



Red Arrow 8 anti-tank guided missiles captured by the Sudan People's Liberation Movement-North (SPLM-N) from the Sudan Armed Forces, South Kordofan, Sudan, December 2012. © Alan Boswell

Signs of Supply

WEAPONS TRACING IN SUDAN AND SOUTH SUDAN

INTRODUCTION

The second civil war (1983–2005) between the Government of Sudan (GoS) and the Sudan People's Liberation Movement/Army (SPLM/A) led to the secession of South Sudan, in July 2011, but not to an end to armed conflict within or between the two countries. From 2010 to late 2013, a number of anti-government militias were engaged in vigorous insurgencies in South Sudan, while separate branches of the SPLM–North (SPLM–N) were fighting a rebellion on two fronts in the Sudanese states of South Kordofan and Blue Nile. The SPLM–N also established an alliance with armed opposition groups in Darfur, which continue their campaigns despite peace agreements signed in 2006 and 2011.¹

None of these opposition forces could pose a threat without access to small arms and light weapons and ammunition. Yet, while the Small Arms Survey and others have documented the role of weapons in the multiple conflicts involving Sudan and South Sudan over the past ten years, details related to the specific types of materiel, their sources, and possible pathways into the hands of non-state armed actors have been slow to emerge.

To address this information gap, the Small Arms Survey's Human Security Baseline Assessment (HSBA) for Sudan and South Sudan launched the Arms and Ammunition Tracing Desk in 2011. The project's goals are to (a) refine previous estimates of the numbers and types of weapons held by various actors through focused field research; (b) apply tracing techniques employed by UN expert panels and other official bodies to investigate the origins and possible sourcing routes of weapons and ammunition; and (c) promote best practices for the identification and tracing of arms and ammunition in Sudan and South Sudan among all interested stakeholders.

This chapter provides an overview of the project's findings with regard to the types of weapons observed among non-state armed actors—including rebels and tribal groups—their origins, and proximate sources. It synthesizes the findings of more than two years of fieldwork and follow-up investigations initially published in periodic web-based reports. Key findings include the following:

- The systematic identification and tracing of small arms, light weapons, and their associated ammunition have uncovered patterns of illicit arms supply to non-state groups in Sudan and South Sudan.
- Non-state armed groups in Sudan and South Sudan have access to a variety of types and quantities of arms and ammunition, including civil war-era weapons, as well as newer Chinese and Sudanese weapons and ammunition.
- Investigators have documented newer (post-2000) Sudanese-manufactured small- and medium-calibre ammunition in large quantities among non-state armed groups in Sudan and South Sudan.
- GoS stockpiles are the primary source of weapons to non-state armed groups of all allegiances in Sudan and South Sudan, through deliberate arming and battlefield capture.
- Direct military contributions from Sudanese security forces represent the majority of weapons and ammunition documented among South Sudanese insurgent groups.

- Investigations reveal that South Sudanese armed groups are in possession of an increasing number of weapons whose factory marks and serial numbers have been removed, a tactic designed to undermine identification and tracing.
- By responding to information requests from investigators, exporting states have shown a willingness to cooperate in the process of weapons and ammunition tracing in conflict zones.

This chapter begins by describing the context and need for arms tracing in Sudan and South Sudan and the working methods of the HSBA tracing project. It then presents the project's overall findings on the sources of arms documented in the hands of non-state actors, their commonalities across groups, and likely patterns of supply.

'POST-CONFLICT' SUDAN AND SOUTH SUDAN

Civil war and its aftermath

In 2013, the GoS was fighting two conflicts within its territory.

In December 2009 the Small Arms Survey estimated that Sudan and South Sudan contained some 2.7 million small arms and light weapons, more than two-thirds of which were in the hands of non-state actors, including civilians, rebel groups, and tribal militias (Small Arms Survey, 2009, p. 8). Widespread arms proliferation among non-state actors has long been identified as a critical factor leading to the outbreak and escalation of armed violence and conflict in Sudan and South Sudan.

During the second civil war (1983–2005) and during the six-year interim period following the Comprehensive Peace Agreement (2005), older weapons continued to circulate, but new inflows clearly persisted. In most cases, arms appeared to arrive in Sudan as the result of transfers approved by countries of export.² But some of those weapons were eventually retransferred illicitly within the country (to Darfur, in violation of the UN arms embargo) or across the Southern border to non-state armed groups, such as tribal militias and insurgent forces, to further the Sudanese government's political and military goals (Lewis, 2009; Small Arms Survey, 2009; 2012a). Meanwhile, the SPLA and other insurgent forces obtained weapons from both battlefield capture and external supply, occasionally passing some on to tribal militias. Yet, on these points and others concerning overall arms acquisitions by state and non-state forces, there was much speculation and little evidence.

Since South Sudan's independence in 2011, renewed armed conflict has erupted on both sides of the Sudan–South Sudan border. In 2013, the GoS was fighting two conflicts within its territory. The first pitted the GoS against a coalition of armed opposition groups in Darfur; the second erupted in the border states of South Kordofan and Blue Nile, where Khartoum took on indigenous rebels who maintain some ties with South Sudan and who recently allied themselves with Darfur's main rebel groups (see Table 7.1). The current conflicts in South Kordofan and Blue Nile have been described as new phases of a 'previous, partially unresolved conflict' of the second civil war (Gramizzi, 2013, p. 11).

After more than a decade of rebellion, proxy arming, and shifting alignments between the GoS and both Arab and non-Arab populations in the region, the Darfur conflict continues despite two peace agreements—the Darfur Peace Agreement of 2006 and the Doha Document for Peace in Darfur of 2011. While the conflict has evolved since 2003, widespread violence, massive displacement, and aerial bombardment remain dominant themes. From January to August 2013, new violence displaced nearly 300,000 people, more than in the two previous years combined (OCHA, 2013).

During Sudan's civil war, much of the fighting took place in the South, with both sides arming Southern militias. The rebellion split numerous times, with some factions returning to the government only to rebel once again. In the latter phases of the war, much of the conflict was intra-Southern, with pro-government fighting conducted by a patchwork of Khartoum-supported Southern commanders and militias.

Table 7.1 Selected non-state armed groups in Sudan and South Sudan, as of late 2013

Region or state	Armed group	Location	Strength	Status as of November 2013
Darfur, Sudan	Justice and Equality Movement (JEM)-Darfur	North-western to south-eastern Darfur	100 vehicles	Active
	Sudan Liberation Army-Minni Minawi (SLA-MM)	South Darfur (including east Jebel Marra and Nyala area), East Darfur, North Darfur	250 vehicles	Active
	Sudan Liberation Army-Abdul Wahid (SLA-AW)	Jebel Marra, North Darfur	50 vehicles, ability to mobilize foot soldiers	Active
South Kordofan, Sudan	SPLM-N 1st Division	Southern Nuba Mountains, South Kordofan	<20,000 troops	Active
	JEM-South Kordofan	Moving between SPLM-N-controlled areas in the Nuba Mountains and Missiriya areas in West Kordofan, as well as northern Abyei	150 vehicles	Active
Blue Nile, Sudan	SPLM-N 2nd Division	The SPLM-N controls the southern part of Blue Nile from Deim Monsour in the east to the Upper Nile border west of Kubra	<10,000 troops	Active
Greater Upper Nile, South Sudan*	South Sudan Democratic Movement/Army (SSDM/A)-Athor**	Jonglei	No active troops	Athor killed in December 2011; his troops were integrating into the SPLA as of late 2013
	SSDM/A-Yau Yau	Pibor county, Jonglei	500-1,000 core troops; can mobilize 3,000-6,000 Murle youths	Active
	SSDM/A-Olony***	Fashoda county, Upper Nile, with affiliates in South Kordofan, Sudan	<3,000 troops	Negotiating integration
	South Sudan Defence Forces (SSDF)	Multiple factions co-located in rear bases in Bwat, Blue Nile, Sudan	<1,000 troops	Active
	South Sudan Liberation Movement/Army (SSLM/A)	In Mayom, Unity, awaiting integration	<3,000 troops	Accepted amnesty; negotiating integration
	Lou Nuer (White Army)	Jonglei	Can mobilize up to 8,000 troops	Active
	Murle militia	Jonglei	Usually attack in small groups	Active

Notes:

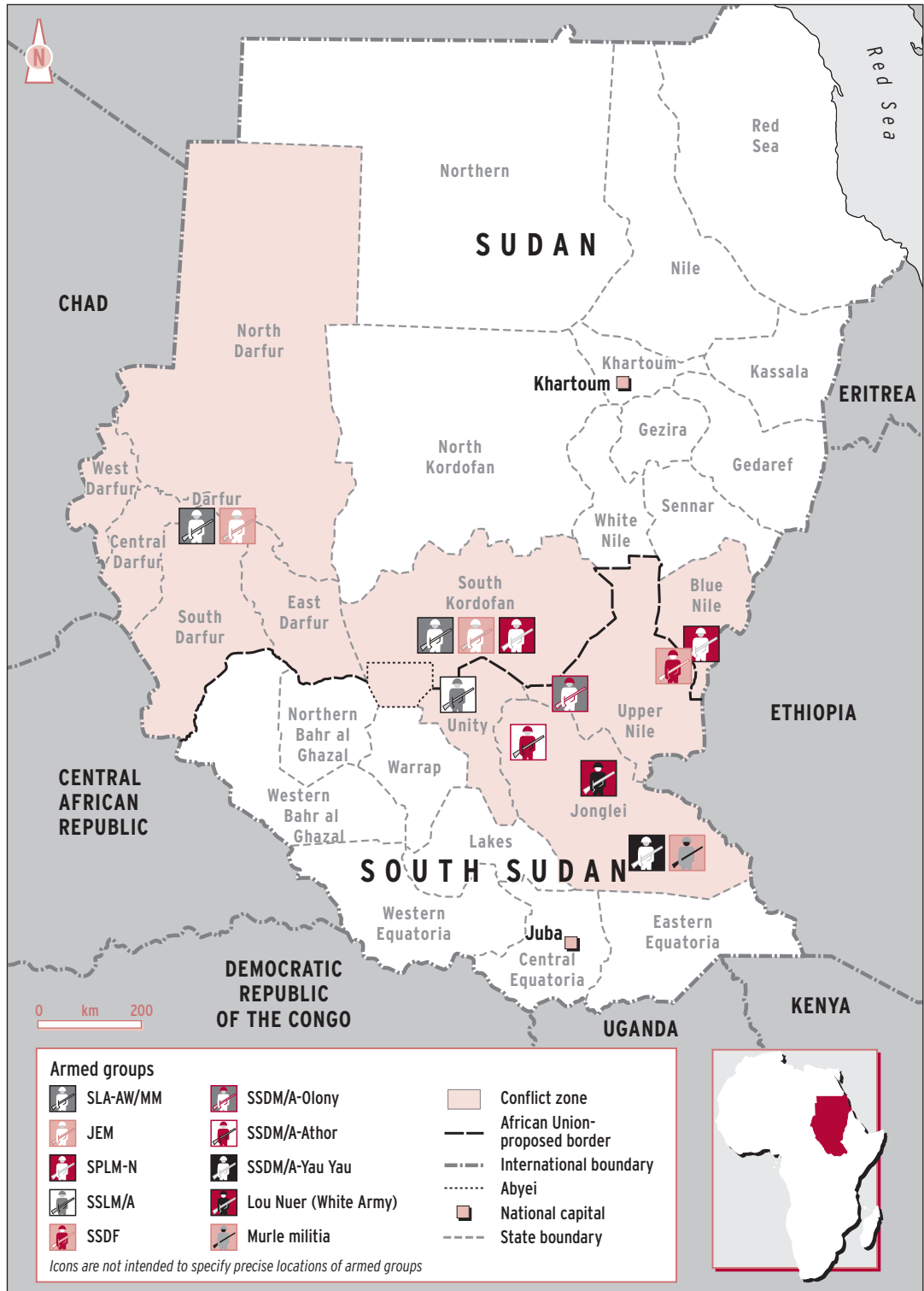
* The Greater Upper Nile region of South Sudan includes Jonglei, Unity, and Upper Nile states.

