 Information required to uniquely identify a weapon

Information	Comments
Critical information	
Model of weapon and calibre (often marked, otherwise necessitates visual examination of design features)	Identifies the specific type of weapon (potentially one among many types produced by a single manufacturer).
Manufacturer’s marks	Identifies the manufacturer (factory or firm).
Serial number	Uniquely identifies the weapon in a production run. May be recorded in export, import, or within-country transfer documentation.
Import mark (when available)	Identifies a state that has, at one time, imported the weapon; that state may retain export or within-country transfer documentation.
Supplementary information	
Annotation (fire selector, sights, etc.)	May identify the manufacturer.
Weapon design	Certain features of the weapon that may help to identify the model and manufacturer (for example, the shape and composition of the stock or the design of the muzzle compensator).

Telling weapons apart requires great attention to detail. In attempting to distinguish between an AKM and an AK-105 (see Figure 3.1), for example, many people would (incorrectly) describe each as an AK-47. Yet the two weapons have differing calibres—7.62 x 39 mm and 5.45 x 39 mm, respectively—which indicates that each is part of a distinct market, whether legal or illicit. AKMs are standard in Darfur, for instance, but it would be unusual to encounter an AK-105 in the region. These kinds of observations prompt people to observe, record, and ultimately, to try and trace conflict weapons.

While expertise is not a prerequisite to tracing, it is essential to observe and take note of the types of weapons in circulation. It does not take an expert, for example, to note an influx of ‘black AKs’, such as the AK-105. The appearance of newly arrived weapons, particularly if their design is unusual or new, might be sufficient to prompt non-experts to examine their markings to determine their provenance.

In 2008, for example, researchers in Germany observed (from photographs) that Georgian security forces were using German-manufactured Heckler & Koch G36 assault rifles. The appearance of G36 weapons was unusual because Georgian forces had previously, and almost exclusively, used Kalashnikov-pattern weapons. Moreover, Germany had reportedly rejected Georgia’s request to purchase weapons of this type on the grounds of ‘unresolved conflicts within its territory’ (Kucera, 2007; Deutsche Welle, 2008). The case is illustrative of the role that vigilance and monitoring can play in detecting cases worthy of further investigation.

Weapon model

Manufacturers often produce many different models of weapon (for example ‘G3A3’ or ‘G3A4’), some of which differ only slightly from one another. In the context of weapons tracing, identifying the model of weapon precisely is important for two reasons. First, manufacturers tend to stamp production runs of one type of model with successive serial numbers; these records are subsequently stored together. Several decades can separate the production of two models of weapon by one manufacturer. Any records that might pertain to their transfer are likely to be stored separately. Knowing the model of weapon (and, by extension, the production period) can significantly reduce the volume of documentation that needs to be consulted when responding to a tracing request. Second, transfer documentation may likewise list weapons by their model designations. Any attempt to locate a weapon in manufacturing, export, or import records by serial number alone could be extremely time-consuming.⁷

Together with the serial number and manufacturer, the model is one of a weapon’s three most important identifying features. In fact, the model of weapon may indicate the manufacturer, which means that identifying the model precisely can provide two of the three primary identifying features (model, manufacturer, and serial number).

Some manufacturers, however, do not mark their weapons with model designations. In other cases, it can be difficult to determine which marks indicate the model. For instance, the marks pictured in Figure 3.2 feature a model designator, which, to the non-expert (or non-Chinese literate), is undecipherable. From left to right, the marks read ‘5’, ‘6’, and ‘Type’—a Type 56 assault rifle.

Figure 3.1 **AKM (top) and AK-105 (bottom)**



Figure 3.2 Marks on the Type 56 assault rifle



© James Bevan. Weapon courtesy of Royal Armouries, UK

Learning to identify specific models of weapon can take years of experience and there is no complete substitute for this level of knowledge. Nevertheless, it is important to note that most people—indeed most organizations—do not need to identify weapons on sight. This task can be performed by an expert later, as long as that person is given the right information (including photographs).

Table 3.2 reproduces part of a list of 4,868 weapons that were collected by the Kosovo Police Service during two years of weapons amnesties and seizures. The list has many errors (marked in red) and none of the model designations is accurate. Because the records are relatively expansive, however, an expert can still identify each of the weapons listed here.

In this case, the person recorded what was believed to be the serial number while inadvertently including the model designation as part of that number. This information reveals that the rifles are all Chinese (rather than another of the many Kalashnikov variants) and comprise two Type 56-1 and four Type 56-2 assault rifles, in addition to a Type 56S-1 rifle manufactured for the US sporting market.

Table 3.2 Extract from a list of 4,868 weapons and associated items collected by the Kosovo Police Service, 2000-02 (errors marked in red)

Manufacturer	Model	Firearm type	Calibre	Serial number
AK (Kalashnikov)	Unknown	Sub-machine gun	7.62	56-16140072
AK (Kalashnikov)	1969	Rifle	7.62	56-17097521
AK (Kalashnikov)	AK-47	Rifle	7.62	56-20024456
AK (Kalashnikov)	AK-47	Rifle	7.62	56-20103089
AK (Kalashnikov)	Unknown	Rifle	7.62	56-20103089
AK (Kalashnikov)	AK-47	Rifle	7.62	56-202261
AK (Kalashnikov)	AK-47	Rifle	7.62 mm	56S-1 900476

Note: Type 56 assault rifles are manufactured in both AK-47 and AKM patterns, so the designation AK-47 is deemed an error.

Source: KPIS (2002)

Box 3.1 Weapons identification in practice

The weapon model, the manufacturer's mark, the serial number, and, when available, import markings are the basic elements needed to trace a weapon in most transfer records. Very often, however, the model designation is not marked on a weapon. For instance, the only way to tell the difference between many varieties of Kalashnikov-pattern weapons is by their design features. Model recognition involves only basic weapons expertise, but most people (including some military personnel) lack such knowledge.

An example of a weapon that is difficult to identify is pictured in Figure 3.3. Due to years of use in a harsh environment, the model designation and manufacturer's marks on the weapon have become undecipherable to the naked eye. Although the Arabic serial number is still visible (lower right of the frame), identifying the weapon model and manufacturer requires observing some of the weapon's design features.

In this case, the relevant design features include the shape of the stock and the fire selector annotation (see Figure 3.4). Together with the Arabic serial number, this information identifies both the model and the manufacturer—a Misr assault rifle, manufactured by the Maadi factory of Cairo, Egypt. Despite its age and condition, this weapon thus provides sufficient information for a tracing process to begin.

There is, however, a deficit of interest in weapons identification among international organizations, few of which have staff with the skills required to identify weapons. The personnel who are best placed to observe illicit weapons are the peacekeepers and law enforcement staff deployed in conflict and post-conflict situations. Yet they often have neither the mandate nor the basic training to identify (or at least record) the weapons that often proliferate in large numbers in their theatre of operations. The United Nations, for example, does not instruct its personnel in basic weapons identification; nor do major international peacekeeping training programmes offer lessons in the subject.⁸

As a result, personnel overlook valuable conflict tracing information. Trends that should be of concern remain unnoticed. Even when evidence of illicit proliferation abounds, there are simply not enough experts on the ground to realize it and to begin tracing illicit weapons. The diagnostic value of weapons tracing is, therefore, absent from many conflicts of international concern.

These deficiencies would not arise if the necessary energy and resources were to be allocated to raising awareness among relevant personnel, particularly peacekeepers and other employees in affected areas. People do not need to be experts to contribute valuable information if they know where to look for it and how to record it.

