

Special Report

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Identifying Sources

Small-calibre Ammunition in Côte d'Ivoire

Holger Anders



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The Security Assessment in North Africa is a multi-year project of the Small Arms Survey to support those engaged in building a more secure environment in North Africa and the Sahel-Sahara region. The project produces timely, evidence-based research and analysis on the availability and circulation of small arms, the dynamics of emerging armed groups, and related insecurity. The research stresses the effects of the recent uprisings and armed conflicts in the region on community safety.

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Table of contents

List of maps, boxes, figures, and tables	6
List of abbreviations	7
About the author	8
Acknowledgements	9
Introduction	11
Background	13
Overview of the current Ivorian stockpile	16
Packaging and quantities of ammunition	22
Types and sources of transfers	27
Ammunition produced after 2004 and the UN arms embargo	29
Proliferation of ammunition from Ivorian stockpiles	30
Conclusion	32
Annexe 1. Small-calibre ammunition profile, Côte d'Ivoire: ammunition identified in this study	33
Endnotes	47
Bibliography	48
Publications list	49

List of maps, boxes, figures, and tables

Maps

1	Cote d'Ivoire	11
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Boxes

1	Sudanese-produced ammunition	18
2	Iranian-produced ammunition	20
3	Examples of ammunition packaging	23

Figures

1	Number of ammunition types per producer country	16
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Tables

1	Western-standard ammunition calibres and related arms in Côte d'Ivoire	14
2	Eastern Bloc-standard ammunition calibres and related arms in Côte d'Ivoire	14
3	Production decades and most recent years of production in 21st century of Western-standard ammunition documented in Côte d'Ivoire	17
4	Production decades and most recent years of production in 21st century of Eastern Bloc-standard ammunition documented in Côte d'Ivoire	17
5	Ammunition documented in hessian sacks	26
6	Single-cartridge ammunition types	28
7	Ammunition documented in eastern Liberia, March 2013	31
8	Ammunition seized in Torodi, Niger, May 2012.	31

List of abbreviations

IEMU	Integrated Embargo Monitoring Unit
SACU	Southern African Customs Union
UN Comtrade	United Nations Commodity Trade Statistics Database
UNOCI	United Nations Operation in Côte d'Ivoire

About the author

Holger Anders is a specialist in the identification and tracing of arms and ammunition used in armed conflicts, with more than a decade of field experience, primarily in Africa. He has worked as a consultant on small arms control and has published widely on arms control and illicit arms trafficking. He previously served as an arms expert in the UN Group of Experts concerning Sudan and currently works with the Integrated Embargo Monitoring Unit of the UN Operation in Côte d'Ivoire.

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Map Côte d'Ivoire



Introduction

Côte d'Ivoire is currently emerging from more than a decade of instability and armed conflict that began with the mutiny by soldiers in September 2002. The ensuing crisis pitted the Forces Nouvelles rebel movement, which eventually gained control of the north of the country, against the government, which retained control of the south. As a result of the conflict the number of weapons and the amount of ammunition held by both the government and its opponents increased well beyond pre-conflict levels. The fighting and its aftermath further dispersed weapons and ammunition throughout the country and possibly into the broader region.

This report constitutes a baseline profile of the small arms and light weapons ammunition in circulation in Côte d'Ivoire (see Annexe 1 for a list of the ammunition identified during the study). Such a profile can assist stakeholders in identifying illicit ammunition that is newly trafficked into the country or is used in armed attacks. The presence of previously undocumented ammunition may indicate that armed actors have the financial resources and contacts to procure ammunition at markets throughout the sub-region. The profile can also assist national authorities in identifying diversion from state-controlled stocks and illicit ammunition flows to and from conflict and post-conflict settings. Ultimately, the assessment presented in this report is designed to enhance efforts to disrupt and dismantle such flows and thereby contribute to regional security and stability.

The report is based on research carried out by the Integrated Embargo Monitoring Unit (IEMU) of the UN Operation in Côte d'Ivoire (UNOCI) from November 2011 to May 2013. It is complemented with findings from the UN Group of Experts, which monitors the implementation of the arms embargo on Côte d'Ivoire. In the course of its operations in the country UNOCI took photographs and collected data on ammunition at events such as inspections of national defence and security installations, the disarmament of former combatants and civilians, and the recovery of ammunition from arms caches and sites of armed attacks. The collection efforts entailed visual inspection of

ammunition packaging and cartridges along with systematic recording of the calibres and markings.

The focus of the report is on 'small-calibre' ammunition, defined herein as ammunition made for small arms and light weapons of a calibre of 14.5 mm or less. This ammunition is used in weapons that featured prominently in the Ivorian crisis, including machine guns and sub-machine guns, automatic and semi-automatic rifles, and pistols. The countries that manufactured the ammunition described in the report are mainly identified on the basis of known producer codes marked on the ammunition and its packaging. It should also be noted that, although marks may be consistent with those used by a particular manufacturing country, the presence of such marks does not necessarily mean that the ammunition was assembled in that country.

It is equally important to note that manufacturing countries are not necessarily responsible for the presence of the ammunition in Côte d'Ivoire. Indeed, there are cases in which producer countries legally exported ammunition to states in the sub-region, from where the ammunition was subsequently diverted to Côte d'Ivoire. With the assistance of the relevant producer countries it was possible to track certain ammunition from the point of production to the point of diversion.