** Although Athor's faction is no longer active, it is included here because of its importance in the development of the more recent branches of the SSDM/A (Yau Yau and Olony).

*** Also known as the SSDM/A-Upper Nile faction.

Sources: Gramizzi (2013, pp. 40-44); Gramizzi and Tubiana (2013, pp. 27-32); Small Arms Survey (2013b, p. 2)

Map 7.1 Non-state armed groups and conflict zones, Sudan and South Sudan, 2013



Following the Comprehensive Peace Agreement, President Salva Kiir of South Sudan attempted to persuade rival militia commanders and their forces to integrate into the Southern army. Many commanders took advantage of the generous packages offered during the Agreement's six-year interim period. But following national and state-level elections in 2010, and in the lead-up to official Southern independence, a new generation of militia leaders emerged (see Table 7.1).

In September 2013, the SPLA was attempting to contain insurgencies in Greater Upper Nile while simultaneously working to integrate the forces of other commanders who had accepted amnesty, surrendered, or died. In December 2013 and January 2014, however, dynamics among Southern militias appeared to shift after widespread civil conflict erupted between President Kiir of South Sudan and political opposition leader Riek Machar, with the latter drawing a number of dissident commanders, as well as thousands of SPLA soldiers, to his side. This chapter does not reflect the evolution of this conflict beyond late 2013.

Map 7.1 shows conflict zones in Sudan and South Sudan as well as the non-state actors involved in the conflicts as of September 2013.



SPLA-N fighters watch over ammunition and weapons captured from the Sudan Armed Forces, near Gos village in the Nuba Mountains, South Kordofan, Sudan, May 2012.
© Goran Tomasevic/Reuters

The legal context for arms imports³

The Darfur region of Sudan is subject to a United Nations arms embargo, first established in July 2004 in response to an international outcry over the humanitarian impact of the conflict there (UNSC, 2004). The resolution demanded that the GoS 'fulfil its commitments to disarm the Janjaweed militias' (para. 3) and established a ban on supplies of arms and related materiel to 'non-governmental entities and individuals, including the Janjaweed' (para. 7) operating in North, South, and West Darfur. By referring to 'janjaweed', the Security Council intended to include GoS-supported groups, but the vague phrasing allowed the GoS to argue that the embargo did not cover state-backed militias. A March 2005 resolution established mechanisms for monitoring compliance with the embargo (UNSC, 2005).

Nevertheless, as the Small Arms Survey reported in 2012, 'all sides in the Darfur conflict have continued to gain access to military resources' and the embargo was violated 'openly, consistently, and without consequence' (Small Arms Survey, 2012b, p. 10). The Survey found that the embargo's 'limited geographical scope, covering only the Darfur states, has for the last seven years allowed international suppliers (state and commercial) to furnish arms and assistance to the GoS entirely legally, despite clear evidence that the GoS is moving the arms rapidly and continually into Darfur' (Small Arms Survey, 2012b, p. 10).

The Council of the European Union (EU) integrated the UN sanctions into its existing regime of restrictive measures on Sudan, which had first been imposed in March 1994 (CEU, 1994; 2004; 2005). The EU embargo covers the entirety of Sudanese territory rather than just the Darfur states. Following the independence of South Sudan, the EU embargo was extended to the new state, such that it could maintain its original geographic coverage (CEU, 2011).

Figure 7.1 Annual imports of small arms and light weapons, their ammunition, and 'conventional weapons' reported by Khartoum to UN Comtrade, 2001-12 (USD millions)

■ Small arms and light weapons and their parts ■ Small arms and light weapons ammunition
■ Conventional weapons ■ Annual totals

USD MILLIONS



Sources: El Jamali (2013); UN Comtrade data provided by the Peace Research Institute Oslo

In contrast, in January 2012, US President Barack Obama lifted restrictions on the supply of defence materiel to South Sudan, stating that this would ‘strengthen the security of the United States and promote world peace’ (White House, 2012). US State Department officials indicated that the government was in discussions with the South Sudanese about how to ‘secure their borders’ and ‘defend themselves’, but that the United States had no immediate plans to approve the transfer of lethal equipment (Reuters, 2012). As of late 2013, this remained US policy.⁴

Reported Sudanese arms imports

For the period 2001–12, Khartoum’s reports to the United Nations Commodity Trade Statistics Database (UN Comtrade) reveal significant fluctuation in annual conventional arms imports (see Figure 7.1). The aggregate total values increased steeply—from less than USD 1 million in 2001 to almost USD 34 million in 2011, with a drop to less than USD 10 million in 2012. ‘Conventional weapons’⁵ represented more than half of the total value imported over the entire period (52 per cent). Small arms and light weapons and their parts represented 44 per cent of the total, and small arms and light weapons ammunition were 3 per cent of the total over the period.

The majority of the Sudanese government’s total self-reported imports of small arms and light weapons, their ammunition, and ‘conventional weapons’ over the period originated in China (58 per cent), followed by Iran (13 per cent), St. Vincent and the Grenadines⁶ (9 per cent), and Ukraine (8 per cent).

As of late 2013, South Sudan had not reported any arms imports to UN Comtrade.

Sudan’s reported conventional arms imports fluctuated significantly from 2001 to 2012.

WEAPONS TRACING IN SUDAN AND SOUTH SUDAN

The HSBA Tracing Desk

The tracing of weapons in conflict and post-conflict settings serves to ‘monitor potentially escalatory influxes of weapons and to investigate particular cases of concern’ (Bevan, 2009, p. 109). As noted above, the HSBA Arms and Ammunition Tracing Desk launched in September 2011. During its first year, the Tracing Desk produced an *Issue Brief* on weapons documented in the hands of Southern insurgent groups (Small Arms Survey, 2012a); it also established regular web-based reporting on arms and ammunition tracing fieldwork conducted in South Sudan and the Sudanese border areas. Eighteen such reports were released through September 2013.⁷

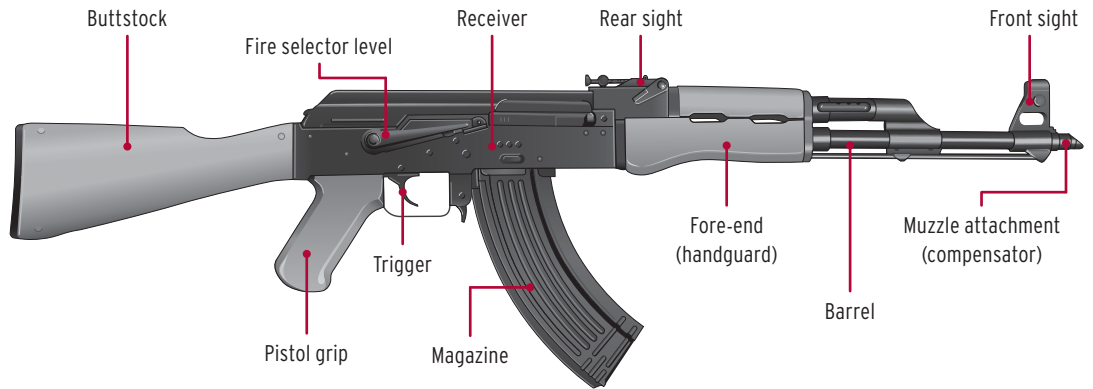
In its tracing work, the HSBA applies a multi-step process of *identification*, *mapping*, and *verification* of arms and ammunition, as described below.