There is also a largely untapped pool of weapons expertise that could be hired for specific missions or activities. While some groups, including a few UN embargo panels and development project personnel, have requested external assistance in tracing weapons, such contacts are informal and sporadic.⁹ Putting expertise on the ground as a formal part of UN missions (possibly according to region or on a rotational basis) would have a positive impact on the international capacity to identify and trace illicit weapons.

Figure 3.3 **Manufacturer's marks (centre) and serial number (lower right) on an Egyptian Misr assault rifle**



Egyptian Misr assault rifle on the Kenya-Sudan border, May 2008. © James Bevan

Figure 3.4 **Identifying design features of the Egyptian Misr assault rifle**



Egyptian Misr assault rifle on the Kenya-Sudan border, May 2008. © James Bevan

Two lessons may be drawn from the case presented in Box 3.1. First, the person recording the information does not have to be an expert to record information that can later be used to identify the weapon. Second, an expert may be able to make a positive identification by cross-referencing weapon characteristics and marks—particularly if the person recording the information records any mark, symbol, or letter in full, as it appears on the weapon.

Manufacturers' marks

Factories identify their products by marking them. Manufacturers' marks range from the name of the factory, written in plain text, to symbols and numerical codes. For example, the Serbian manufacturer Zastava uses both plain text

Figure 3.5 Two varieties of the Zastava factory mark



Illustrations: © James Bevan

and a symbol to brand its M70 assault rifles (see Figure 3.5). Other manufacturers use symbols and/or numerical combinations, as shown in Figure 3.6, which pictures a Chinese manufacturer's symbol featuring the number 66 inside a triangle.

Most factories or manufacturing countries brand weapons with their own marks. The *International Tracing*

Instrument notes that states are required to provide 'unique user-friendly marking with simple geometric symbols in combination with a numeric and/or alphanumeric code, permitting ready identification by all States of the country of manufacture' (UNGA, 2005a, para. 8(a)).

Table 3.3 Manufacturers' marks on various Kalashnikov-pattern assault rifles¹⁰

Proof mark	Country of origin
	Bulgaria
	China (Type 56 model) ^a
١٩٧٢ Ⓟ ١.١٢٣.٤	Egypt (date: 1972; factory mark; serial number)
٣٩م٣٩ × ٧.٦٢ عيار تبوك	Iraq (calibre; model: Tabuk; factory mark) ^b
68년 산	North Korea (Type 68 model)
	Romania (Cugir factory) ^c
	Russia (Izhevsk factory)

Notes:

^a The mark translates literally as '5' '6' 'Type'.

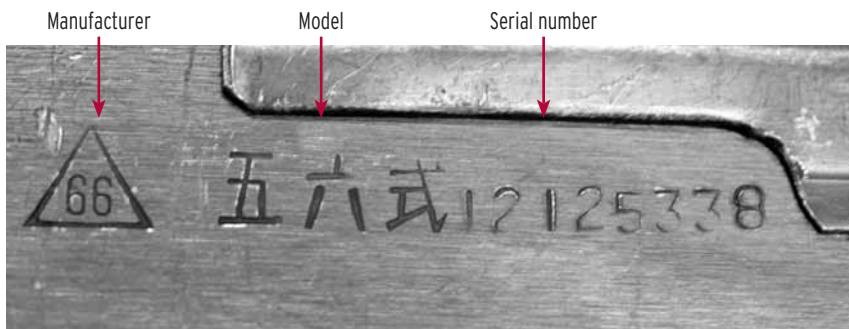
^b From right to left, the Arabic script in the proof mark reads: 'Tabuk' [proof mark] 'Calibre 7.62 x 39 mm'.

^c The Cugir factory is now part of the ROMARM company.

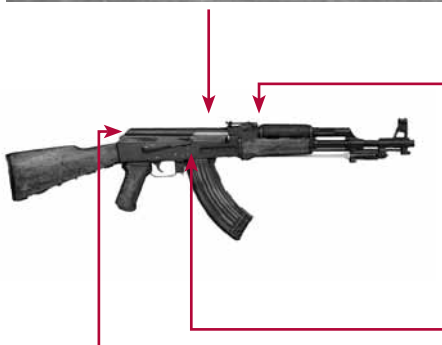
Illustrations: © James Bevan

Figure 3.6 Common marks on Kalashnikov-pattern weapon

External marks:



RECEIVER (LEFT SIDE)



REAR SIGHT (TOP)

RECEIVER COVER (REAR)



FIRE SELECTOR, RECEIVER (RIGHT SIDE)

Internal marks:



BOLT CARRIER



RECOIL SPRING GUIDE

Theoretically, these marks should make identifying a weapon's manufacturer a relatively easy task. However, many such marks cannot be described as either 'user-friendly' or easily identifiable 'by all States', as those reproduced in Table 3.3 illustrate. Many states do not, therefore, fulfill the marking requirements of the ITI.

At present, manufacturers employ such a wide range of diverse marks, including letters, numbers, symbols, and combinations thereof, that identifying them is similar to learning an extended alphabet.

If the manufacturer's mark is cryptic, the person recording the information should note any mark, symbol, or letter in full, as it appears on the weapon, as an expert will be able to identify it at a later time.

Serial number

Successful weapons tracing invariably depends on finding a serial number.¹¹ The serial number is the only way to identify a weapon uniquely with the naked eye and without extensive forensic research. Once recorded and submitted to a manufacturing, exporting, or importing country or company, the serial number can be used to identify an individual weapon in transfer records. Conflict weapons without serial numbers are relatively rare; in these cases, they have usually been worn away with time and rough handling. In contrast to serial numbers of weapons recovered from crime scenes, those of conflict weapons are seldom removed deliberately.¹²

Table 3.4 Serial number locations on various types of weapon		
Pistol (slide)		Type 68, North Korea
Sub-machine gun (receiver)		MAC-10, USA
Rifle (receiver)		G3A3, Germany
Rocket launcher (pistol grip and sight mount)		Type 69, China




Serial numbers appear in different places on weapons, although they are almost always stamped or engraved onto the main body of the weapon—the part of the weapon that is least likely to be removed or replaced (see Table 3.4). Manufacturers normally apply serial numbers to the slide, barrel, or frame of pistols and revolvers. They usually locate serial numbers on the receiver (main body) of sub-machine guns, rifles, assault rifles, and light and heavy machine guns.

For the non-expert the phrase serial number can be confusing because manufacturers use letters in addition to numbers. Establishing which marks (often among many) comprise a serial number is sometimes difficult. The upper image in Table 3.5, for instance, includes a date (1983) and a serial number (NH 6335). The date and serial number were

applied at different times in the manufacturing process and the stamping font and positioning differs.

Furthermore, the serial numbers in Table 3.5 are alphanumeric: in each instance the serial number comprises both letters and numbers—prefix, body, and suffix. A failure to record the prefix and suffix letters ('NH' or 'JT') or embedded letters ('Q'), and the spaces between them, would render the serial number incomplete and make it impossible to find weapons among transfer records.