The report presents the following findings:

- Ammunition produced by many states is found in Côte d'Ivoire. Examples include Western-standard ammunition dating as far back as colonial times and Eastern Bloc-standard ammunition produced from the 1950s to the first decade of the 21st century.
- The bulk of the Soviet or Eastern Bloc-standard ammunition was imported during the Ivorian crisis that began in 2002 and had largely ended by 2011.
- Ammunition that previously was not typically documented in African conflict and post-conflict settings can be found in Côte d'Ivoire. This includes ammunition produced in Sudan in 2010 and 2011.
- Ammunition bearing identical markings to ammunition that was documented in Côte d'Ivoire has also been documented in eastern Liberia (2013) and Niger (2012). This suggests possible illicit circulation of the ammunition in the sub-region.

Background

A French colony until 1960, Côte d'Ivoire satisfied its ammunition needs for defence and security mainly through imports from France until the 1990s. In the 1980s and 1990s Côte d'Ivoire also imported ammunition from other Western states, including Belgium, Israel, Portugal, and South Africa. From 2002 onwards, the country increasingly complemented its national arms and ammunition stockpile with Eastern Bloc-standard arms and calibres. The new additions to the stockpile included ammunition for AK-pattern assault rifles and other small arms that were widely used in the conflict in neighbouring Liberia. Compared to Western-standard ammunition, these types were cheaper to procure on international markets.¹ Tables 1 and 2 provide an overview of the various Western- and Eastern Bloc-standard ammunition calibres and related types of arms that have been found in Côte d'Ivoire.

An important driver of the increased demand for ammunition in Côte d'Ivoire was a mutiny by soldiers in September 2002 and the subsequent emergence of the Forces Nouvelles rebel movement. The rebels succeeded in establishing control over the northern part of the country, while the government maintained control over the south. In response to the rebellion the government imported significant quantities of ammunition for both Western-standard and Eastern Bloc-standard weapons. While some of the ammunition was produced in the late 1990s and the early part of the first decade of the 21st century, large quantities consisted of surplus stocks that were produced in the former Soviet Union (especially in what are now the Russian Federation and Ukraine) in the 1950s.

In November 2004 the UN Security Council imposed an arms embargo on Côte d'Ivoire (UNSC, 2004, para. 7). Evidence suggests that, despite the embargo, both sides to the conflict continued to receive ammunition, including Sudanese ammunition that arrived in Côte d'Ivoire at the height of the crisis in early 2011 (see Box 1). The military crisis largely ended when the Forces Nouvelles moved on the economic capital, Abidjan, in the south of the

Table 1 Western-standard ammunition calibres and related arms in Côte d'Ivoire

Calibre (mm)	Type of weapon	Models
5.56 × 45	Assault rifle	FAMAS F-1; M16A1; M16A2; SG540; SG543
7.5 × 54	Bolt-action rifle	MAS-36; MAS-36/51
	Semi-automatic rifle	MAS-49/56
	General-purpose machine gun	MAC FM Mle. 1924/29; AA-52
7.62 × 51	Automatic rifle	FN FAL 50.00
9 × 19	Pistol	Beretta 92F; MAB PA-15; MAC Mle. 1950
	Sub-machine gun	Gevarm D4; MAT-49; MP5-A5
12.7 × 99	Heavy machine gun	M2HB

Table 2 Eastern Bloc-standard ammunition calibres and related arms in Côte d'Ivoire

Calibre (mm)	Type of weapon	Models
5.45 × 39	Assault rifle	AKS-74
7.62 × 25	Pistol	TT-33
	Sub-machine gun	PPS-43
7.62 × 39	Automatic rifle	AK, AKS, AKM, AKMS; Type 56, 56-1, 56-2; Type 81-1; Vz.58P, Vz.58V
7.62 × 54R	General-purpose machine gun	PKM
	Sniper rifle	DSVD
12.7 × 108	Heavy machine gun	DShKM
14.5 × 114	Heavy machine gun	KPVT

country. The rebels seized former president Laurent Gbagbo on 11 April 2011, after his refusal to concede defeat in the presidential elections of the previous year. Even after President Gbagbo's capture, armed violence continued, especially in western Côte d'Ivoire, as mercenaries, militias, and other combatants loyal to the former regime retreated to Liberia.

From late 2011 sporadic attacks against defence and security installations of the present government occurred. The assailants were not always identified, but were believed to include Liberian mercenaries and Ivorian militias seeking to destabilize the sitting government (UNSC, 2013a, pp. 6–11). One

such attack was a cross-border raid near the village of Para in western Côte d'Ivoire in June 2012. The attack resulted in the death of seven UN peacekeepers (IEMU, 2013b).²

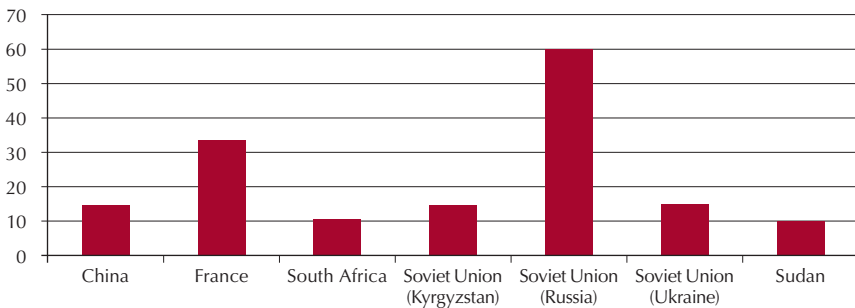
By mid-2013, however, the situation in the country had largely stabilized. The current government has continued its efforts to further stabilize the country and has begun a planning process for security sector reform. Concurrently, the government has announced its intention to restock its ammunition holdings. Any new purchases are likely to lead to further diversity in the country's ammunition stockpiles.