The HSBA tracing process

Identification

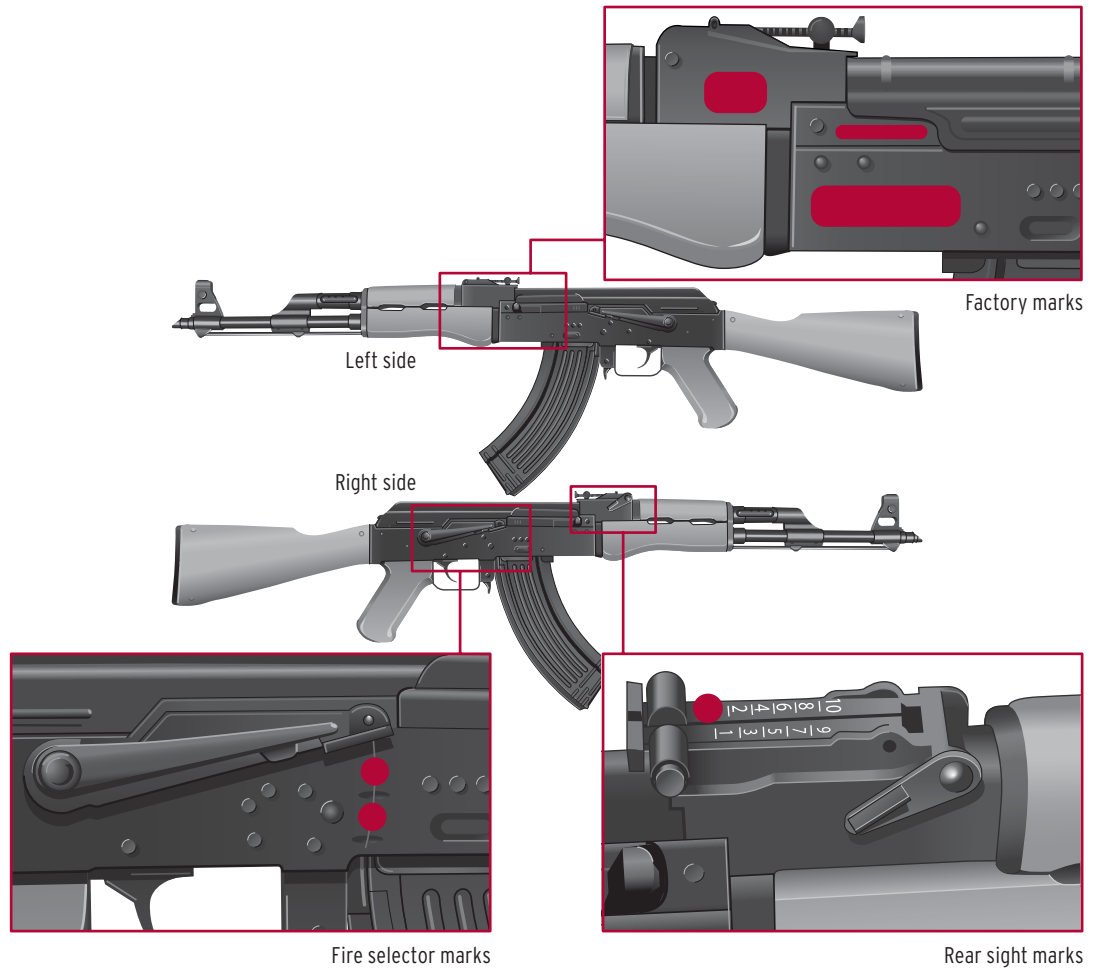
Identification involves recording the make, model, and unique identifying characteristics and markings of each weapon, round of ammunition, and weapons- or ammunition-bearing container or vessel (such as ammunition crates). Models in widespread circulation, such as AK-pattern assault rifles, can often be distinguished from one another only after close physical inspection and with particular attention to one or two specific features, such as the type of buttstock and muzzle attachment (see Figure 7.2) and marking position (see Figure 7.3). Essential information for investigators includes the model, marks designating the manufacturer, the serial number, import marks, and proof house marks—some or all of which suppliers or users may attempt to remove or obscure (see Box 7.1). When feasible, field investigators photograph weapons and ammunition markings for entry in the databases used for mapping.

Figure 7.2 Identifying features of a modern military rifle



Source: reproduced from Jenzen-Jones (2013, p. 9)

Figure 7.3 Positions of identifying marks on AK-pattern weapons



Source: reproduced from Conflict Armament Research (2012a, p. 6)

Mapping

Arms and ammunition mapping is a powerful tool that the HSBA uses to illuminate patterns in holdings and procurement across different actors in Sudan and South Sudan. It relies on custom-built data sets of arms and ammunition, which incorporate the identifying markings, quantities, locations, and circumstances of documented arms and ammunition, linked to photographs taken by field researchers. The HSBA data sets now include information from dozens of arms caches observed by researchers, representing many thousands of weapons and significant quantities of ammunition.

Mapping involves, therefore, the cross-referencing and analysis of separate samples of arms and ammunition. It allows researchers to identify trends and patterns as data sets grow, and ultimately leads to a better understanding of the types of arms and ammunition that armed groups have in their stockpiles. Over time, it becomes possible to draw conclusions about the chain of custody of particular materiel. For instance, matching lot numbers of ammunition found in the stockpiles of several armed groups may indicate the same source-to-recipient pattern of supply. Likewise, a new variety of rifle never before observed in Sudan or South Sudan in the hands of two geographically distinct rebel groups may point to a single source.

Verification

In verifying its weapons and ammunition data, the HSBA confirms its initial findings by using, first, a number of official, published sources of information, including:

- national arms export reports, provided by a government on its initiative or pursuant to multilateral arms control agreements;

Box 7.1 Serial number and factory mark removal in Sudan and South Sudan: a new trend?

In 2009, arms investigator James Bevan wrote:

[I have] viewed many thousands of military weapons, held by numerous parties to armed conflict, and have found few weapons that were not marked with a serial number (however faded or damaged). Reviews of thousands of weapons collection records 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 (Bevan, 2009, p. 131, n. 12).

When the HSBA began tracing arms and ammunition in 2011, its investigators also noted that very few of the encountered weapons had intentionally removed markings. Yet, in 2013, by which time the HSBA had gathered compelling evidence that the GoS was arming Southern rebels, investigators were observing an increasing number of rebel-held weapons whose markings (serial numbers and factory markings) had been removed. Most obliterated markings had been ground out manually, probably with a grinder or a mill, which are typically used in criminal contexts. The obviously visible markings were removed, while marks that were harder to observe or reach were untouched. According to several rebel defectors, markings on their weapons had already been removed when they received them from Sudanese security officers.

Without a serial number or factory mark, investigators cannot uniquely identify a weapon.⁸ But other clues—such as remaining markings and possibly unique model characteristics, as well as the location of the weapon and the other weapons and ammunition with which it was seen—may provide important contextual information. The fact that a weapon's markings have been intentionally removed is also itself an important detail; it is a clear red flag—evidence that at least one party found it necessary to obscure the weapon's identifying features. For this reason alone, the HSBA has made it a point to document all weapons with intentionally removed markings. Over time, documentation of these weapons will almost certainly reveal patterns of interest to investigators.



A CO rifle, with its markings removed, handed over by SSDM/A-Yau Yau defectors to the SPLA, Jonglei, South Sudan, February 2013. © Judith McCallum

- publicly available trade databases such as UN Comtrade, the UN Register of Conventional Arms, and the Stockholm International Peace Research Institute's Arms Transfers Database; and
- qualitative data, including media and research reports.

Second, the verification process relies on information culled from interviews with respondents in the field and beyond—such as military commanders, rebel representatives, local community members with specific knowledge, government officials, and arms show representatives. Testimony from such key informants can provide essential contextual information to help corroborate or discount other interpretations of the data. Given the possibility of receiving false, misleading, or incomplete information, project investigators independently corroborate and cross-check testimony.

The third source of information used in data verification involves responses to written inquiries and information requests to exporting governments, manufacturers, and transport companies. The requests detail the type of weapon(s) observed, identifying markings, and the circumstances under which the weapon was observed. They typically seek information such as:

- confirmation that a weapon was manufactured in the country of export;
- date of manufacture;
- date of export;
- information on the intended end users;
- transporter/shipper;
- broker information, if applicable;
- confirmation that an export licence was required and obtained for the export to proceed; and
- information on possible resale or retransfer of the weapon(s).

Box 7.2 Tracing cooperation

Since the HSBA tracing project began, it has received positive cooperation from many government agencies and companies, although responses have varied in usefulness (see Table 7.2). For example, exporters can rightfully or wrongfully deny that they produced an item, state that they no longer have records for its sale, or, in contrast, confirm that they manufactured an item and supplied it to a specific country. In some instances, particularly with companies that have been involved in the supply of dual-use items such as 4x4 vehicles,⁹ information may be provided about a third party that is in some way involved in the transaction.

Government agencies responded to initial information requests in 12 of 18 cases. In 9 of 12 responses, governments provided 'useful' information that either helped to confirm that an item was supplied to a specific destination or provided information that required sending a new request to another government or company. Three other 'somewhat useful' responses included partial answers or referrals to other parties.

The relatively positive picture presented here hides an important caveat. According to UN panel reports, most major arms exporters that supply Sudan have failed to respond to information requests of this type (UNSC, 2009, p. 80; 2011a, pp. 26-28; Gramizzi, Lewis, and Tubiana, 2012, pp. 22-23). There are indications, however, that China—one of Sudan's top suppliers—recently began to cooperate more closely with UN panels.¹⁰

The HSBA has also sent 23 inquiries to companies—including manufacturers, shipping agencies, maintenance companies—often focusing on military vehicles or commercial 4x4 vehicles that have been converted into 'technicals' by military forces or armed groups. In some cases, potential embargo violations were investigated. Of the 11 responses received from companies to date, nine helped to confirm the export of equipment or services to a specific party. The presence of 4x4 technicals equipped with heavy machine guns in the possession of the SPLM-N in South Kordofan prompted the HSBA to improve its understanding of the supply routes of these vehicles to Sudan, including the place of their conversion from civilian to military use.

Table 7.2 HSBA inquiries sent to exporting states

State	Number of inquiries submitted	Number of responses, by type	Unanswered inquiries	Comments
Belgium	1	1 somewhat useful	0	Referred to the Dutch Ministry of Economic Affairs.
Bosnia and Herzegovina	1	0	1	
Bulgaria	5	4 useful 1 somewhat useful	0	Confirmed that 82 mm mortars were supplied to Ethiopia in 1999; 23 mm ammunition was supplied to Uganda in 2010; weapons and technology were transferred to Sudan in the late 1990s.
Croatia	1	0	1	
Czech Republic	1	1 useful	0	Noted that ammunition was produced in present-day Slovakia.
Germany	3	2 useful	1	Provided information on the supply of vehicles to Sudan and the production of Heckler & Koch G3 rifles.
Netherlands	1	1 useful	0	Provided information on the export of 4x4 vehicles to Port Sudan.
Serbia	1	0	1	
Slovakia	1	1 somewhat useful	0	Confirmed manufacture of 100 mm ammunition, but provided no records on the item in question because it was more than 30 years old.
South Korea	1	0	1	
Ukraine	1	0	1	
United States	1	1 useful	0	Confirmed supply of 106 mm ammunition to Sudan in 1980.
TOTALS	18	12 (9 useful, 3 somewhat useful)	6	

HSBA information requests do not assert any wrongdoing or impropriety on the part of the exporting state, company, or individual. Nor are exporting agencies or private companies under any legal obligation to provide this information to investigators. In many cases, however, respondents do so willingly as a matter of cooperation and transparency (see Box 7.2).

The HSBA employs tools and techniques that emerged from UN panel investigations of embargo violations and illicit transfers. The recent ‘privatization’ of arms and ammunition tracing, conducted by experts and supported by donors, also shows strong potential in this field. A number of conditions are probably necessary for the successful replication of this work, however, including: the independence and reliability of the field researchers; strong relationships with official forces; and the willingness of governments to open up to scrutiny activities that are sometimes deliberately obscured.