Table 3.5 Serial numbers (including prefix, suffix, and embedded characters) on various weapons

	Serial number (firearm type)
	NH 6335 (AKM, Romania)
	62 Q 6045 (AK-47S, Russian Federation)
	TX 1472П (MPiK, East Germany)

© James Bevan. Weapons courtesy of Royal Armouries, UK

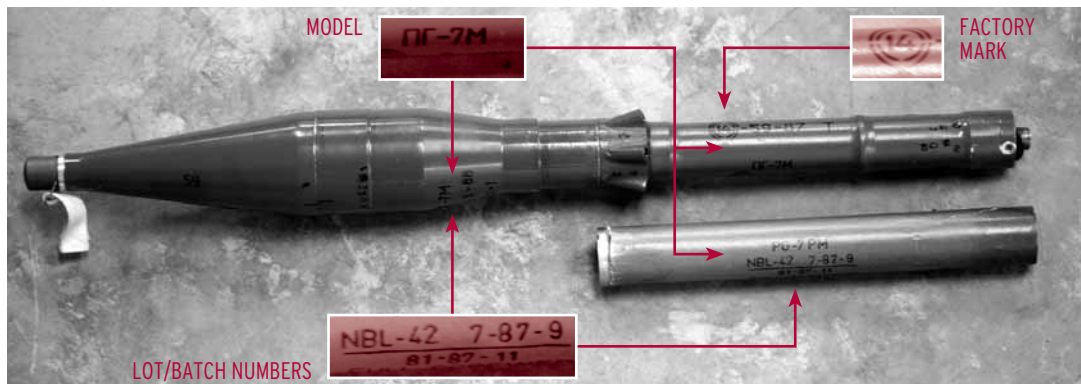
Box 3.2 Identifying marks on ammunition

Manufacturers rarely mark ammunition with a unique serial number, which makes it more difficult to trace than weapons. The most defining piece of information to be found on ammunition is usually a lot or batch number, which specifies the particular production run of the ammunition or of its component parts. In the case of light weapons ammunition, the lot or batch number is usually stencilled or stamped onto the body of the item (see Figure 3.7). Small arms cartridges are generally too small to accommodate such text and, instead, manufacturers apply lot or batch numbers to the packaging material rather than to the individual cartridges (Dreyfus, 2008).

Tracing ammunition by lot or batch number is not as precise as tracing a weapon using a serial number. Thousands of items may be part of the same lot and, therefore, feature identical markings. Moreover, ammunition from the same, identically marked lot might have been shipped to numerous recipients. If one party subsequently retransfers the ammunition illicitly, it is therefore extremely difficult to identify that party using lot markings. Furthermore, because most small arms cartridges are not lot-marked, removing them from their packaging separates them from their identifying lot or batch numbers.

Tracing ammunition usually necessitates finding relatively large numbers of one type of ammunition and then identifying, through a process of elimination, from where it is most likely to have been transferred (Bevan, 2008a). Most ammunition is marked with factory and year codes, which helps to narrow down the possible range of sources—even in the case of otherwise anonymous small arms cartridges (Bevan, 2008b). Complex, high-value ammunition, such as missiles for man-portable air defence systems (MANPADS), may feature unique serial numbers, which allow them to be traced in transfer records (Bevan, 2004).

Figure 3.7 Marks on a PG-7 warhead and propelling charge (RPG-7 rocket launcher)



© James Bevan. Weapons courtesy of Royal Armouries, UK

The meaning behind the various configurations of prefix, suffix, and embedded letters is often known only to manufacturers and need not be familiar to people who identify and trace weapons. If the complete serial number, including all marks and symbols, is transmitted to the manufacturer and other record-holders, the weapon can be traced.

Import marks

Import markings are stamps or engravings applied to the weapon at the time of importation. These may be plain text, numbers, or symbols. Figure 3.8 displays the upper left receiver (body) of a Russian Izhevsk-manufactured AKM assault rifle. The marks include the Izhevsk 'arrow in a triangle', the year 1974, and the serial number. However, this weapon also features a triangular, pre-2003 Iraqi military mark between the two rivets. This is an import mark: it signifies that, at some point in the weapon's 34-year history, it was imported into Iraq.

Import marks have the potential to make weapons tracing much easier because they shorten the chain of possible transfers that need to be investigated when establishing how the weapon came to be on the illicit market.

When a weapon is marked only with a manufacturer's mark and serial number, the process of tracing the weapon needs to start with the manufacturer. The manufacturer may retain records that specify the country or entity to which the weapon was first delivered.

Figure 3.8 Iraqi import mark on a Russian-manufactured AKM



© James Bevan. Weapon courtesy of Royal Armouries, UK

However, even if these records are available, there is no guarantee that subsequent recipients will have kept similar, detailed export documentation. There is great potential for weapons to 'disappear' from the documentary record after the first transfer.

Moreover, because weapons are durable and can remain operational for many decades, manufacturers may not retain records of a particular weapon's manufacture or sale. For instance, a manufacturer may have ceased business without transferring its records to

relevant authorities. Paper records may have disintegrated, been lost, or been destroyed after the legal retention period—as little as ten years in some countries. Computerized records save space and lessen the risk that manufacturers will jettison records for space-saving reasons, but many of the world's conflict weapons pre-date the advent of computerized record-keeping systems.

If, however, the weapon has been import-marked, the process of tracing begins with the import-marking country. The chain of potential transfers is therefore significantly reduced and investigations need only focus on what happened to the weapon after it was re-exported from the import-marking country. If the import-marking country keeps records of export recipients, the trace can advance another step (i.e. with the identification of another entity in the transfer chain).

States party to the *UN Firearms Protocol* are required to mark all imported firearms 'permitting identification of the country of import and, where possible, the year of import' (UNGA, 2001, art. 8(1)(b)). The ITI reminds signatories of this obligation (UNGA, 2005a, annexe para. 8(b)). Import records are often retained long after the legal retention period as importers typically need to keep more information than manufacturers—for tax, customs, and consumer protection purposes. As a result, importer records are often maintained considerably longer than manufacturing records.

Tracing is enhanced if an import mark identifies not only the importing country, but also the year of import, as both the *UN Firearms Protocol* and ITI urge. Yet very few states mark weapons at import.

A few states, such as Brazil, Lebanon, and Venezuela, have requested that foreign manufacturers apply import marks to weapons prior to delivery. While these cases are not import marking in the strict sense since the mark is

Box 3.3 Import marking in the United States

The United States Gun Control Act of 1968 requires that licensed importers apply the following permanent marks on firearms: (a) if not already present, an individual serial number, not duplicating any other serial number used by that importer; (b) the model, calibre or gauge, the name of the manufacturer, and, when applicable, the name of the importer; and (c) the name of the country in which the firearm was manufactured and the city and state of the importer (US, 2008, sec. 478.92).

More specifically, the serial number must be marked on the frame or receiver of the firearm. The frame or receiver is the primary structural component of the firearm to which all the other components are attached. The remainder of the markings may be placed on the frame, receiver, or barrel of the weapon. All of the markings must be placed on the firearm permanently by engraving, casting, or stamping in a manner not susceptible to being readily obliterated, altered, or removed (US, 2004, sec. 923(i); US, 2008, sec. 478.92). Although there are many methods for marking firearms, some of them, such as stamping, are more resistant to obliteration or sanitization (OSCE, 2003, sec. II.3.3).

Recognizing that not all manufacturers will impress import markings at the time of manufacture just prior to shipment to the importing country, it is necessary to account for firearms that arrive at the importing state with no import markings at all, but merely manufacturing marks. In the United States, licensed importers are required to mark the firearms they import within 15 days of the date of release of the firearms from customs custody (US, 2008, sec. 478.112(d)). The failure to mark firearms as required by the law and the regulations is punishable by a fine of up to \$250,000 and five years' imprisonment (US, 2004, sec. 924(a)(1)(D)).¹³ The licence of a manufacturer or importer who willfully fails to mark firearms in accordance with the law and regulations may also be revoked (US, 2004, sec. 923(e)).