Overview of the current Ivorian stockpile

The Ivorian ammunition stockpile is an amalgam of more than 240 types of ammunition produced in more than 20 countries. The oldest documented example is a cartridge produced in the Soviet Union in 1948. Tables 3 and 4 illustrate the wide variety of ages and countries of origin represented in the stockpile, though trends may be observed. For example, the 7.5 × 54 mm ammunition found in Côte d'Ivoire is exclusively of French origin, with production dates ranging from the 1950s to the 1980s. In contrast, the 7.62 × 39 mm rounds were produced in more than ten states in six different decades.

The bulk of the ammunition types documented in this report are from seven countries; Figure 1 shows the number of ammunition types for each of these producer countries.³ For example, Russian-manufactured cartridges comprise 60 separate types of ammunition.⁴ In contrast, the only Zimbabwean-produced ammunition found in Côte d'Ivoire was 7.62 × 39 mm ammunition produced in 1992.

Figure 1 Number of ammunition types per producer country



Also of note is the presence in Côte d'Ivoire of ammunition produced in Sudan and Iran (see Boxes 1 and 2). It reinforces a growing body of evidence that ammunition circulating on African markets no longer originates solely from 'traditional' sources, that is, former colonial powers or Eastern Bloc states. Rather, it illustrates the globalized nature of the international ammunition market.

Table 3 Production decades of Western-standard ammunition documented in Côte d'Ivoire*

Country	Calibre (mm)				
	5.56 × 45	7.5 × 54	7.62 × 51	9 × 19	12.7 × 99
Belgium	1990s		1980s		1970s
Czech Republic	2002				
France	1970s–90s	1950s–80s	1970s	1950s–90s	1970s–80s
Israel	1980s–2002				
Portugal	1970s–90s		1980s	1980s–90s	
South Africa	1990s		1970s; 1990s	1990s	

* Date ranges include full decades and most recent years of production in 21st century.

Table 4 Production decades of Eastern Bloc-standard ammunition documented in Côte d'Ivoire*

Country	Calibre (mm)					
	5.45 × 39	7.62 × 25	7.62 × 39	7.62 × 54R	12.7 × 108	14.5 × 114
Bulgaria		1950s	1990s–2002	1980s–2000		
China			1960s; 1990s; 2002	2002	1990s–2010	1970s; 1990s; 2009
Czechoslovakia/ Czech Republic			1970s; 2001			
Iran			2001–02	2000–02	2002–03	
Hungary			1970s–80s			
Poland			1980s–90s			1980s
Romania	1990s		1990s–2007	2008		
Soviet Union (Kyr- gyzstan)/Kyrgyzstan	1980s		1950s–90s			
Soviet Union (Russia)		1940s–50s; 1980s	1940s–80s	1960s–80s	1950s; 1970s–90s	1940s–80s
Soviet Union (Ukraine)	1980s		1950s–70s			
Sudan			2003–11	2001–11		
Serbia ^a			2002	2000–03		
Zimbabwe			1990s			

^a Serbia was part of the Federal Republic of Yugoslavia (1992–2003) and Serbia and Montenegro (2003–06) before becoming known as Serbia.

* Date ranges include full decades and most recent years of production in 21st century.

Box 1 Sudanese-produced ammunition

This report documents ten types of ammunition produced in Sudan during the period 2001–11. Eight of these are 7.62×39 mm and two are 7.62×54R mm. In addition, two types (one of each of the abovementioned calibres) were unmarked, but possibly of Sudanese origin.

The evidence suggests that Sudanese ammunition entered Côte d'Ivoire destined for both the former government forces and the Forces Nouvelles. Indeed, thousands of Sudanese-manufactured 7.62×39 mm cartridges, produced in 2009–11, remain in Côte d'Ivoire in their original packaging. The packaging consists of unpainted wooden crates labelled with a white paper sticker identifying the lot number and year of production, among other information. Each crate contains 15 heat-sealed, black polyethylene bags, and each bag contains 100 loose cartridges (see Photos 1–4). The polyethylene bags are notable because no other producing country is currently known to use such packaging.

Photos 1–4



Also documented in Côte d'Ivoire were several dozen cartridges of 7.62×54R mm ammunition produced in 2011, as well as unmarked rounds of the same calibre (see Photos 5–7). There are technical reasons to believe that this unmarked ammunition originated

in Sudan. Specifically, both the marked and unmarked cartridges had unevenly applied yellow neck sealant and red primer sealant that are known indicators of Sudanese ammunition produced since 2010 (UNSC, 2013b, pp. 9, 69).

Photos 5–7



Sudanese ammunition documented in a former Forces Nouvelles stockpile includes several thousand rounds of 7.62 × 39 mm ammunition produced in 2003–04. The ammunition was contained in sealed black polyethylene bags held in hessian sacks, also known as jute or burlap sacks. Inspection of one such polyethylene bag showed it contained both marked and unmarked cartridges. It is possible that the cartridges without marks were not intentionally unmarked, but rather *appear* to be unmarked because of variations in the depth and readability of Sudanese markings (see Photos 8–10).