Working methods

Tracing requires, first and foremost, field-based observations of weapons and ammunition. The HSBA personnel and consultants who conduct these field investigations have expertise in weapons and ammunition identification and tracing and have served on UN panels of experts in Côte d'Ivoire, Darfur, the Democratic Republic of the Congo, Somalia, and elsewhere.¹¹

The decision about *where* to conduct tracing fieldwork is based on a range of factors, including:

- **Relevance:** Are the suspected weapons associated with a particular conflict or are or were they held by actors who are strongly linked to armed violence or insecurity?
- **Authorization:** Can permission be obtained to view the weapons and speak to key informants?
- **New research area:** Is the weapons cache associated with an actor or conflict that the HSBA has not yet investigated?
- **Staffing:** Is a qualified arms and ammunition investigator available to conduct the fieldwork?
- **Accessibility:** Can the site be reached by commercial flights, private vehicle hire, or UN escort?
- **Safety:** Will investigators be protected from insecurity?

Since 2011, the HSBA Tracing Desk has conducted 14 tracing missions in the South Sudanese states of Jonglei, Unity, Upper Nile, and Western Bahr al Ghazal, as well as in Blue Nile and South Kordofan, Sudan. Fieldwork investigations would not be possible without considerable trust and cooperation offered by numerous actors in the chain of command of the SPLA and the Government of South Sudan. Over the eight years of its work, the HSBA has built positive relationships with key South Sudanese lawmakers and military personnel, while continuing to maintain independence and editorial control over its publications.¹²



An SSLM/A fighter with mounted DShKM-type machine gun after accepting amnesty in Unity state, South Sudan, May 2013. © Jonah Leff

WEAPONS DOCUMENTED AMONG ARMED ACTORS

This section reviews the results of the Small Arms Survey's tracing missions in Sudan and South Sudan as well as documentation received from independent experts, focusing on significant weapon types (makes and models) and country of manufacture. It pays special attention to weapons and ammunition that were produced from the late 1990s onward, as opposed to older Warsaw Pact equipment that is ubiquitous throughout East Africa and the Horn and that is particularly difficult to trace. The section examines the countries of manufacture of weapons observed in Sudan and South Sudan, identifying several specific weapon models and ammunition production lots that proliferate across the conflict areas of the two countries.¹³ Ammunition-specific findings from the Survey's work in the two countries are also presented in Chapter 6 of this volume (AMMUNITION PROFILING).

Chinese weapons

Throughout the past decade, Chinese military equipment has become increasingly common in Sudan and South Sudan, especially among the Sudan Armed Forces (SAF) and its allied militias. While customs data does not reflect the full extent of transfers between importing and exporting states, it indicates that in 2001–12 China accounted for 58 per cent of reported transfers to Sudan of small arms and light weapons, their ammunition, and 'conventional weapons'. New varieties of Chinese weapons and ammunition are far less common in SPLA stockpiles but, as transfers to South Sudan have not yet been captured by UN Comtrade, it is difficult to quantify the new state's acquisition of Chinese-made weapons.

Field inspections in Sudan and South Sudan have noted a large variety of Chinese equipment, including assault rifles, general-purpose and heavy machine guns, RPG-7-pattern rocket launchers, automatic grenade launchers, anti-tank missiles, various types of rockets, and small-calibre ammunition (see Table 7.3 and Map 7.2).



Weapons seized by the SPLA from SSLM/A forces, Unity state, South Sudan, April 2011. © Jonah Leff

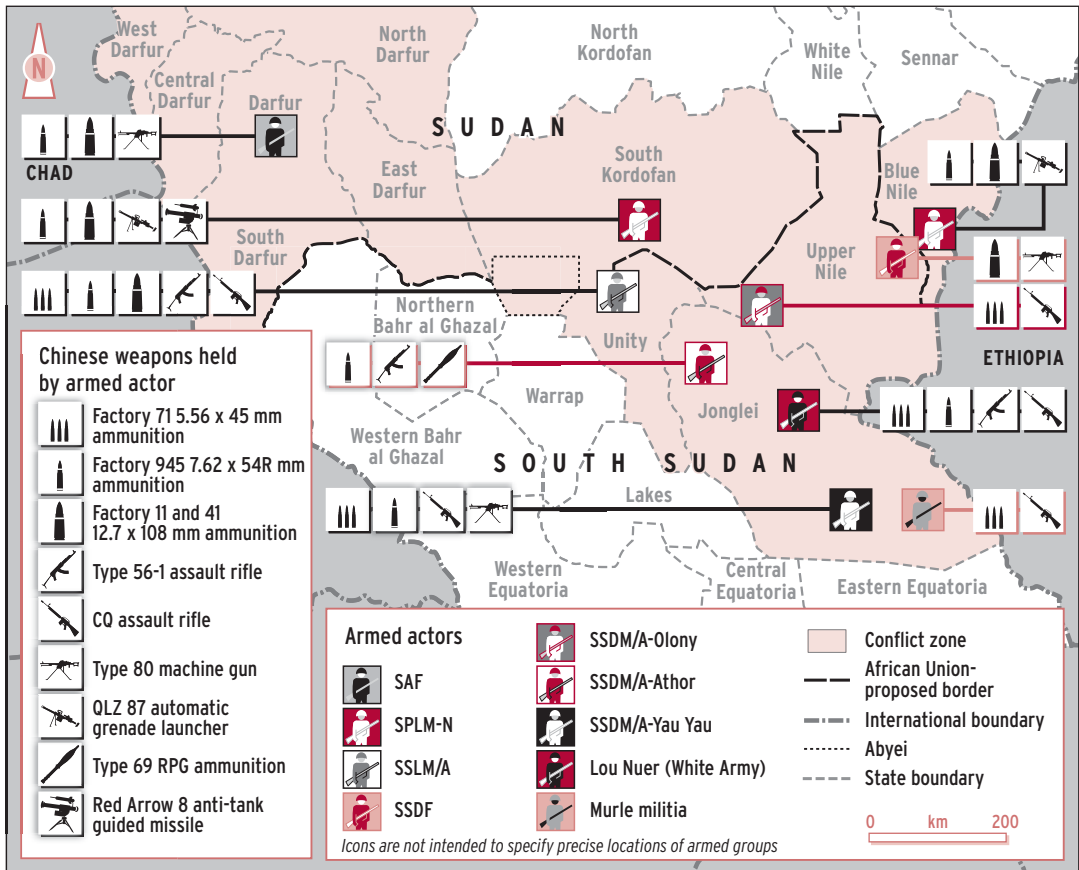
Table 7.3 Selected Chinese military equipment documented among armed actors, 2011-13

Equipment	Armed actor	Location and date	Notes
Type 56-1 assault rifle (copy of Kalashnikov with folding buttstock)	SSLM/A	Rubkhona, Unity, South Sudan, April 2011	150 viewed. Seized by the SPLA. Also seen in videos of SSLM/A posted to the Web in 2011. ¹⁴ Loaded with identical Sudanese-manufactured 7.62 x 39 mm ammunition.
	SSDM/A-Athor	Jonglei, South Sudan, April 2011	Captured by the SPLA.
	Lou Nuer	Pieri, Jonglei, South Sudan, August 2011	Youths armed by George Athor. Documented by a UN mission observer (Small Arms Survey, 2012a, p. 9).
	Lou Nuer	Akobo, Jonglei, South Sudan, January 2012	Seen returning from Pibor county, where an attack took place in December 2011. ¹⁵
CQ assault rifle (copy of M16)	SSDM/A-Yau Yau	Jonglei, South Sudan, February and July 2013	Markings and serial numbers systematically removed.
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Hundreds held by forces that accepted amnesty. Markings and serial numbers removed.
	SSDM/A-Olony	Lul, Upper Nile, South Sudan, July 2013	Markings and serial numbers removed.
	Lou Nuer	Jonglei, South Sudan, July 2013	Among Lou Nuer forces that attacked Murle villages in Pibor in April and July 2013. Loaded with Chinese Factory 71 5.56 x 45 mm ammunition. May have originated with Yau Yau or the SPLA troops, who captured some CQs during counter-insurgency operations in Murle areas. ¹⁶
	Murle	Walgak, Jonglei, South Sudan, July 2013	Observed during their attack on Lou Nuer, possibly associated with SSDM/A-Yau Yau.
Type 80 machine gun (copy of Soviet/Russian PKM) ¹⁷	SLA	North Darfur, Sudan, 2009	Captured from SAF during battle. ¹⁸
	SSDF	Paryak, Jonglei, South Sudan, September 2012	Including two with close serial numbers, suggesting that they were part of the same consignment.
	SSDM/A-Yau Yau	Paryak, Jonglei, South Sudan, February and July 2013	Markings removed.
QLZ 87 automatic grenade launchers and ammunition ¹⁹	Khartoum-backed Chadian forces	Darfur, Sudan, February 2006	QLZ 87 launcher documented by Amnesty International (AI, 2006, p. 12).
	Chadian armed opposition group	Darfur, Sudan, May 2009	QLZ 87 launcher documented by UN Panel of Experts (UNSC, 2009, p. 34).
	Unknown ²⁰	Tukumare village, North Darfur, Sudan, May 2011	QLZ 87 ammunition documented by the UN Panel of Experts, manufactured in 2007, suggesting recent supply (Gramizzi, Lewis, and Tubiana, 2012).
	SPLM-N	South Kordofan, Sudan, May 2012, and Blue Nile, Sudan, December 2012	Three launchers captured from SAF documented in the two states, same producer ('9656') with close serial numbers, suggesting part of a single consignment from China. The Small Arms Survey later documented a QLZ 87 crate that the SPLM-N had seized during the battle of al Hamra; it contained markings indicating