On 30 January 2002, the Bureau of Alcohol, Tobacco and Firearms¹⁴ issued a final rule requiring a minimum height (1/16 inch / 1.587 mm) and depth (.003 inch / 0.076 mm) for all serial number markings placed on firearms by licensed importers and manufacturers, and standard depth (.003 inch / 0.076 mm) requirements for all other required markings (US, 2008, sec. 478.92(a)(1)(i); OFR, 2001, p. 40596). The change was designed to facilitate the tracing of firearms because lightly stamped markings wear more easily and become difficult to read. Uniform height and depth requirements help prevent recording and reporting errors and also make it more difficult to alter, remove, or obliterate firearms markings. Despite initial objections over the proposal, the agency and the industry determined that most industry members can and have satisfied the .003 inch depth requirement (OFR, 2001, p. 40598).

applied by the manufacturer-exporter (and not the importer), they serve the same purposes, provided that the mark clearly and correctly identifies the recipient country (and date of import). There is, of course, a small risk that weapons might be diverted while en route to the importing country, which would defeat the purpose of such marking. Yet since sellers are not normally paid until their products are received and approved by the buyer, they have a strong incentive to ensure the safe arrival of the weapons (Kullman, 2008).

**Weapons tracing
requires
documentary
evidence of
transfers.**

The chief arguments against import markings are their cost, a lack of room on a weapon following repeated importations, and the ‘defacement’ of a rare or expensive firearm. In practice, countries that practice import marking have resolved each of these issues. For example, rare or expensive weapons may be marked in a different manner through a legislative fix known in the United States as a variance. This permits the US regulating agency, on a case-by-case basis, to allow an alternative method of marking a weapon and to require the retention of additional records. In the case of a rare or valuable weapon, markings may be permanently affixed on several parts of the weapon that are not as visible as ordinary marks (e.g. under the grip or under the stock). Certain other weapons may be encased in Lucite or permanently attached to frames that are also marked. Owners of such weapons may be legally required to keep proper records with the weapon at all times (Kullman, 2008).

Weapons tracing

Weapons tracing entails using a weapon’s identifying information—model, manufacturer, serial number, and (if available) import mark—to track changes in the weapon’s ownership over time. As the following sections note, the tracing process is dependent, first, on the existence of documentary evidence of such changes—‘the record-keeping chain’—and, second, on the willingness of parties that might hold such records to cooperate with tracing requests.

Following the record-keeping chain

The record-keeping chain is the entire documentary history of a weapon’s transfer from one party to another. Although parts of the chain may be difficult to access, it can identify previous owners or users of a weapon, or reveal entities that were involved in its transfer. There may be many types of documentary evidence in the chain, including:

- **manufacturer’s records** compiled by the factory, which document individual weapons, their dates of manufacture, and recipients;
- **quality control records** compiled by a (sometimes independent) organization responsible for ensuring that producers meet manufacturing standards;
- **export documentation** that specifies the recipient of the weapon, including export authorization and end-user certification;¹⁵
- **packing lists** that detail the weapons contained in boxes, crates, and other shipping containers;
- **shipping documents**, such as bills of lading, with which transport agents (air, land, and sea) acknowledge receipt of goods;
- **import documentation**, such as import licences and any registries of import-marked weapons;
- **transit documentation**, which details the origins and destinations of weapons shipped on or through the territory of a state;¹⁶
- **proof house records**, which certify a weapon as safe, reliable, or some other criteria (usually upon import, but also if a weapon has been deactivated); and
- **security force inventories**, which record weapons in stock, issued to particular units, or destroyed or demilitarized.

Once in possession of some or all of this documentary information, anyone who wishes to trace a weapon can begin to piece together its history. Manufacturer records may identify the entity to which the weapon was first sold (the first recipient). For example, in 2007, the UN Monitoring Group on Somalia requested that the Russian Federation trace two serial numbers found on MANPADS missiles.¹⁷ The Russian Federation responded:

missile 9M39 from party 03-95 with number 03268 was produced in Russia in 1995 [. . .] This missile was shipped to Eritrea in the same year through the state company 'Rosvooruzhenie'. (UNSC, 2008, para. 106)

Similarly, export records obtained from the first recipient may reveal a second recipient. Packing lists and shipping documentation may do likewise. In all cases, however, two factors condition the success of efforts to follow the record-keeping chain: (1) the accuracy and comprehensiveness of information specifying the model, manufacturer, serial number, and, where available, importer of the weapon, and (2) access to that documentation.

Cooperation in tracing

Cooperation is a prerequisite for successful conflict tracing. Following the record-keeping chain usually involves contacting manufacturers, exporting states, or any of a host of potential intermediaries that may have been responsible for a weapon's transfer. If the trace is to succeed in identifying the weapon's last legal owner or point of diversion, each of the parties needs to cooperate by releasing information that specifies the recipient of each transfer.

Conflict tracing differs from traces conducted by domestic law enforcement authorities—so-called 'crime gun tracing'. In domestic traces, police departments may have to request information from another country, but, more often than not, their tracing activities begin and end at home. Weapons used in crime—particularly when civilian ownership in the country is widespread—frequently originate in the domestic civilian market (Bevan, 2008c, pp. 62–66). In these cases, law enforcement authorities consult firearm registration, sale, or resale records to determine the weapon's last legal owner.

Conflict tracing poses additional challenges. Countries in conflict or recovering from conflict often lack the records (import, sale, and licensing) necessary to conduct a domestic trace. Professional police forces, which might otherwise be instrumental in conducting a trace, are often in disarray. Under these circumstances, those maintaining order in conflict or post-conflict zones (e.g. international peacekeeping forces) or investigating the supply of arms to a country (e.g. UN sanctions panels) are best placed to trace conflict weapons. Their starting point is usually outside the country in question. In most cases, the only evidence presented to an investigator is the weapon itself, which means that the manufacturer (or, if known, most recent importer) is the first point of contact and the tracing process has to 'work forward' through the record-keeping chain.

There is, however, no comprehensive mechanism to facilitate conflict trace requests. When organizations or groups such as UN sanctions panels require information on weapon transfers to conflict zones, they tend to make ad hoc requests to national governments, export agencies, manufacturers, or other entities. The results are mixed. At present, a lack of cooperation by manufacturers and states is the norm rather than the exception. Between 2006 and 2007, for instance, states responded to only around 30 per cent of UN sanctions panels' tracing requests.¹⁸

Conflict tracing would prove more successful if major weapons-producing or exporting states cooperated more closely with local, regional, or UN-mandated investigators. Enhanced cooperation could be incorporated into existing law enforcement agreements at regional or international levels.¹⁹ Among other things, such agreements would specify the modalities for accessing and using sensitive information.²⁰

States responded to only 30 per cent of UN tracing requests.

At the international level, INTERPOL facilitates cooperation between national police forces, including for weapons tracing, through its global communications system I-24/7. As of the end of 2008, a total of 514 agencies and organizations had access to the I-24/7 network.²¹ These included the National Central Bureaus (NCBs) that serve as designated INTERPOL contact points within 186 member countries, as well as other law enforcement entities, customs offices, and international organizations specifically authorized to use the network. Law enforcement officials typically forward a tracing request to the country's INTERPOL NCB. The latter, using I-24/7, then dispatches the enquiry to the NCB in the country identified as the manufacturer or most recent importer of the weapon. That NCB then forwards the tracing request to the record-holders within the country, such as manufacturers or export authorities.