Photos 8–10



Other Sudanese-manufactured ammunition found in Côte d'Ivoire included several hundred 7.62 × 39 mm cartridges with 2001 date marks (see Photo 11), as well as several hundred 7.62 × 54R mm cartridges produced in 2003 (see Photo 12). These two types of ammunition were principally documented as part of voluntary weapons and ammunition collection programmes and were recovered without any packaging.

Photos 11–12



Source: Information provided by the author, based on data collected by UNOCI/IEMU.

Box 2 Iranian-produced ammunition

This report identifies seven separate types of Iranian-produced ammunition found in the Ivorian stockpile.⁵ Photos 13 and 14 show 7.62×39 mm ammunition produced in 2001 and 2002. Examples with both red and green sealant at the primer annulus were documented. These two types were principally documented as part of voluntary weapons and ammunition collection programmes, and were recovered without any packaging.



Photos 13–14

Two types of 7.62×54R mm ammunition were documented with production dates of 2000 and 2001. Of particular interest are the cartridges marked as lot 43 (2000) and lots 18 and 19 (2001). These were all found in the original wooden crates with cord rope handles. Each crate contained five green plastic 'battle packs', and each battle pack contained 200 cartridges in unmarked cardboard boxes of 20 cartridges per box (see Photos 15–19). Interestingly, the crates for these three lots had the exterior markings painted over. Photos 20 and 21 show the front of one of the crates before and after the paint was removed during analysis. This over-painting suggests an attempt to hide the origins of the ammunition, perhaps as a result of illicit trafficking into Côte d'Ivoire. All of these painted crates were documented in stockpiles associated with the forces of the former government.



Photos 15–19





Photos 20–21

A third type of documented Iranian 7.62 × 54R mm ammunition was found in a hessian bag in a stockpile associated with the Forces Nouvelles.⁶ The cartridges found were all produced in 2002. The small quantity, the location of the find, and the absence of this particular type of ammunition (and date of manufacture) in former government stockpiles may suggest that the Forces Nouvelles acquired its Iranian-produced ammunition from a different source from the Iranian 7.62 × 54R mm ammunition that was used by the former government (which was produced in 2000 and 2001).

Both of the final two Iranian ammunition types are 12.7 × 108 mm in calibre, produced in 2002 and 2003. Weapons collection programmes were primarily responsible for documenting these two types, collecting about 100 cartridges. Some of the cartridges produced in 2003 were found in polyethylene bags of the type associated with Sudan (see Photos 22–24). There are several possible explanations for this, including the use of Iranian-produced cartridge cases by Sudan in the assembly of ammunition or the repackaging of Iranian-assembled ammunition in Sudan prior to transfer to Côte d’Ivoire.

Source: Information provided by the author based on data collected by UNOCI/IEMU.



Photos 22–24



Packaging and quantities of ammunition

Around 30 per cent of ammunition types in the Ivorian ammunition profile were found in their original factory packaging. Typically, the packaging consisted of an outer container, such as a metallic box or wooden crate, and an inner container, including one or more metallic sub-containers or polyethylene bags. The inner packaging sometimes contained cardboard boxes or paper wrappings that typically held 20 identically marked cartridges. In some cases documents or labels attached to the outer packaging also identified the date of importation. For example, boxes of Israeli 5.56 × 45 mm ammunition manufactured in 1983 were documented with consignment labels suggesting entry into Côte d'Ivoire in 2002. Box 3 presents examples of relevant ammunition in its packaging.

A further 10 per cent of ammunition types in the Ivorian profile were identified as repackaged. Repacked ammunition was principally noted in depots associated with the Forces Nouvelles, often in hessian sacks (see Box 3[D]). In general, the hessian sacks inspected at the depots of the former rebels contained cartridges (often several thousand) of a single calibre, either loose or in unmarked cardboard boxes. The presence of a single type of ammunition in each sack suggests that the ammunition was taken directly from its original packaging, perhaps in an attempt to hide its source or facilitate smuggling into Côte d'Ivoire.⁷ It is also worth noting that the ammunition found in hessian sacks (see Table 5) was not found anywhere in Côte d'Ivoire in original or complete packaging.

Four types of 12.7 × 108 mm ammunition deserve further mention in the context of possible repackaging: Iranian ammunition produced in 2002 and 2003 and Chinese ammunition produced in 1995 and 2010. As noted above, the two Iranian examples were found in polyethylene bags associated with the production of ammunition in Sudan (see Box 2) and were possibly either assembled or repackaged in Sudan before retransfer. The two Chinese ammunition types were also documented in polyethylene bags and it is

reasonable to surmise that they were also either assembled or repackaged in Sudan before retransfer. While it is theoretically possible that Sudan produces 12.7 mm ammunition cartridge cases that are identical in composition and marking to Iranian- and Chinese-produced varieties, there is insufficient evidence to confirm this.

The remaining ammunition types in the Ivorian profile were usually found in loose form and without any associated packaging. This included ammunition stored in buckets and boxes (at defence and security installations), loaded in magazines (for firearms), and handed in loose (at disarmament events). Ammunition encountered in these situations was highly heterogeneous: it was common to find a magazine loaded with 30 cartridges of various types, from different producer countries, and with different years of production.

Box 3 Examples of ammunition packaging

Source: Information provided by the author based on data collected by UNOCI/IEMU.