Equipment	Armed actor	Location and date	Notes
			that China's Xinshidai Company sold a total of 500 QLZ 87 sets to Sudan's Yarmouk Industrial Complex in 2008. Ammunition was only observed in South Kordofan.
Type 69 40 mm HEAT (RPG) ammunition	SSDM/A-Athor	Fangak county, Jonglei, South Sudan, February 2011	Captured by the SPLA and documented by the UN Somalia and Eritrea Monitoring Group (UNSC, 2011b, p. 89). ²¹ Matched lot numbers observed with Ogaden National Liberation Front (ONLF) forces in their attack on Ethiopia in 2010.
	SSDM/A-Athor	Paryak, Jonglei, South Sudan, September 2012	Seen among the weapons of Peter Kuol Chol Awan, an Athor commander who surrendered with his men in February 2012. Matched lot numbers observed with ONLF forces in their attack on Ethiopia in 2010 (UNSC, 2011b, p. 358). ²²
Red Arrow 8 anti-tank guided missile	SPLM-N	Daldoko, South Kordofan, Sudan, December 2012	Two captured from SAF. First time this advanced and expensive weapon is documented in Sudan. One manufactured in 2009, shipped as part of a total order of 100; the other manufactured in 2011 and shipped as part of a total order of 350. ²³
Factory 71 5.56 x 45 mm ammunition	SSDM/A-Yau Yau	Pariak, Unity, South Sudan, February and July 2013	Hundreds of rounds viewed with Yau Yau defectors and with stockpiles that the SPLA captured from Yau Yau's forces in 2013.
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Hundreds of rounds with SSLM/A forces that accepted amnesty.
	SSDM/A-Olony	Lul, Upper Nile, South Sudan, July 2013	Present with Olony's forces, which accepted amnesty.
	Murle militia	Jonglei, South Sudan, July 2013	Present with Murle militia during attacks on Lou Nuer.
	Lou Nuer (White Army)	Jonglei, South Sudan, July 2013	Present with Lou Nuer militia during attacks on Murle.
Factory 945 7.62 x 54R mm ammunition	SAF	Darfur, Sudan, 2010	Observed on the battlefield after SAF attacks in various locations throughout Darfur. ²⁴
	SSDM/A-Athor	Jonglei, South Sudan, April 2011	Hundreds of rounds observed in Sudanese packaging.
	Lou Nuer (White Army)	Pibor, Jonglei, South Sudan, February 2012	Dozens of rounds observed after White Army attack on Pibor county.
	SPLM-N	South Kordofan, Sudan, May 2012	Thousands of rounds that the SPLM-N captured from SAF. Five boxes with the same contract number as documented with SSDM/A in Jonglei, South Sudan.
	SSDM/A-Athor	Jonglei, South Sudan, September 2012	One box observed with a contract number identifying Sudan as the consignee. Same contract number as the five boxes observed with SPLM-N in South Kordofan, Sudan.
	SPLM-N	Blue Nile, Sudan, December 2012	Hundreds of rounds that the SPLM-N captured from SAF.

Equipment	Armed actor	Location and date	Notes
	SSDM/A-Yau Yau	Pariak, Jonglei, South Sudan, February 2013	Dozens of rounds with a group of Yau Yau defectors.
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Hundreds of rounds observed with SSLM/A forces, which accepted amnesty.
Factory 11 and 41 12.7 x 108 mm ammunition	SAF	Darfur, Sudan, 2010	Observed on the battlefield after SAF attacks in various locations throughout Darfur. ²⁵
	SPLM-N	South Kordofan, Sudan, May 2012	Thousands of rounds that the SPLM-N seized from SAF.
	SSDF	Paryak, Jonglei, South Sudan, September 2012	Hundreds of rounds observed with SSDF defectors under the command of John Duit.
	SPLM-N	Blue Nile, Sudan, December 2012	Hundreds of rounds that the SPLM-N seized from SAF.
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Hundreds of rounds observed with SSLM/A troops, which accepted amnesty.

Map 7.2 Chinese weapons among armed actors, Sudan and South Sudan, 2011-13



Iranian weapons

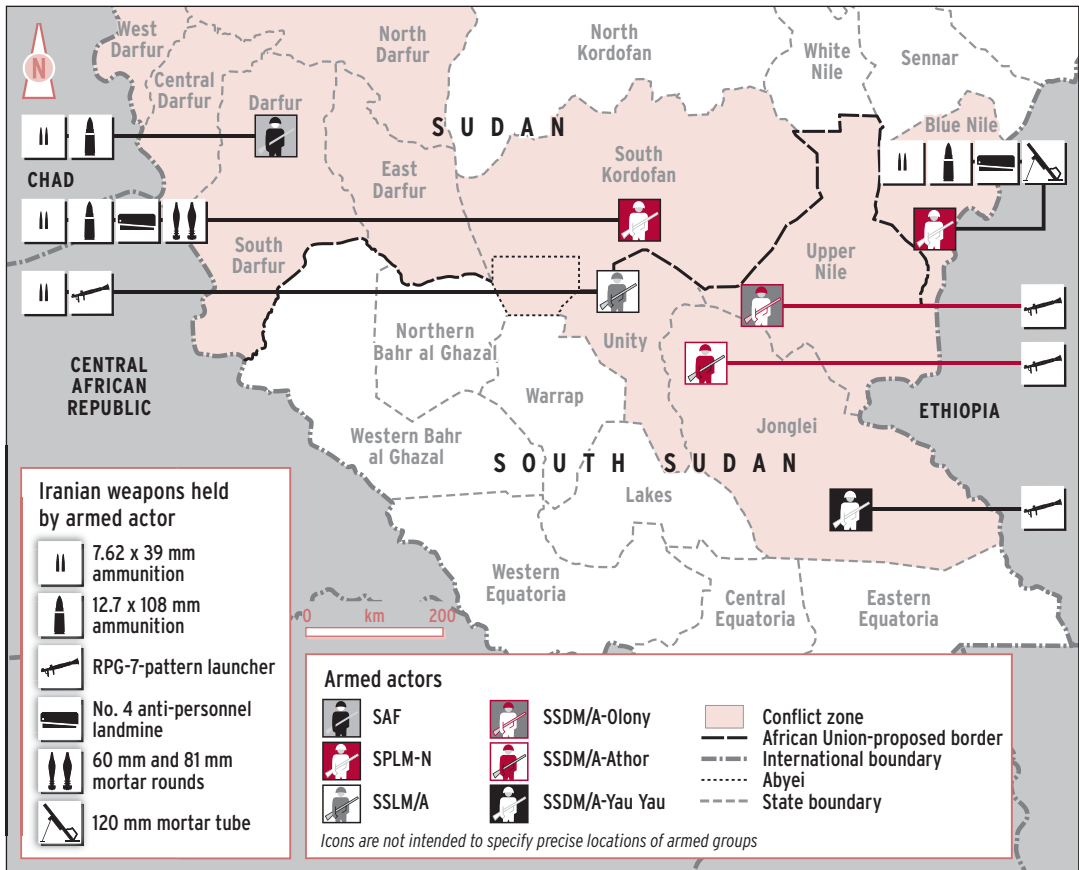
Iran has been a significant exporter of weapons to Sudan since at least the 1990s.²⁶ Whereas China's military relationship with Sudan centres on oil and other economic interests, Iran's role in Sudan's defence industry is primarily ideological. Military ties between Iran and Sudan have grown strong over the years. According to UN Comtrade, Iran was the source of 13 per cent of Khartoum's self-reported arms imports in 2001–12. In January 2007, the two countries signed a mutual defence agreement, which reportedly accelerated the sale of weapons, including Iranian missiles, rocket-propelled grenades, unmanned aerial vehicles, and 'other equipment' (*Sudan Tribune*, 2007a; 2007b). There is also emerging evidence that Iran has played a significant role in supporting Sudan's weapons manufacturing sector and uses the Yarmouk Industrial Complex as a production and onward supply hub for Iranian and Iranian-designed weapons (Conflict Armament Research, 2012b, p. 26). Table 7.4 and Map 7.3 summarize the types of Iranian weapons observed among various armed actors in Sudan and South Sudan.

Table 7.4 Selected Iranian military equipment among armed actors, 2011–13

Equipment	Armed actor	Location and date documented	Notes
Suspected Iranian RPG-7-pattern launchers ²⁷	SSLM/A	Rubkhona, Unity, South Sudan, April 2011	Eight captured by the SPLA. No markings visible.
	SSDM/A-Athor	Paryak, Jonglei, South Sudan, February 2012	Seen among the weapons of Peter Kuol Chol Awan, an Athor commander who surrendered with his men in February 2012. No markings visible.
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Seen after forces accepted amnesty. No markings visible.
	SSDM/A-Yau Yau	Jonglei, South Sudan, July 2013	Seen with weapons captured by the SPLA. No markings visible.
	SSDM/A-Olony	Kodok, Upper Nile, South Sudan, July 2013 ²⁸	Present with Olony's forces, which accepted amnesty. No markings visible.
No. 4 anti-personnel landmines	SPLM-N	Toroji town, South Kordofan, Sudan, February 2012	Captured from SAF. Have Farsi markings, suggesting Iranian production. The mines are contained in crates intended for M-6 fuzes with markings from the Yarmouk Industrial Complex, which indicates that the mines were most probably repackaged by Sudanese state forces. ²⁹
	SPLM-N	Belilia, Blue Nile, Sudan, December 2012	Identical landmines (roughly a dozen pieces) that the SPLM-N reportedly captured from SAF during the civil war. ³⁰
Mortar rounds and tubes	SPLM-N	South Kordofan, Sudan, May 2012	SPLM-N captured 60 mm and 81 mm mortar rounds with Farsi markings from SAF. The 60 mm rounds are hybrid systems fitted with Chinese-made MP-5B point-detonating fuzes.
	SPLM-N	Blue Nile, Sudan, December 2012	120 mm mortar tube reportedly captured from SAF in September 2011.

Equipment	Armed actor	Location and date documented	Notes
7.62 x 39 mm ammunition	SAF	Darfur, Sudan, 2010	Observed on the battlefield after SAF attacks in various locations throughout Darfur. ³¹
	SPLM-N	South Kordofan, Sudan, May 2012	Dozens of rounds that the SPLM-N seized from SAF.
	SPLM-N	Blue Nile, Sudan, December 2012	Dozens of rounds that the SPLM-N seized from SAF.
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Dozens of rounds observed with SSLM/A, which accepted amnesty.
12.7 x 108 mm ammunition	SAF	Darfur, Sudan, 2010	Observed on the battlefield after SAF attack in East Darfur. ³²
	SPLM-N	South Kordofan, Sudan, May 2012	Dozens of rounds that the SPLM-N seized from SAF.
	SPLM-N	Blue Nile, Sudan, December 2012	Dozens of rounds that the SPLM-N seized from SAF.