INTERPOL recently strengthened its weapons tracing infrastructure.

INTERPOL recently strengthened its weapons tracing infrastructure. In January 2009, INTERPOL's I-24/7 network introduced a new firearm trace form that standardizes the tracing process for member countries and enhances the organization's ability to analyse firearm trace data. The form also has a link to the INTERPOL Firearms Reference Table (IFRT), another component of the I-24/7 network. The IFRT was developed in cooperation with the Royal Canadian Mounted Police to address the widespread problem of improper firearm identification. It provides users with more than 250,000 firearm references and 57,000 high-quality digital images of firearms in order to assist them in properly identifying a firearm.

UN entities such as the civilian police components of peacekeeping operations and sanctions groups also access INTERPOL systems in the context of conflict tracing. A cooperation agreement concluded between the UN and INTERPOL in July 1997 provides the necessary legal framework for this cooperation (INTERPOL and UN, 1997). Both the UN Interim Administration Mission in Kosovo and the UN Mission in Liberia have been granted access to the INTERPOL communications network and databases, including to aspects that facilitate the exchange of information for weapons tracing (INTERPOL and UN, 2002; INTERPOL, 2005).²²

WEAPONS COLLECTION: POST-CONFLICT RECORD-KEEPING

This chapter has noted that people decide to trace conflict weapons because they notice something that is worthy of further investigation. This entails vigilance, but there are other situations in which gathering tracing-relevant information is a much more passive process.

Weapons collection initiatives are one such activity. By recording details of all collected weapons, they provide a valuable pool of tracing information, even in the absence of weapons identification experts. If the weapons are recorded in sufficient detail, an expert will be able to identify any trends in the types and numbers of weapons listed. An expert review of many weapons (potentially tens of thousands) can reveal a preponderance of weapons that originate from a single factory or numerous weapons with consecutive serial numbers—strong indicators of single, possibly illicit, consignments of weapons.

Post-conflict weapons collection programmes are not designed with weapons tracing in mind, but they should record weapons in sufficient detail to trace them. The purpose of recording collected weapons is to verify that each weapon is disposed of properly, be they destroyed, demilitarized, or transferred to legitimate users, such as the security forces. Verification requires identifying each weapon uniquely, which means recording the same information that is required for weapons tracing: model, manufacturer, serial number, and (where applicable) import mark. Most

Box 3.4 Verification

Verification is the monitoring of weapons that have been stockpiled temporarily, pending disposal. It is designed to ensure that weapons are correctly disposed of and not stolen, misplaced, or diverted to illicit markets in the meantime. Verification is similar to the accounting processes that states with effective stockpile management systems use to monitor their stockpiles (Bevan, 2008a).

Verification necessitates compiling records that uniquely identify each weapon, which means that weapons must be registered by serial number. It is also preferable to record the specific type (model and manufacturer) of weapon for two practical reasons. First, weapons collection lists can become the basis of more permanent national stockpile inventories, particularly when post-conflict weapons are absorbed into a country's security force stockpiles (SEESAC, 2006). In these cases, recording types becomes important because security forces need to have qualitative information about the weapons at their disposal. Second, from the perspective of weapons collection initiatives, listing weapon types increases the chances of diagnosing security breaches.

Recording weapons in detail is not just preferable from the perspective of analysing trends in their distribution; it can also help secure those weapons against (re-)entering illicit markets.

weapons collection initiatives, therefore, attempt to record this information. If it is recorded accurately, the information can be used for a variety of purposes, including:

1. to identify any illicit weapons transfers that might have provided weapons to parties during a conflict (possibly in breach of UN arms embargoes);
2. to generate a baseline of the types of weapons present and thereby facilitate identification of future influxes of weapons that might allow spoilers to threaten peace, security, and peace-building;
3. to assess the age and quality of collected weapons in order to establish whether initiatives have successfully reduced the number of weapons in circulation—and not merely removed the old and less desirable models;
4. to monitor possible arms and ammunition losses from peacekeeping forces and to facilitate recovery of weapons that have been lost or stolen; and
5. to verify the destruction and disposal of weapons that have been collected during arms reduction initiatives, such as DDR programmes, arms seizures, and weapons amnesties (see Box 3.4).

Between 1998 and 2008, UN and associated initiatives collected around 330,000 weapons and made records of most of them.²³ These records are, potentially, of great value for efforts to understand the illicit trade in weapons and for monitoring the progress of countries recovering from conflict—including the efficacy of arms reduction initiatives.

Process

Compiling records of collected weapons is a simple process but requires the person conducting the registration to record all the information necessary to identify each weapon—model, manufacturer, and serial number. Many weapons registration initiatives fail to do this.

Table 3.6 Extract from a list of 348 weapons collected by the Burundian army, 2005-07

Série	Type	Numéro
#7	K.V. Ord	3809709
#8	K.V. Ord	6737
#9	K.V. Ord	17-0635

Source: Burundi (2007)

Table 3.7 Numbers of traceable weapons listed in records collated by UN agencies

Programme	Implementing agency	Number of weapons recorded*	Number of traceable weapons**	Percentage of traceable weapons
Republic of Congo (2006)	UN Development Programme	1,308	0	0.0
Liberia (2004)	UN Mission in Liberia	21,630	5,490	25.4
Kosovo (2000-02)	UN Development Programme, Kosovo Police Service	4,867	1,455	29.9
Total/average		27,805	6,945	25.0

* Figures exclude ammunition and ancillary items.

** The number of weapons that were recorded in sufficient detail to make a tracing request (without guarantee of success)—including model (and, or by extension, manufacturer) and serial number. The numbers are generous because they include some records that have multiple, successive serial numbers but no model designation—on the assumption that, with considerable research, the manufacturer of the weapons could probably be identified.

Sources: Republic of Congo: email correspondence with Hervé Gonsolin, CTP Armes Légères et Violence Armée, UNDP Burundi-BINUB, 2 September 2008; Liberia: UNMIL (2005); Kosovo: KPIS (2002)

A case in point is the Burundian army's collection of 348 weapons from former rebel groups in several locations in 2005–07. Of the 348 weapons recorded, only 40 could be identified by model, manufacturer, and serial number.²⁴ Most of the weapons were recorded simply as 'K.V. Ord', or ordinary Kalashnikov (see Table 3.6). The serial numbers were incompletely documented and, even when these were complete, it is impossible to establish where the weapons were manufactured because of the absence of accurate model designations and factory marks.

Burundi does not appear to be an exceptional case. Table 3.7 displays the results of an entry-by-entry review of around 28,000 weapons collated by UN agencies during three weapons collection initiatives. It shows that 75 per cent of the 28,000 weapons are recorded with insufficient accuracy to enable a trace. Most of the records (probably around 50 per cent) cannot be used to analyse the types and origins of weapons in circulation more broadly because they do not specify the model of weapon with sufficient accuracy.

These figures are compiled from a relatively small sample, but they suggest that there are serious flaws in current approaches to weapons registration. If they are representative of most weapons collection initiatives, then perhaps half of all weapons registered in post-conflict collection initiatives (more than 160,000 pieces of evidence) cannot be identified by model (let alone serial number) and their countries of origin cannot, therefore, be established.