A. Calibre 7.62 × 39 mm, Bulgaria, 2002



B. Calibre 7.62 × 39 mm, China, 2002



C. Calibre 5.56 × 45 mm, Israel, 1983, imported in September 2002



D. Ammunition held in hessian sacks



E. Calibre 12.7 × 108 mm, China, 2010, packed in bags associated with Sudan



Table 5 Ammunition documented in hessian sacks

No.	Calibre (mm)	Markings	Country of production	Year of production
1	7.62 × 25	38_84	Soviet Union (Russia)	1984
2	7.62 × 39	1_39_04	Sudan	2004
3	7.62 × 39	3_39_03	Sudan	2003
4	7.62 × 39	4_39_03	Sudan	2003
5	7.62 × 39	61_98	China	1998
6	7.62 × 39	325_05	Romania	2005
7	7.62 × 39	bxn_86	Czechoslovakia	1986
8	7.62 × 39	bxn_73	Czechoslovakia	1973
9	7.62 × 39	SADU_7.62_07	Romania	2007
10	7.62 × 54R	4_54_03	Sudan	2003
11	7.62 × 54R	7.62x54_02	Iran	2002
12	7.62 × 54R	10_96	Bulgaria	1996
13	12.7 × 108	12.7_03	Iran	2003
14	12.7 × 108	12.7_02	Iran	2002
15	12.7 × 108	41_10	China	2010
16	12.7 × 108	41_95	China	1995
17	14.5 × 114	3_81	Soviet Union (Russia)	1981
18	14.5 × 114	3_76	Soviet Union (Russia)	1976
19	14.5 × 114	3_62	Soviet Union (Russia)	1962
20	14.5 × 114	3_59	Soviet Union (Russia)	1959
21	14.5 × 114	17_85	Soviet Union (Russia)	1985
22	14.5 × 114	21_87	Poland	1987
23	14.5 × 114	41_09	China	2009
24	14.5 × 114	41_90	China	1990

Types and sources of transfers

Several ammunition types documented in this report entered Côte d'Ivoire as direct transfers from producer countries. This finding is supported by trade data on international ammunition transfers, research by UN Groups of Experts, labelling on the original packaging identifying Côte d'Ivoire as the intended recipient, or a combination of these. For example, voluntarily submitted export statistics identified the transfer of small arms ammunition worth USD 580,000 from Serbia and Montenegro to Côte d'Ivoire in 2004.⁸ This purchase is likely to correspond to the 7.62 × 39 mm and 7.62 × 54R mm ammunition found in Côte d'Ivoire that was made by the Serbian Prvi Partizan factory in 2001, 2002, and 2003. Export statistics also identified the transfer of small arms ammunition worth around USD 830,000 from the Southern African Customs Union to Côte d'Ivoire in 1999.⁹ This second transfer appears to explain the presence in Côte d'Ivoire of at least some of the South African ammunition (5.56 × 45 mm, 7.62 × 51 mm, and 9 × 19 mm) that was produced in the 1990s.

For other ammunition types, it is not always possible to identify whether the ammunition was transferred directly from the producer country or retransferred via third countries. For example, some of the ammunition produced in former Soviet republics in the 1950s may have been exported to Côte d'Ivoire from states in the sub-region (or elsewhere) that held this ammunition in their stockpiles, rather than directly from relevant Soviet Union successor states. Such retransfers from sub-regional holdings were evident in relation to certain ammunition found in depots associated with the Forces Nouvelles. The UN Group of Experts was able to trace some Romanian 7.62 × 39 mm ammunition (with production dates of 2005 and 2007) from Romania to Burkina Faso. The ammunition had been diverted in Burkina Faso before eventually finding its way into the hands of the Forces Nouvelles in Côte d'Ivoire (UNSC, 2012, p. 7).

A third source appears to be ammunition that was already in illicit circulation or in the possession of non-state actors in the sub-region. This source is suggested by the limited numbers of certain types of cartridges found in Côte d'Ivoire (see Table 6). The small sample size and the absence

of packaging may indicate that at least some of the ammunition may have entered the country in discrete quantities of already loose and heterogeneous ammunition sourced from illicit ammunition markets in the sub-region. This ammunition tends to be several decades old.

Table 6 Single-cartridge ammunition types

No.	Calibre	Markings	Country of production	Year of production
1	5.56 × 45 mm	W_C_C_6_4	United States	1964
2	7.62 × 39 mm	661_68	China	1968
3	7.62 × 51 mm	IK-85_7.62MM	Socialist Federal Republic of Yugoslavia (Bosnia and Herzegovina)	1985
4	9 × 19 mm	عج_٢٧_٨٠	Egypt	1980
5	9 × 19 mm	Geco_9mmP	Hungary	Not known
6	9 × 19 mm	9-▲_ППУ-78	Socialist Federal Republic of Yugoslavia (Serbia)	1978

While insignificant in terms of quantity, diversions of ammunition from UN peacekeepers in Côte d’Ivoire have also taken place. Around 1,000 rounds of 7.62 × 39 mm ammunition were stolen after an attack on UN peacekeepers in the west of the country in June 2012.¹⁰ Previous losses had occurred as a result of the evacuation of a UN camp in Guiglo in western Côte d’Ivoire in January 2006, after a confrontation with a hostile crowd. The equipment looted from the camp included around 1,000 rounds of 7.62 × 39 mm ammunition produced in Bangladesh in 2003. Cartridges with markings identical to those on the lost cartridges were subsequently documented in the magazines of uniformed armed men in western Côte d’Ivoire and at a disarmament event in central Côte d’Ivoire.¹¹