Map 7.3 Iranian weapons among armed actors, Sudan and South Sudan, 2011-13

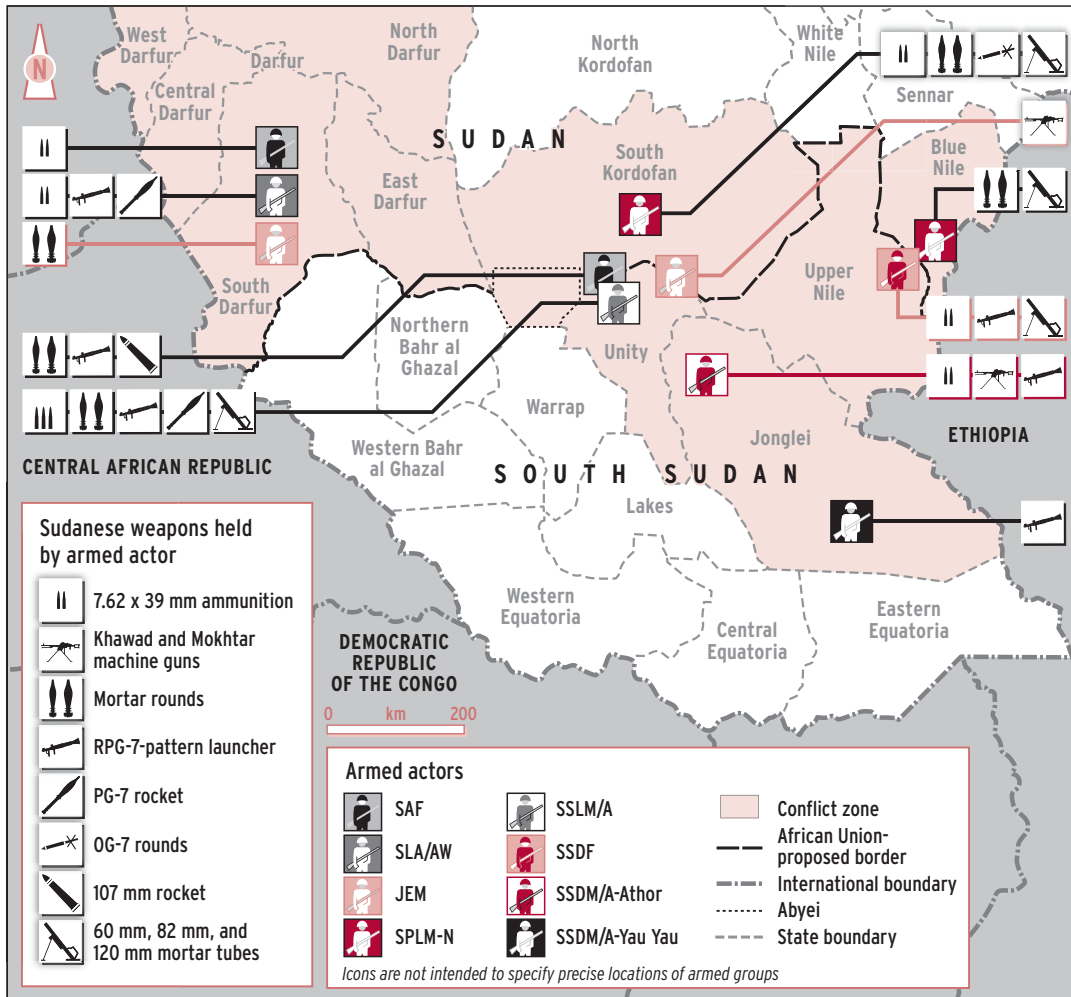


Sudanese weapons

Sudan has become a significant arms manufacturer in Africa. While the extent of Sudan's exports on the global market is unclear,³³ significant quantities of Sudanese-produced arms and ammunition have been observed with Sudanese forces, South Sudanese insurgents, and in several other conflict zones outside of Sudan and South Sudan (see Table 7.5 and Map 7.4).³⁴ According to Sudan's Military Industry Corporation (MIC) website as well as samples present at the MIC's booth at the 2013 IDEX weapons convention in Abu Dhabi, Sudan manufactures a broad range of small arms and ammunition, as well as armoured vehicles and main battle tanks (MIC, n.d.a). Most of these systems seem to be copies of products manufactured in other countries.

The HSBA has documented among Sudanese armed actors a small portion of the weapons that the MIC claims to manufacture, including machine guns, mortars, various rockets, and small arms ammunition. Due to limited information regarding the MIC's manufacturing capabilities, it is unclear whether Sudan fully manufactures these items, assembles them, simply re-marks foreign-made weapons, or a combination of the three (see Box 7.3).

Map 7.4 Sudanese weapons among armed actors, Sudan and South Sudan, 2011-13



Box 7.3 Sudan's Military Industry Corporation

With increasing numbers of Sudanese-manufactured weapons appearing on the battlefields in Sudan and South Sudan, and in conflict arenas both in and out of the region, there has been a growing interest in Sudan's weapons manufacturing capabilities. This box briefly reviews what is currently known, based on open sources and some research in Khartoum. Further research is required to verify the full scope of manufacturing at Sudan's Military Industry Corporation (MIC).

Sudan's defence industry dates back to 1959, when the government of President Ibrahim Abboud established the Al Shaggara ammunition plant to produce small arms ammunition. Production was expanded in 1993, when President Omar al Bashir established the MIC (MIC, n.d.b; Raheel, 2012). Today, Sudan claims to be the third largest weapons manufacturer in Africa, after Egypt and South Africa (Bors, 2007).

The MIC uses 'technical expertise' from both China and Iran in the production of various weapons and ammunition and also for the maintenance of aircraft and ground vehicles used by the Sudanese army (Sirri, 2013; Ashour, 2013). A technical review of Sudanese-manufactured weapons reveals that they derive from Bulgarian, Chinese, Iranian, and Soviet designs. The MIC produces a variety of military products in at least seven distinct manufacturing plants. These include:

- Yarmouk Industrial Complex;
- Al Shaggara Ammunition Plant;
- Elshaheed Ibrahim Shams el Deen Complex for Heavy Industries;
- Safat Aviation Complex;
- Al Zarghaa Engineering Complex; and
- Saria Industrial Complex.

Each of these is briefly reviewed below.

The **Yarmouk Industrial Complex** was constructed in 1994 and began operations in 1996 at the site of an old fertilizer factory in the Soba section of Khartoum. Yarmouk manufactures conventional weapons, artillery, and ammunition at five main factories. Managed by the National Intelligence and Security Service, the complex is reportedly 35 per cent Iranian-owned, with some 300 Iranian technicians and members of the Iranian Revolutionary Guard Corps working there (*Africa Confidential*, 2012, p. 2).³⁵ According to Sudanese and Bulgarian officials, Yarmouk was built with assistance from Bulgaria (Barzashka, 2013; Collins, 2012).

The **Al Shaggara Ammunition Plant**, established on 17 November 1959, was the first weapons-manufacturing plant in Sudan. In 1994, it was incorporated into the MIC. At that time, the plant increased its production to include

mortar rounds,³⁶ 7.62 x 54R mm ammunition, 19 x 9 mm ammunition, 12.7 x 108 mm ammunition, and aircraft bombs. The plant also produces spare parts for these products under the supervision of a quality control department (Raheel, 2012).

The **Elshaheed Ibrahim Shams el Deen Complex for Heavy Industries** was established in September 2002 in Giad Industrial City for the production of heavy machinery. It reportedly produces tanks, armoured personnel carriers, and self-propelled guns, in addition to other products and services, such as earth-moving equipment, rehabilitation of railways, and river transport. The complex contains various industrial machines, a rehabilitation centre, and an assembly area (Raheel, 2012).

The **Safat Aviation Complex**, 20 km north of Khartoum in Karary, opened in 2005. It includes different centres and factories specialized in aircraft maintenance and the installation of various aircraft parts. The Safat plant is reportedly supported by several foreign companies, including a Sharjah-based aviation company, Al Amyal Aviation Services FZE, which is part of an investment group called VBA Incom registered in the United Arab Emirates and provides Safat with 'production management, repair, and maintenance engineering', according to the company. But Al Amyal publicly insists that it is only directly involved with overhauling civilian aircraft at Safat (Al Amyal, n.d.).

The **Al Zarghaa Engineering Complex** was created in 1999 in the Halfaya area of Khartoum. It specializes in communications, electronics, and research and development. The complex carries out the manufacture, assembly, programming, and testing of electronic devices. It also produces wireless communications devices and electro-optical devices used in defence (Raheel, 2012).

The **Saria Industrial Complex** was established in 1997 and reportedly includes nine factories that produce 60 different products. The complex provides Sudan's armed forces with military clothing and supplies, simple electronics, and appliances. According to Saria's website, its shoe factory was established to manufacture military and civilian shoes with support from a Lebanese investor, Mohamed Omar Rifa'i. According to its director, Mohamed Bushra Ibrahim, Saria produces military clothing for SAF in partnership with Turkey. The complex established the Sour Factory in 2004 to manufacture additional supplies for the armed forces. The Sour Factory is reportedly owned by the National Defence Ministry (10 per cent), the Saria Industrial Complex (30 per cent), and an unidentified Turkish company (60 per cent) (Al Toum, 2012; Saria Industrial Complex, n.d.).³⁷