Such inadequacies may help explain why the Small Arms Survey has found no evidence to suggest that any weapons registration lists compiled during 45 weapons collection and DDR programmes between 1998 and 2008 were analysed comprehensively. The most detailed analyses consisted of aggregating relative numbers of generic weapon types (i.e. pistols or machine guns) into brief reports. In many cases, however, these simple aggregations were inaccurate due to weapon misclassification during the registration process.

Improving the UN's approach to weapons registration

How might these issues be addressed? The three programmes listed in Table 3.7 managed only 25 per cent accuracy, but they achieved that accuracy rate without their personnel having been trained in weapons identification. Nor were the registration systems designed to generate information for tracing purposes. The more successful aspects of these programmes therefore provide some valuable insight into how the inaccuracy of weapons registration might be addressed in the future.

*Republic of the Congo:*²⁵ Led by the UN Development Programme (UNDP), the collection initiative recovered 1,308 weapons from November 2005 to March 2007.²⁶ The recording system was well-planned with predefined entry fields for generic weapon types, such as *fusil* (rifle) and *fusil mitrailleur* (assault rifle). The serial numbers were diligently recorded and reproduced with prefix, suffix, and embedded letters, including the faithful reproduction of Cyrillic characters. The database was designed to provide a breakdown of the relative quantities of weapon types (pistols, rifles, grenades, etc.) recovered for UNDP's reporting purposes, and it fulfilled that requirement. Unfortunately, however, the information is not sufficient for weapons tracing because the predefined entry system did not allow for entries of the specific model (and hence manufacturer) of each weapon collected.

Liberia: This list was compiled under the auspices of the UN Mission in Liberia between June and December 2004. Although the quality of data varies, some of the personnel responsible for identifying and recording weapons had significant expertise—often specifying the model of weapon with sufficient precision to identify the manufacturer. Other weapons registrars were apparently less able. For example, 6,839 weapons are entered simply as 'AK-47', followed by a serial number. One factor in the programme's favour was the prevalence of 2,664 Zastava-manufactured M70AB2 and 1,928 Chinese Type 56, 56-1, and 56-2 assault rifles, which, in each case, feature a stamped, plain text model designation. This made it easier for the personnel involved to identify and record the specific model of weapon.

Kosovo: This list was compiled by the Kosovo Police Service, with the support of UNDP, between 2000 and 2002. It features a relatively large number of entry fields, but the individual entries differ in quality, which suggests that the personnel involved had varying degrees of expertise. Many of the records are misclassified (for example, assault rifles listed as pistols) and model designations are frequently recorded in place of serial numbers (often without the serial numbers present). In addition, the records include 810 'unknown' weapons, even though information that was incorrectly entered under the field 'serial number' identifies them as common types. As in Liberia, the weapons collectors were aided by the prevalence of weapons that were marked with model designations, such as Zastava-manufactured weapons (approximately 700) and numerous civilian-market models (usually clearly branded with model and manufacturer).

The most significant trend in the three programmes was that personnel were far more likely to compile accurate records when the weapons were clearly marked with a model designation, such as 'Serbian/Yugoslavian M70AB2' or 'Chinese Type 56' assault rifles. Conversely, weapons without model designations were least likely to be registered accurately. This means that most registration personnel did not identify the weapons, but rather reported what was written on them. Unfortunately, because they only recorded what they believed to be relevant, many important identifying marks were not recorded during the registration process. Very often this is fatal to weapons identification, but not always. Even though registration personnel recorded numerous weapons as unknown, additional information (even entered in the wrong places, such as in 'serial number' entry fields) can sometimes be used to identify them—as was the case during this review (see Table 3.2).

An expert can usually identify weapons if the relevant marks are recorded comprehensively, even if the person recording them does not make a positive identification. Unfortunately, many existing registration systems are limiting and discourage expansive recording of marks, as evidenced in the three weapons collection programmes reviewed above. A greater number of data entry fields (for example, seven in the case of Kosovo) made it more likely that personnel would record important information—even if that information was recorded under the wrong heading.

Taken as a whole, these observations suggest that registration problems occurred due to the convergence of two factors: poor training and the imperfect design of registration systems. Personnel had not been trained to record every

An expert can identify weapons if marks are recorded comprehensively.

Box 3.5 UN weapons registration processes

The UN Integrated Disarmament, Demobilization and Reintegration Standards (IDDRS) require that all DDR programmes compile records that are 'accurate enough to ensure that every weapon registered as handed in must also be registered as destroyed' (UNDDR, 2006, sect. 4.10, p. 20). However, the IDDRS provides no guidance on how to record this information. Instead, it refers users to another UN document, entitled RMDS/G 04.20 (SEESAC, 2006, sect. 5.2, paras. b-c).

The RMDS notes that weapons data should include 'the quantities, types, serial numbers and sources of legal and surrendered weapons' (para. c). Unfortunately, the source does not explain how personnel should identify the 'types' of weapons, or how they should identify and record a serial number or other identifying features. The only expertise it calls for is for staff members to be 'trained in the use of computers' (para. b).

Neither the IDDRS nor RMDS, therefore, recognizes that personnel require training if they are to record weapons accurately. Each assumes that recording accurate information requires only technical infrastructure, such as accounting systems and computers; however, as anyone skilled in data management knows, no matter how good the system, its success rests on the quality of information entered.

A closer look at the systems on offer also reveals some fundamental failings. Both the IDDRS and RMDS refer practitioners to the UN DREAM database—an integrated system designed to support DDR processes and record weapons. This referral overlooks the need for the person using the system to have basic weapons expertise. Indeed, DREAM requires that the user enter various pieces of information including:

1. manufacturer
2. country
3. make
4. model
5. calibre
6. barrel length
7. action
8. magazine capacity

As noted above, many weapons do not have the information written on them to allow a non-specialist to complete fields 1-6 without inferring (or guessing) the correct information. Moreover, fields 7 and 8 are superfluous in a registration system and it is unclear why they appear in the database.

Because it is required by the IDDRS, weapons registration has become a formal part of UN DDR programmes, but without appropriate guidance UN personnel cannot fulfil its requirements. These observations suggest a need to revise existing UN approaches to weapons registration.

mark that was visible on weapons and were therefore unsure of what they should record. This was compounded by registration systems that did not accommodate comprehensive recording of marks and instead limited personnel, forcing them to make their own, often erroneous, judgements as to what constituted relevant information.

It is clear that registration systems need to be redesigned to accommodate more information that is of greater relevance. Personnel also need to receive guidance on the types of information that they need to record. The UN Integrated Disarmament, Demobilization and Reintegration Standards (IDDRS) do not currently specify adequate training requirements or provide sufficient basis for the development of registration systems (see Box 3.5).

Revising the system

No system is infallible. The people who collect weapons will never be able to make accurate records of every weapon they encounter. The challenge is to move the quality of weapons records beyond the 25 per cent accuracy range. This is desirable from the perspective of understanding illicit trade and necessary for verifying that weapons have been correctly disposed of.

To this end, the redesign of registration systems and the provision of adequate training are two fundamental improvements that need to be instituted. But it is also important to recognize that weapons collection records are valuable evidence and, if they are to be of utility, they need to be processed by an expert in order to assess their veracity and to identify significant trends in the distribution of weapons.