Ammunition produced after 2004 and the UN arms embargo

The presence in Côte d'Ivoire of ammunition produced after 2004 indicates possible violations of the UN embargo imposed by the UN Security Council on 15 November 2004. Ammunition documented in this report that was produced after the imposition of the embargo includes:

- Romanian-manufactured 7.62 × 39 mm and 7.62 × 54R mm cartridges with production dates 2005, 2007, and 2008;
- Sudanese-manufactured 7.62 × 39 mm cartridges with production dates 2009, 2010, and 2011;
- Sudanese-manufactured 7.62 × 54R mm cartridges with production date 2011; and
- Chinese-manufactured 12.7 × 108 mm and 14.5 × 114 mm cartridges with production dates 2010 and 2009, respectively.

As mentioned above, the 2012 UN Group of Experts Concerning Côte d'Ivoire established that the Romanian ammunition had likely been diverted from government stockpiles in Burkina Faso (UNSC, 2012, p. 7). Similarly, the Chinese 14.5 × 114 mm ammunition was probably diverted from government stocks in Niger. And the presence of Chinese-manufactured 12.7 × 108 mm cartridges in sealed polyethylene bags associated with ammunition packaged in Sudan indicates that further diversions may have taken place in the sub-region after legal delivery (in this case, from China to Sudan) (UNSC, 2013c, p. 14; see Box 1).

There are also possible indications of embargo-violating transfers of ammunition produced prior to November 2004, including ammunition found in hessian sacks (see Table 5). Several types of ammunition not present in the government's pre-embargo stockpiles were also documented in loose form. These included 7.62 × 39 mm cartridges produced in Czechoslovakia, Hungary, and Poland in the 1970s, 1980s, and 1990s. Other ammunition types that raise embargo-compliance concerns include Iranian ammunition in painted crates (see Box 2) and Chinese-produced ammunition from 1994 found in similarly painted crates.

Proliferation of ammunition from Ivorian stockpiles

The proliferation of ammunition from government stockpiles began with the mutiny by soldiers in 2002. Subsequently, over the course of the crisis, further losses occurred through battlefield capture, looting, and other forms of proliferation. Such ammunition was used by opponents of the current government in attacks on Ivorian defence and security installations in southern and western Côte d'Ivoire, as well as in cross-border raids and attacks on villages in western Côte d'Ivoire as late as 2013. Cartridges recovered at attack sites were consistent with ammunition samples known to have been used in the Ivorian crisis from 2002 to 2011.¹²

There are also indications that ammunition from Ivorian stockpiles may have proliferated to nearby countries. For example, the UN missions in Côte d'Ivoire and Liberia conducted a joint study in early 2013 to document ammunition recovered from non-state actors and arms caches in eastern Liberia. As with ammunition documented at sites of attacks in Côte d'Ivoire, the ammunition documented in eastern Liberia was consistent with that used in the Ivorian crisis (see Table 7). This finding may support the assumption that combatants loyal to the former regime retreated towards eastern Liberia after the capture of President Gbagbo in April 2011, taking their arms and ammunition with them. Bearing in mind that many of these ammunition types may circulate in the region's illicit arms markets, such a conclusion should be considered probable rather than definitive.

Further evidence of regional proliferation emerged in May 2012 when customs authorities in Torodi, Niger, recovered illicit small arms and ammunition in a car coming from Burkina Faso. Among the seized materiel were some 1,400 7.62 × 39 mm and 7.62 × 54R mm cartridges. Analysis of the markings indicated that all the ammunition types could also be found in Côte d'Ivoire (see Table 8). The traffickers in the car were nationals of Côte d'Ivoire and Burkina Faso.¹³ Their nationalities and the types of ammunition seized may suggest that the materiel was smuggled from Côte d'Ivoire. If nothing else, the case demonstrates the circulation of certain types of ammunition in the sub-region.

Table 7 Ammunition documented in eastern Liberia, March 2013

No.	Calibre (mm)	Markings	Country of production	Year of production
1	7.62 × 39	3_50	Soviet Union (Russia)	1950
2	7.62 × 39	60_Д	Soviet Union (Kyrgyzstan)	1953
3	7.62 × 39	61_02	China	2002
4	7.62 × 39	270_Г	Soviet Union (Ukraine)	1952
5	7.62 × 39	311_02	China	2002
6	7.62 × 39	bxn_73	Czechoslovakia	1973
7	7.62 × 54R	188_64	Soviet Union (Russia)	1964

Note: This information is based on ammunition recoveries made in various locations in eastern Liberia in 2011–12.