Table 7.5 Selected Sudanese military equipment among armed actors, 2011-13

Equipment	Armed actor	Location and date documented	Notes
'Khawad' (12.7 x 108 mm) and 'Mokhtar' (7.62 x 54 mm) machine guns ³⁸	SSDM/A-Athor	Jonglei, South Sudan, April 2011	Seized by the SPLA in March 2011. According to markings, the Khawad was manufactured in 2009; the Mokhtar's marks were partially scratched off but were identifiable as Sudanese. ³⁹
	JEM	Yida, Unity, South Sudan, May 2012	Khawad captured from SAF in battle over Jaw in February 2012. Appears to have been produced in 2010.
60 mm, 82 mm, and 120 mm mortar rounds ⁴⁰	JEM	Darfur, Sudan, 2009	120 mm mortar rounds captured from SAF in 2009. Manufactured in 2001, 2004, and 2006 in Workshop 116. ⁴¹
	SSLM/A	Rubkhona, Unity, South Sudan, May 2011	Seized by the SPLA. Had similar markings to the 120 mm rounds observed in Darfur, and were produced in Workshop 116 in 2010.
	SPLM-N	South Kordofan and Blue Nile, Sudan, 2011-12	82 mm mortar rounds seized from SAF in battle. Identical to 82 mm rounds observed with the SSLM/A; ranged in manufacture date from 2006 to 2011.
	SPLA/JEM ⁴²	Hejlil, South Kordofan, Sudan, April 2012	JEM and the SPLA captured several boxes of Sudanese-produced 60 mm, 82 mm, and 120 mm mortar rounds from a SAF depot during battle at Hejlil.
	Somali Transitional Federal Government (TFG)	Mogadishu, Somalia, January 2011	Dozens of 82 mm mortar rounds supplied to the TFG in 2010 in violation of the UN arms embargo on Somalia. The casings were manufactured on 27 October 2008; they were filled in 2010 in Workshop 116 at Factory A10 of the Yarmouk Industrial Complex in Khartoum, according to the container's quality control certificate and markings on the rounds. ⁴³
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Large quantities of Sudanese-produced 60 mm and 82 mm mortar rounds in their original packaging. The markings on the rounds and crates reveal that the 60 mm and 82 mm rounds were manufactured in 2008 and 2012, respectively. The 2012 production date indicates that the 82 mm rounds were probably supplied to the SSLM/A not long before they accepted amnesty in April 2013. ⁴⁴
60 mm, 82 mm, and 120 mm mortar tubes	SSLM/A	Unity, South Sudan, May 2011	The Small Arms Survey obtained photographic evidence of an 82 mm mortar tube seized by the SPLA.
	SPLM-N	South Kordofan, Sudan, May 2012	60 mm, 82 mm, and 120 mm mortar tubes among weapons that the SPLM-N seized from SAF.
	SSDF	Jonglei, South Sudan, September 2012	60 mm mortar tube among weapons that the SSDF handed over to the SPLA.
	SPLM-N	Blue Nile, Sudan, December 2012	60 mm, 82 mm, and 120 mm mortar tubes among weapons that the SPLM-N seized from SAF.
	SSLM/A	Unity, South Sudan, May 2013	60 mm, 82 mm, and 120 mm mortar tubes among weapons with the SSLM/A.

Equipment	Armed actor	Location and date documented	Notes
RPG-7-pattern launchers ('Sinnar RPG-7 light anti-tank') ⁴⁵	SLA-AW	South Darfur, Sudan, 2009	The Small Arms Survey obtained photographic evidence of this weapon, which was seized by SAF. ⁴⁶
	SSDM/A-Athor	Jonglei, South Sudan, early 2011	The Small Arms Survey received documentation in March 2011. Later in 2011, investigators documented additional weapons that the SPLA captured from Athor's men. Another distinct RPG-7-pattern launcher had identical marks on the trigger assembly and matched the launcher featured on the MIC website.
	Defectors from SAF Joint Integrated Unit	Mapel, Western Bahr al Ghazal, South Sudan, November 2011	Among the weapons brought in by SAF Lt. Col. Peter Wol was an RPG-7-pattern launcher identical to the second one found with Athor and featured on the MIC website. The marks reveal that the launcher was produced at Factory A30 and that it has the serial number 'NY-12-35'.
	SSDF	Paryak, Jonglei, South Sudan, September 2012	The SSDF handed over Sudanese RPG-7-pattern launchers to the SPLA upon giving up its insurgency. They are identical to those captured from Athor, in possession of the SAF Joint Integrated Unit, and to those featured on the MIC website. Manufactured at Factory A30.
	Somali TFG	Mogadishu, Somalia, January 2011	The Small Arms Survey received documentation in late 2012 of a box of nine Sudanese-manufactured RPG-7-pattern launchers with the Somali TFG, as part of same consignment described above. They were manufactured at Factory A30 in October 2010, according to the quality control certificate.
	SSDM/A-Yau Yau	Jonglei, South Sudan, February and July 2013	The SPLA captured several RPG-7-pattern launchers. Markings deliberately removed by grinding.
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Brought dozens across the border when they accepted amnesty. Markings deliberately removed by grinding.
PG-7 rockets ('Sinar PG-7V' ⁴⁷)	SLA-AW	South Darfur, Sudan, 2009	Received documentation of PG-7s with the RPG-7-pattern launcher noted above. Appear to have been produced in 2008.
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Brought hundreds with them to South Sudan upon surrender to the SPLA. Markings similar to those observed in Darfur in 2009. Appear to have been produced in 2009.
OG-7 HE fragmentation rounds ('Round Sinar OG-7')	SPLM-N	South Kordofan, Sudan, May 2012	Captured from SAF during battle. Manufactured in 2009.
	Somali TFG	Mogadishu, Somalia, January 2011	One box containing OG-7s produced in 2009 and supplied to the TFG in 2010.
107 mm rockets ('Taka 107 mm rocket')	SAF	Hejlilj, South Kordofan, Sudan, April 2012	SPLA and JEM captured several boxes of Sudanese 107 mm rockets during an attack on Hejlilj in April 2012.
	Somali TFG	Mogadishu, Somalia, January 2011	Found with consignment of Sudanese manufactured wagons noted above.

Equipment	Armed actor	Location and date documented	Notes
7.62 x 39 mm ammunition	SAF	Darfur, Sudan, 2010	Observed on the battlefield after SAF attacks in various locations throughout Darfur. ⁴⁸
	SSLM/A	Rubkona, Unity, South Sudan, April 2011	Thousands of the same lot number loaded into 150 Type 56-1 assault rifles that the SPLA seized from the SSLM/A.
	SLA-AW	North Darfur, Sudan, June 2011	A handful of rounds that an SLA-AW faction reportedly captured from SAF in battle.
	SPLM-N	South Kordofan, Sudan, May 2012	Hundreds of rounds that the SPLM-N seized from SAF.
	SSDF	Paryak, Jonglei, South Sudan, September 2012	Dozens of rounds observed with SSDF defectors under the command of John Duit.
	SSLM/A	Mayom, Unity, South Sudan, May 2013	Dozens of rounds observed with SSLM/A, which accepted amnesty.

SUPPLY TO NON-STATE ACTORS

Since the end of the Sudanese civil war, large volumes of small arms and light weapons have continued to flow into Sudan. While these authorized transfers do not necessarily violate existing embargoes or agreements on Sudan, investigations by the Survey and others indicate that some of these newer weapons have reached non-state armed groups on both sides of the Sudan–South Sudan border in the post-war period.

Non-state armed groups in Sudan and South Sudan rarely obtain their weapons directly from foreign states; instead, they tend to receive materiel from local sources. Some of the arming has been deliberate, as in the case of Khartoum’s arming of Southern rebel commanders—who have in turn passed on weapons to tribal militias; battlefield capture and small-scale leakage have served as additional means to secure weapons. Non-state armed groups have also acted as suppliers to civilians.

The next sections examine the three most common types of sourcing to non-state actors in Sudan and South Sudan, namely:

- 1) direct supply from state to non-state armed groups;
- 2) capture of military equipment on the battlefield; and
- 3) supply from non-state armed groups to civilians.

State supply to non-state armed groups

To further political and ideological aims and to carry out counter-insurgency operations in its peripheral areas, the GoS has had a long-standing practice of arming both paramilitary and non-state forces. The most documented cases relate to Sudan’s arming of the tribal militias and armed groups during its civil war with the South and the establishment of pro-government militias, made up of mostly Arab tribes, which were tasked with suppressing an uprising in Darfur.⁴⁹ More recently, the Small Arms Survey’s tracing work repeatedly identified instances of Sudanese military support to Southern insurgent groups, whose publicly declared aim has been to overthrow the Juba government. Sudan has



Armed Nuer youths on the march with a number of weapon types, including an RPG (foreground), Upper Nile state, South Sudan, 12 February 2014.
© Goran Tomasevic/Reuters

supplied significant quantities of military equipment to these groups by land and by air, reportedly through the National Intelligence and Security Services.⁵⁰

Former Southern insurgents have provided detailed information about truckloads of weapons arriving from Khartoum to their rear bases in South Kordofan and Blue Nile.⁵¹ During interviews conducted in February 2013, for example, militiamen formerly under David Yau Yau in Jonglei, including senior-level commanders, claimed that airdrops orchestrated by the National Intelligence and Security Services were the primary source of the group's arms and ammunition. They gave accounts of drops between August 2012 and December 2012—with a further drop reported after the group's defection in January 2013. They also asserted that an airplane had flown directly from Khartoum on the night of each drop. According to the commanders, the militia groups on the ground were in direct contact with the aircraft via satellite phone and marked each drop zone with a line of fires immediately prior to the drop.

Ex-militiamen described the dropped materiel as packed in reinforced wooden boxes of uniform size and shape. Each box was said to be approximately the dimension of an ISO shipping container (1.5 m in height and about 2.4 m in width). The boxes were reportedly painted either green (containing weapons) or yellow (containing ammunition). Ex-militiamen said all of the boxes were delivered by parachute, falling roughly in a line, the length of the drop zone. Small Arms Survey investigators did not view such boxes and could not independently confirm the airdrop claims (Small Arms Survey, 2013a, p. 1).

China, which accounts for the largest percentage of Sudan's reported arms imports, is reportedly aware of the problem of retransfer in the context of the UN embargo on Darfur. In 2011, Beijing provided investigators with a model end-user certificate in which recipients were asked to 'guarantee that, without the written consent of the competent authority of the Chinese Government, we will not transfer the above-said items to any third party' (Gramizzi, Lewis, and Tubiana, 2012a, p. 22, annexe XVIII). But China declined to provide investigators with actual, signed certificates, and Chinese Factory 41 ammunition manufactured as late as 2010 was documented in Darfur in mid-2011, with the UN embargo still in force (p. 15). Communication with officials in Beijing in August 2013, reported to the Survey, indicates that the government knows of the problem of unauthorized retransfer to South Sudanese rebels, as well as to Darfur, and is increasingly frustrated with Khartoum's unauthorized supply to these groups.⁵² Yet, as of September 2013, there were no indications of any change in Chinese export practices regarding Sudan.