System redesign: Registration systems do not need to be complex, but they need to be redesigned to prioritize different types of information. Many entry fields—such as *calibre, manufacturer, or country of origin*—are unrealistic because they require information that is not written on the weapon. These could be replaced with fields that accept observable information—such as marks, symbols, or design features—that requires no background expertise to record. A photograph of each weapon’s markings would help to verify whether the information has been entered accurately and confirm model identification. Many previous collection initiatives rely on spreadsheet systems such as Microsoft Excel, which are adequate for the task of recording all necessary information and are easy to amend. Dedicated databases, such as the UN DREAM system, could be adapted to include new fields with relative ease (including photographs). A model recording system, which has been designed to facilitate the recording of complex marks, is annexed to this chapter.

Basic training: The fact that some existing registries contain 25 per cent traceable records is evidence that, if personnel are able to recognize marks as meaningful, then they need little prompting to record them. However, personnel need to be trained to make records of all marks (regardless of whether they understand them) to help identify the precise model of weapon, in addition to recording serial numbers accurately (with prefix, suffix, and embedded letters). Weapons collection personnel need only know where to look for this information—something that can be accomplished in a matter of hours.

Expert analysis: Relatively few people have the expertise to analyse weapons collection lists. The task requires knowledge of weapons and the means of identifying them (marks and design), but also experience of broad trends in the global distribution of weapons. It is clear that demand for such expertise is intermittent because few weapons collection initiatives are in operation at any one time. Expertise is nevertheless necessary if the UN and other organizations involved in weapons collection are to maximize the value of weapons registration.

Table 3.8 Improving UN weapons records: projected costs (USD)

Weapons recorded	Weapons collection teams ^a	Expert analysis (500 weapons per day)		Support material ^b	Training		Total costs		Cost per weapon	
		Lower	Upper		Lower ^c	Upper ^d	Lower	Upper	Lower	Upper
1,000	1	1,200	1,600	120	1,320	3,360	2,640	5,080	2.64	5.08
10,000	2	12,000	16,000	200	2,200	5,600	14,400	21,800	1.44	2.18
100,000	20	120,000	160,000	2,000	22,000	56,000	144,000	218,000	1.44	2.18
Average cost per weapon									1.84	3.15

Note: The speed of expert analysis (weapons analysed per day) would be significantly enhanced by better quality records.

^a Large collection programmes often have collection teams located in different areas. Training costs are assumed to be identical for each team (assumed here to number four persons). Each team is allocated an arbitrary weapons record of 5,000.

^b Covers all publication costs (USD 50,000) for a peer-reviewed pocket guide to recording weapons, broken down into cost per guide (USD 25), with four copies issued to each team.

^c Budget for one day (eight hours) of training, including the costs of short-distance air travel and accommodation for the trainer, plus remuneration at expert consultancy rates.

^d Budget for one day (eight hours) of training, including the costs of long-distance travel and accommodation for the trainer, plus remuneration at expert consultancy rates.

Table 3.8 presents a cost estimate for the development of registration systems, training, and expert analysis to augment existing weapons collection processes. It suggests that improving weapons registration would range from USD 5 per weapon for the smallest programmes to USD 1.5 per weapon for larger initiatives—a range that reflects economies of scale.

System redesign, basic training, and expert analysis represent relatively minor investments when compared to overall international expenditure on weapons collection and DDR programmes. A review of four UN registration processes, presented in Table 3.9, suggests existing expenditures of between USD 2 and USD 6 per weapon. This expenditure (which is difficult to disaggregate from most programme expenditure) includes the cost of someone observing and recording the weapon's marks as well as the cost of maintaining a weapons registration database.

Although the additional costs of improving the system listed in Table 3.8 would, perhaps, double existing registration expenditure, it is important to recognize that these crucial improvements would comprise only a small fraction of disarmament budgeting. For example, an average increase of USD 3–4 per weapon, if applied to the 330,000 weapons collected between 1998 and 2008, would total USD 1.3 million²⁷—a relatively small (0.06 per cent) addition to the USD 2.3 billion spent on weapons collection and DDR programmes in that period.

The case for recording and comprehensively analysing collected weapons can be stated quite simply:

If weapons collection initiatives aim to reduce the impact of illicit weapons in circulation, would it not be valuable to know—by comprehensively analysing the age and types of weapons collected—whether new (or new types of) weapons are entering troubled regions and undermining those initiatives?

A slight increase in expenditure during weapons collection and destruction programmes would increase the international community's ability to monitor and trace weapons considerably. Such a measure could prove an important step in efforts to curb illicit proliferation.

Table 3.9 The costs of UN weapons records

Country programme	Lead agency	Number of collected weapons	Cost of compiling weapons records (USD)	Cost per weapon of compiling records (USD)
Bosnia and Herzegovina	UNDP	332	2,128	6
Republic of Congo	UNDP	1,308	7,137	5
Croatia*	UNDP	16,000	31,535	2
Nepal	UN Mission in Nepal (UNMIN)	3,475	8,303	2
Total/average		21,115	49,103	4

* Calculated for a seven-month period (December 2007–June 2008).

Note: Some of the costs of UN-organized weapons collection initiatives are borne by implementing partners. For example, local police or military forces often physically collect and record the weapons. Local partners may only receive limited per diems for volunteers and interns (MUP and UNDP, 2007, p. 7). These costs are included in the above table.

Sources: Bosnia and Herzegovina: UNDP (2007); correspondence with Amna Berbic, Chief Technical Advisor, Small Arms Control in BiH, EU Arms Control Programme, UNDP Bosnia and Herzegovina, 2 September 2008; Republic of Congo: correspondence with Hervé Gonsoin, CTP Armes Légères et Violence Armée, UNDP Burundi-BINUB, 2 September 2008; Croatia: UNDP (2008); correspondence with Leo Lisac, Project Assistant, Arms Control and Security, UNDP Bosnia and Herzegovina, 22 September 2008; Nepal: correspondence with Ingmar Hermansson, UNMIN, 3 September 2008

CONCLUSION

Conflict tracing is an emerging field of international interest. Yet despite spending more than USD 2 billion on initiatives to disarm post-conflict societies, the international community continues to devote too little attention to understanding how the weapons that are used in armed conflict arrive there in the first place and how they might continue to arrive in the future.

The monitoring, recording, and tracing of weapons offers the international community a vital opportunity to better understand the illicit trade in small arms and light weapons. Today, however, organizations such as the UN do not allocate sufficient resources to these activities.

Weapons can serve as evidence. In any conflict, the weapons that proliferate can provide the core physical information necessary to start a tracing process and, ultimately, to identify and apprehend the parties that trade illicit weapons. But to tap this potential, it is important that the relevant organizations identify and record weapons comprehensively and initiate weapons traces once they have done so. Two fundamental obstacles currently stand in the way of realizing this objective.

First, weapons identification skills remain restricted to a handful of individuals. The expertise of these individuals cannot easily be replicated, but it can be used to improve the ways in which international organizations—particularly those involved in weapons collection—record and identify weapons. This is not yet happening.

Second, the cooperation required to trace conflict weapons—among states, international organizations, and commercial entities—remains nascent and ad hoc. Requests for information inevitably involve a broad range of actors, but relevant organizations have given little thought as to how trace requests might be better coordinated.

Neither of these obstacles is insurmountable. This chapter provides firm indication that, given minimal resources and training, most people can record weapons in sufficient detail to allow an expert to identify them positively and uniquely. Once this process is complete, a trace request can proceed on firm evidence.