Source: unpublished data collected by the IEMU in eastern Liberia, March 2013

Table 8 Ammunition seized in Torodi, Niger, May 2012

No.	Calibre (mm)	Markings	Country of production	Year of production
1	7.62 × 39	3_50	Soviet Union (Russia)	1950
2	7.62 × 39	7.62X39_02	Iran	2002
3	7.62 × 39	7.62X39_01	Iran	2001
4	7.62 × 39	10_02	Bulgaria	2002
5	7.62 × 39	60_51	Soviet Union (Kyrgyzstan)	1951
6	7.62 × 39	61_01	China	2001
7	7.62 × 39	270_71	Soviet Union (Ukraine)	1971
8	7.62 × 39	270_И	Soviet Union (Ukraine)	1955
9	7.62 × 39	270_Д	Soviet Union (Ukraine)	1953
10	7.62 × 39	311_02	China	2002
11	7.62 × 39	323_98	Romania	1998
12	7.62 × 39	539_89	Soviet Union (Russia)	1989
13	7.62 × 39	bxn_73	Czechoslovakia	1973
14	7.62 × 39	SU_1_39_01	Sudan	2001
15	7.62 × 39	ППУ_2002	Federal Republic of Yugoslavia (Serbia)	2002
16	7.62 × 54R	7.62X54_01	Iran	2001
17	7.62 × 54R	10_00	Bulgaria	2000
18	7.62 × 54R	188_72	Soviet Union (Russia)	1972
19	7.62 × 54R	ППУ_2001	Federal Republic of Yugoslavia (Serbia)	2001

Source: author interview with a confidential source, location withheld, September 2012

Conclusion

The Ivorian ammunition profile presented in this report offers a snapshot of the ammunition that has accumulated in Côte d'Ivoire in recent decades and especially since the start of the crisis in 2002. The profile provides a baseline for continued analysis of ammunition that may be documented in Côte d'Ivoire. The future identification of previously unrecorded ammunition at sites of attacks against defence and security installations or in cross-border raids may indicate that the attackers are no longer using only ammunition derived from crisis-era Ivorian stockpiles. Rather, it may indicate that the assailants have financing and access to illicit ammunition markets outside Côte d'Ivoire. Should this be confirmed, it would have important ramifications for security analyses in Côte d'Ivoire.

Maintaining and updating this profile could assist the Ivorian government in monitoring the security of state-controlled ammunition stockpiles. Future ammunition procurement by the Ivorian government is likely to increase the number of ammunition types in the country's stockpile. Should any such newly purchased ammunition be documented at the site of a subsequent attack or crime, the Ivorian authorities may have reasonable grounds to investigate whether the ammunition was diverted from state-controlled holdings through loss, theft, or corruption—diversion that might otherwise go undetected.


In parallel, the profile contributes to nascent efforts to better understand illicit flows and the circulation of ammunition in the sub-region and, more broadly, within and between armed conflicts in Africa. Comparable profiles were recently established for Libya and Mali.¹⁴ Further ammunition profiling in other African conflict and post-conflict settings would allow for the identification of shared samples and could thus provide additional insight into possible ammunition sources and transfers. Greater clarity on these issues would allow for more effective interventions aimed at disrupting and dismantling networks and trade routes for illicit ammunition trafficking, thus contributing to security and stability in the region.




Annexe 1.

Small-calibre ammunition profile, Côte d'Ivoire: ammunition identified in this study





Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples
5.45 x 39 mm	Romania	325	1990	
	Soviet Union (Kyrgyzstan)	60	1981	
	Soviet Union (Ukraine)	270	1981	
5.56 x 45 mm	Belgium	FNB	1993	
	Czech Republic	S&B	2002	








Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples
5.56 x 45 mm	France	LM	1991; 1990; 1988	
	France	SF	1987; 1985; 1983; 1982; 1978	
	Israel	IMI	2002; 2001	
	Israel	TZ	1983	
	Israel	TZZ	2001; 1998; 1993; 1990	
	Portugal	FNM	1991; 1988; 1983; 1977	
	South Africa	14 (projectile type)	1994; 1993	








Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples	
5.56 x 45 mm	South Africa	15 (projectile type)	1995		
	United States	WCC	1964		
7.5 x 54 mm	France	LM	1968; 1960		
	France	SF	1985; 1979; 1978; 1975; 1973; 1972; 1970; 1969; 1968		
	France	TE	1967; 1962		
	France	VE	1959		
	Bulgaria	10	1955; 1954		








Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples
7.62 × 25 mm	Soviet Union (Russia)	38	1984; 1982	
	Soviet Union (Russia)	539	1950; 1949; 1948	
7.62 × 39 mm	Bangladesh	BOF	2003	
	Bulgaria	10	2002; 2000; 1999	
	China	61	2002; 2001; 1998; 1997	
	China	71 (blank cartridges for training)	1995	
	China	311	2002; 1999	

Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples
7.62 x 39 mm	China	661	1968	
	China	811	1994	
	Czechoslovakia/Czech Republic	bxn	2001; 1988; 1986; 1980; 1977; 1973	
	Czechoslovakia/Czech Republic	S&B	Not marked	
	Iran	Not marked	2002; 2001	
	Hungary	23	1980; 1979	
	Poland	21	1994; 1993; 1988	

Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples	
7.62 × 39 mm	Romania	323	1998		
	Romania	325	2005		
	Romania	SADU	2007		
	Soviet Union (Kyrgyzstan)/ Kyrgyzstan	60	1996; 1981; 1975; 1973; 1966; 1965; 1963; 1962; 1955; 1953; 1952; 1951; 1950		
	Soviet Union (Russia)	3	1973; 1969; 1965; 1961; 1953; 1952; 1951; 1950; 1949		
	Soviet Union (Russia)	17	1965; 1961; 1953; 1951		
	Soviet Union (Russia)	539	1989; 1983; 1976; 1975; 1972; 1970; 1965; 1964; 1962; 1960; 1958; 1957; 1956; 1954; 1952; 1951; 1950; 1949		











Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples
7.62 x 39 mm	Soviet Union (Russia)	711	1980; 1966; 1964; 1962; 1961; 1958	
	Soviet Union (Ukraine)	270	1975; 1973; 1971; 1970; 1965; 1964; 1963; 1959; 1955; 1954; 1953; 1952; 1951; 1950	
	Sudan	SU	2001	
	Sudan	1 (probably the cartridge case production lot)	2011; 2010; 2004	
	Sudan	2 (probably the cartridge case production lot)	2009	
	Sudan	3 (probably the cartridge case production lot)	2009; 2003	
	Sudan	4 (probably the cartridge case production lot)	2003	

Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples
7.62 x 39 mm	Federal Republic of Yugoslavia (Serbia)	ППУ	2002	
	Zimbabwe	ZI	1992	
	Not known	ST (possibly China)	2002; 1999; 1997	
	Not marked	Possibly Sudanese	Not marked	
7.62 x 51 mm	Belgium	FNB	1984	
	Bulgaria	10	1970	
	France	LM	1971	







Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples
7.62 × 51 mm	Portugal	FNM	1986	
	South Africa	13 (projectile type)	1996; 1994	
	South Africa	23 (projectile type)	1997	
	South Africa	G.R1 M1 (projectile type)	1978	
	South Africa	R1 M1 (projectile type)	1978	
	Socialist Federal Republic of Yugoslavia (Bosnia and Herzegovina)	IK	1985	
	7.62 × 54R mm	Bulgaria	10	2000; 1996; 1986
				

Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples	
7.62 x 54R mm	China	61	2002		
	Czechoslovakia/Czech Republic	S&B	Not marked		
	Iran	Not marked	2002; 2001; 2000		
	Romania	SADU	2008		
	Soviet Union (Kyrgyzstan)	60	1974		
	Soviet Union (Russia)	188	1983; 1972; 1971; 1970; 1969; 1966; 1964		
	Sudan	1 (probably the cartridge case production lot)	2011		

Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples	
7.62 × 54R mm	Sudan	4 (probably the cartridge case production lot)	2003		
	Federal Republic of Yugoslavia (Serbia and Montenegro)	ППУ	2003; 2001		
	Not marked	Possibly Sudanese	Not marked		
9 × 19 mm	Czechoslovakia/Czech Republic	S&B	Not marked		
	Egypt	٢٢٢	1980		
	France	GEVELOT	Not marked		
	France	SF	1990; 1986; 1976; 1973; 1972		

Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples	
9 x 19 mm	France	TS	1963; 1952		
	Hungary	GECO (Hungarian copy of German headstamp)	Not marked		
	Israel	IMI	Not marked		
	Portugal	FNM	1993; 1988		
	South Africa	15 (projectile type)	1997; 1995		
	South Africa	PMP	Not marked		
	Socialist Federal Republic of Yugoslavia (Serbia)	ППУ	1978		

Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples	
12.7 x 99 mm	Belgium	FN	1974		
	France	SF	1982; 1979; 1977; 1976; 1970		
	France	TE	1987; 1986		
	Not Known	ST (possibly China)	1996		
12.7 x 108 mm	China	41	2010; 1995		
	Iran	Not marked	2003; 2002		
	Soviet Union (Russia)	3	1972; 1971; 1952		

Calibre	Country	Country or factory code	Year of production	Headstamp markings, examples
12.7 x 108 mm	Soviet Union (Russia)	188	1990; 1988; 1973; 1971	
14.5 x 114 mm	China	41	2009; 1990; 1974	
	North Korea	93	1982; 1980	
	Poland	21	1987; 1986	
	Soviet Union (Russia)	3	1985; 1981; 1976; 1965; 1962; 1959; 1956; 1948	
	Soviet Union (Russia)	17	1985; 1956; 1954	

Endnotes

- 1 This assertion is based on field research and information obtained during interviews conducted by members of the IEMU with some 30 government officials from various defence and security agencies in Côte d'Ivoire in 2012.
- 2 Information drawn from IEMU files (IEMU, 2013b). For further information, see UNSC (2012).
- 3 Note that some ammunition types were documented in only very small quantities of individual rounds, while others are present in tens or hundreds of thousands of rounds. See the next section for a more comprehensive breakdown.
- 4 These include cartridges manufactured when Russia was part of the Soviet Union.
- 5 For further information on Iranian ammunition found in African conflict settings, see Conflict Armament Research (2013).
- 6 The bag also contained Sudanese ammunition produced in 2003 (see Box 1).
- 7 Original packaging is typically marked with technical information that is not marked on the individual cartridges themselves, e.g. the production lot numbers. This information facilitates ammunition tracing from producer to end user.
- 8 The transfer was from the former Serbia and Montenegro, now Serbia. In the UN Commodity Trade Statistics Database (UN Comtrade) it is listed as category 930630 (small arms ammunition) and classification HS1996.
- 9 UN Comtrade category 930630 (small arms ammunition), classification HS1996. (See NISAT, 2014.)
- 10 The ammunition in question was produced in China in 2006 and legally entered the country with the peacekeepers (IEMU, 2013b).
- 11 The ammunition in question legally entered the country with UN peacekeepers (IEMU, 2013a).
- 12 Analysis by the IEMU on the basis of comparison between recovered cartridge cases from five different scenes of attacks with the ammunition profile established by the IEMU prior to the attacks.
- 13 Author interview with a confidential source, location withheld, September 2012.
- 14 See Conflict Armament Research and Small Arms Survey (2013) and Jenzen-Jones (2013).

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