The current lack of cooperation in tracing requests is, arguably, a greater challenge. Existing mechanisms, such as those of INTERPOL, offer unrealized potential. Standing in the way of such potential advances, however, is the fact that international organizations—and ultimately states—need to recognize the value of conflict tracing and act on that knowledge. ■

ANNEXE 3.1: A MODEL RECORDING SYSTEM

This system is exclusively designed to record information that allows an expert to identify the weapon. The person recording the information can support the analysis by contributing an opinion (on type and model), but the identification is based primarily on the marks observed on the weapon and its physical properties. The entries are supported by a photograph. The system does not rely on the expertise of the person recording the information. In this case, the weapon is a 1974 Russian, Ishevsk-manufactured AKM assault rifle.



© James Bevan. Weapon courtesy of Royal Armouries, UK

Type of weapon (if known):	<input type="text" value="Kalashnikov"/>		
Model of weapon (if known):	<input type="text" value="?"/>		
Overall length of weapon:	<input type="text" value="88"/>	cm	
Brief description (include fixed or folding stock, bayonets, sights, etc.):	<input type="text" value="Rifle with a fixed stock"/>		
Colour of furniture/main body:	<input type="text" value="Wooden"/>		
Marks/symbols (main group; as they appear, from left to right, or top to bottom, or around the headstamp of a cartridge):	<input type="text"/>	<input type="text" value="859"/>	<input type="text"/>
	<input type="text" value="Triangle with an arrow inside"/>	<input type="text" value="1974"/>	<input type="text" value="285859"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
Marks/symbols (other):	<input type="text" value="859"/>	<input type="text" value="Russian characters on other side"/>	

LIST OF ABBREVIATIONS

DDR	Disarmament, demobilization, and reintegration	ITI	<i>International Tracing Instrument (International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons)</i>
IDDRS	UN Integrated Disarmament, Demobilization and Reintegration Standards	MANPADS	Man-portable air defence system(s)
IFRT	INTERPOL Firearms Reference Table	NCB	National Central Bureau (of INTERPOL)
INTERPOL	The International Criminal Police Organization	UNDP	UN Development Programme

ENDNOTES

- 1 The Panel of Experts was appointed pursuant to para. 25 of Security Council resolution 1478 (2003) concerning Liberia.
- 2 Security Council resolution 1343 (UNSC, 2001, para. 5).
- 3 See McDonald (2008) for an overview of forged end-user certification.
- 4 For an analysis of the ITI's provisions, see McDonald (2006).
- 5 The ITI is structured on this premise. See UNGA (2005a, secs. III–V).
- 6 See UNGA (2008, annexe, para. 3(c)).
- 7 Furthermore, tracing that relies exclusively on records of serial numbers could potentially retrieve several weapons that share serial numbers although their models differ.
- 8 Organizations such as the Norwegian Defence International Centre, the Kofi Annan International Peacekeeping Training Centre in Ghana, and the Pearson Peacekeeping Centre in Canada have yet to introduce weapons identification training. See NODEFIC (n.d.), KAIPTC (n.d.), and PPC (n.d.).
- 9 The Small Arms Survey has received tracing-related requests from UN panels covering the Democratic Republic of the Congo (DRC), Liberia, and Sudan. It has also been asked to identify weapons and ammunition for UN Development Programme country offices, disarmament, demobilization, and reintegration programmes, and a number of civilian weapons collections.
- 10 An extensive list of Kalashnikov-pattern proof marks can be found in the Small Arms Survey's Weapons ID Sheet entitled 'Kalashnikov-pattern Weapons: Identifying Marks' at <http://weaponsid.smallarmssurvey.org/media/products/23/Kalashnikov_Marks.pdf?SASid=j2lfhiuu8frnbgsg3une3f3m2>.
- 11 There are exceptions, but these are rare. For instance, the weapon could be so specialized (such as a made-to-order, customized sniper rifle) that the manufacturer could determine, without consulting serial number records, to which party it was transferred.
- 12 The author has viewed many thousands of military weapons, held by numerous parties to armed conflict, and has found few weapons that were not marked with a serial number (however faded or damaged). Reviews of thousands of weapons collection records (discussed later in this chapter) also suggest that the intentional removal of serial numbers is uncommon in the context of armed conflict. The probable reason is that, in contrast to crime situations in which criminals (notably illegal sellers) may fear discovery by law enforcement officials, most combatants have little reason to believe that their weapons will be subject to investigation.
- 13 As the firearms statute does not specify the amount of the fine, the default maximum for all US felony offences applies, namely USD 250,000 for individuals (US, 2007, sec. 3571(b)(3)).
- 14 The agency's name was changed to the Bureau of Alcohol, Tobacco, Firearms and Explosives in 2003.
- 15 See McDonald (2008).
- 16 See Wood and Peleman (1999, p. 119).
- 17 The Monitoring Group notes that it 'succeeded in obtaining the serial numbers of two SA-7/SA-18 surface-to-air missiles' (UNSC, 2008, para. 104).
- 18 The requests were not general enquiries about weapons submitted to manufacturers or national authorities. They included only specific weapon-tracing requests that were reported in UN panel reports on the following countries: Somalia (3 requests, 3 replies); DRC (18 requests, 2 replies); Côte d'Ivoire (1 request, 1 reply); and Sudan (1 request, 1 reply). See UNSC (2007c, para. 78; 2007d, paras. 20–22; 2007b, para. 27; 2008, paras. 104–05).
- 19 Bilateral agreement is another possibility, but the transnational nature of illicit arms trafficking makes multilateral frameworks for cooperation far more useful.
- 20 This issue is also regulated by para. 15 of the ITI (UNGA, 2005a; 2005b).
- 21 Correspondence with INTERPOL official, December 2008.
- 22 There have also been agreements for access with the international criminal courts for Rwanda and Yugoslavia, as well as the Special Court for Sierra Leone. Correspondence with INTERPOL official, January 2009.

- 23 Based on a review of 45 weapons collection initiatives (some multiple) in Afghanistan, Angola, Bosnia and Herzegovina, Burundi, Cambodia, Central African Republic, Chad, Colombia, Côte d'Ivoire, Croatia, Djibouti, DRC, Eritrea, Ethiopia, Ghana, Guatemala, Guinea-Bissau, Haiti, Indonesia (Aceh), Iraq, Kenya, Kosovo, Liberia, the former Yugoslav Republic of Macedonia, Montenegro, Nepal, Nicaragua–Honduras, Niger, Papua New Guinea, the Philippines, Republic of the Congo, Rwanda, Serbia and Montenegro, Sierra Leone, Solomon Islands, Somalia, Sudan, Timor-Leste, and Uganda.
- 24 These included 33 Chinese Type 56 and 56-1 assault rifles (indicated by the serial prefixes '56' and '56-1'); six G3 rifles manufactured by Fábrica Nacional de Munições de Armas Legeiras, Portugal (indicated by the prefix 'FMP'); and one Belgian MAG general-purpose machine gun, with the designation FN.
- 25 Complete list (with personal information omitted) supplied by UNDP Burundi. Email correspondence with Hervé Gonsolin, CTP Armes Légères et Violence Armée, UNDP Burundi–BINUB, 2 September 2008.
- 26 Ammunition (1,502 collective entries, totalling 628,937 items) was listed separately.
- 27 This figure is an extrapolation of the average cost per weapon (USD 4) presented in Table 3.9 to the 330,000 weapons collected and recorded in UN and other weapons collection programmes.

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