The SPLM/A has a history of arming tribal youths to defend against insurgencies, especially in Jonglei state. In 2010 and 2011, the SPLA—under the leadership of the former Jonglei governor, Koul Manyang—supplied arms and ammunition to youths throughout the state to fight against George Athor's militia. During Yau Yau's first rebellion in 2011, the Jonglei government formed a paramilitary force called the 'SPLA Youth', comprising mostly Murle youths to take on Yau Yau's forces. Similarly, during inter-tribal conflict in Jonglei, SPLA soldiers provided weapons and ammunition to their fellow tribesmen to supplement their firepower (Small Arms Survey, 2012c, p. 4). Local communities have accused the SPLA of supplying firearms to Lou Nuer youths prior to their attack on Pibor county in July 2013, in an effort to stem Yau Yau's second rebellion.⁵³ Aside from initial assistance in the very early stages of the conflicts in South Kordofan and Blue Nile, the Small Arms Survey has not documented Southern military support for the SPLM–N in those states, although the GoS and several Western diplomatic sources accuse South Sudan of providing such backing.⁵⁴

Although the Arms Trade Treaty has introduced new international standards for arms exports, it is still up to exporting states to apply these standards in specific cases (UNGA, 2013; ARMS TRADE TREATY). US and EU perspectives with respect to arms exports to South Sudan have diverged to date; following South Sudan's secession, the EU decided to maintain its embargo on the entire Sudan–South Sudan region, while the United States lifted a ban on defence exports to Juba. It is too soon to say whether the Arms Trade Treaty will lead to greater convergence on arms export practices concerning the region. In any case, the majority of weapons in the two countries are in the hands of non-state actors, whether through deliberate supply or accidental diversion. Lying outside state control and completely unregulated, these are the weapons that fuel insurgencies and inter-communal violence in Sudan and South Sudan.

Battlefield capture

Non-state armed groups also acquire weapons from state forces through battlefield capture. Some groups are more successful at this than others. With decreasing support from external actors, the Sudan Revolutionary Front has maintained a sizeable arsenal through its military victories against SAF. In South Kordofan, the SPLM–N captured hundreds of thousands of rounds of small- to medium-calibre ammunition as well as more than a dozen vehicles and tanks from SAF in 2012.⁵⁵ While the SPLM–N in Blue Nile has been somewhat less successful at capturing military equipment than their South Kordofan counterparts, they too have seized significant quantities of SAF weapons during battle (Gramizzi, 2013). In most instances, these weapons not only correlate with the materiel that the SPLM–N captured in South Kordofan, but also match the equipment captured from SAF in Darfur and that found in the hands of Southern militias in South Sudan.

The Chinese government is reportedly aware of the problem of unauthorized retransfer.

In general, Sudanese government stockpiles have proved to be the main source of military hardware for insurgent groups and a crucial alternative to externally sourced supplies, which have dwindled. The rapprochement between Chad and Sudan in 2010, the regime change in Libya in 2011, and the necessity for South Sudan to normalize its bilateral relations with Sudan have all contributed to a reduction of arms supplies to non-state armed groups in Darfur, in particular. In the long term, the Khartoum government's inability to secure control over its own stockpiles could harm its relationship with some international suppliers, some of whom appear quite concerned about serving as an indirect source of weapons for non-state actors, sometimes in violation of UN sanctions.

Likewise, Southern insurgent groups have captured arms and ammunition from the SPLA. In 2012–13, Yau Yau's militia secured large numbers of weapons and their associated ammunition as a result of its battlefield successes against the SPLA in Jonglei. These weapons included heavy machine guns, mortars, and several vehicles.⁵⁶

Supply from non-state armed groups to civilians

Non-state armed groups are a continuous source of arms and ammunition to civilians. Non-state armed groups operating on both sides of the Sudan–South Sudan border are a continuous source of arms and ammunition to civilian populations. In Sudan, for example, tribal militias such as those formed by Missiriya groups that receive weapons from SAF and its affiliate forces have occasionally armed local pastoralist communities to advance their quest for land and resources in competition with neighbours (Craze, 2013). In South Sudan, insurgent groups that receive regular supplies from Khartoum have used the weapons as recruitment tools in launching attacks against SPLA installations. During Yau Yau's second rebellion, he succeeded in luring thousands of Murle youths to his ranks by providing them with weapons after an SPLA disarmament programme in 2012 generated widespread grievances among these communities. Sometimes this practice has unintended consequences, however. When Athor armed Nuer youths in Jonglei to attack the SPLA in May 2011, for instance, the Nuer refused to obey Athor's orders, and instead used their newly acquired weapons to attack their Murle adversaries (Small Arms Survey, 2012a, p. 9).

CONCLUSION

Sudan and South Sudan are paradigmatic 'post-conflict' countries in the sense that they remain highly affected by armed violence as a result of unresolved territorial, economic, political, and ideological claims following peace agreements. The influx and diffusion of weapons—including newer models from China—among all armed groups has exacerbated the frequency and duration of armed conflicts in the post-war era. Sudanese-produced ammunition has also found its way into the hands of insurgents and tribal groups. In almost all documented cases, the arms and ammunition with non-state groups were traced back to Sudanese state stockpiles and were obtained through either deliberate transfer by Sudanese forces or battlefield capture.

Over the course of two years, the HSBA Arms and Ammunition Tracing Desk has generated a body of empirical evidence about the proliferation of arms and ammunition in Sudan and South Sudan. It has done so at relatively modest cost, with the assistance of official bodies within South Sudan, as well as the cooperation of other governments, arms manufacturers, and commercial bodies. Field-based research and analysis serve as a monitoring mechanism that can readily detect the arrival of new weapons systems and that can help to inform governments and exporting states about the actual end-users of some of the arms and ammunition they have exported. The project has relied on, but

also catalysed, international cooperation for purposes of clarifying the illicit supply of arms to rebels and other non-state actors.

Much has already been learned in Sudan and South Sudan, but much remains unknown. The particulars of the supply chain—the specific actors involved, their motivations, and potential rewards—require further study. It is not only the large-scale supply of weapons and ammunition by airdrop, but also the dimensions of smaller-scale diversion from state stockpiles and the cross-border ‘ant trade’ that require investigation.

Tracing in Sudan and South Sudan also faces new challenges. Perhaps the most difficult is the increase in newer-model weapons documented with removed serial numbers and markings. Such mark removal may be a response to investigations into the custody chain of newly arrived weapons. While this practice makes tracing much more difficult—although not impossible—it is also a clear indicator of illicit supply.

The diffusion of Sudanese-manufactured weapons and ammunition in Sudan and South Sudan—as well as in several other conflict zones across Africa—presents additional challenges. Because of a general lack of transparency on the part of Sudan with regard to its arms manufacture and trade, and its lack of cooperation to date with weapons monitors, tracing the chain of custody of its domestically produced arms and ammunition has proven difficult.

The resumption of large-scale intra-Southern conflict in December 2013 may signal a new phase in insurgent operations in South Sudan. As of January 2014, the situation was still evolving, and ultimate outcomes were impossible to predict, but one thing was clear: all sides will continue to seek out and expand their supplies of arms and ammunition. Given the evidence presented here concerning the final destination of some of the weapons transferred to Sudan, exporting states may want to reconsider their arms export policies. In any case, weapons tracing will continue to be an important tool for understanding transfer patterns in a region where most weapons are beyond state control, armed groups are a primary source of insecurity, and state security provision is weak. ■

LIST OF ABBREVIATIONS

EU	European Union
GoS	Government of Sudan
HSBA	Human Security Baseline Assessment for Sudan and South Sudan
JEM	Justice and Equality Movement
MIC	Military Industry Corporation
ONLF	Ogaden National Liberation Front
SAF	Sudan Armed Forces
SLA	Sudan Liberation Army
SLA–AW	Sudan Liberation Army–Abdul Wahid
SLA–MM	Sudan Liberation Army–Minni Minawi
SPLM/A	Sudan People’s Liberation Movement/Army
SPLM–N	Sudan People’s Liberation Movement–North
SSDF	South Sudan Defence Forces
SSDM/A	South Sudan Democratic Movement/Army
SSLM/A	South Sudan Liberation Movement/Army
TFG	Transitional Federal Government
UN Comtrade	United Nations Commodity Trade Statistics Database
UNMISS	United Nations Mission in South Sudan

ENDNOTES

- 1 For detailed reports on these conflicts, in both English and Arabic, see Small Arms Survey (n.d.a).
- 2 Although exceptions continue to occur, evidence suggests that few non-state groups in Sudan and South Sudan currently receive direct transfers of arms or ammunition from outside the two countries. In contrast, Ethiopia assisted the rebels during the civil war and, in earlier phases of the Darfur conflict, security service elements in Chad, Eritrea, and Libya supported some Darfur rebel groups. On Chadian military support to Darfur rebels, see Tubiana (2011).
- 3 This section draws on Small Arms Survey (2012a, p. 2).
- 4 Author correspondence with a representative of the US Department of Defense, 15 November 2013.
- 5 'Conventional weapons' is a UN Comtrade category that includes artillery, rocket launchers, and grenade launchers, among other weapons systems, as well as their projectiles. For a list of the Comtrade categories analysed in this section, see Small Arms Survey (2009, p. 10, n. 18).
- 6 All of the alleged transfers from St. Vincent and the Grenadines—a country that does not produce weapons or ammunition—reportedly occurred in 2009 and were categorized as 'parts and accessories for small arms and light weapons' (Comtrade code 930599). Whether the transfer(s) took place or represent a coding error is not known.
- 7 HSBA tracing reports are available at Small Arms Survey (n.d.b).
- 8 Some forensic labs have the ability to recover markings that are not visible to the human eye, but relatively few such labs exist in Africa.
- 9 Vehicles can be sold as civilian goods, but later converted into military vehicles. It is not always certain where in the chain of custody the conversion takes place.
- 10 Author correspondence with a UN official, 15 November 2013.
- 11 In some cases the HSBA received verifiable documentation from independent experts and journalists working in Sudan and South Sudan.
- 12 The Government of South Sudan and the SPLA have continued to provide HSBA investigators access to highly sensitive areas and materiel although the project's findings have not always been to their advantage.
- 13 For a fuller account of all the weapons systems and ammunition documented by the HSBA tracing project, see Leff and LeBrun (2014).
- 14 See the videos posted by BolKol1000 (n.d.).
- 15 See Small Arms Survey (2012d).
- 16 Author phone interviews with members of the Lou Nuer and Murle communities and UN Mission in South Sudan (UNMISS) officials, July 2013.
- 17 See Jane's (2002, p. 335).
- 18 Author correspondence with a former UN expert on Darfur, 15 November 2013.
- 19 The QLZ 87 is also known as the Type 87.
- 20 Ammunition was found at the site of a battle between SAF and an SLA-MM affiliate.
- 21 Although it is unclear how Athor obtained these rounds, he had a close relationship with President Isaias Afwerki of Eritrea over many years and reportedly visited Asmara at least three times in 2010–11 (UNSC, 2011b, pp. 328–35). Jonglei representatives also allege that Athor purchased weapons from the leader of the Asmara-backed Ethiopian United Patriotic Front in the Gambella region of Ethiopia, which borders Jonglei (Small Arms Survey, 2012a, p. 7).
- 22 Without knowing to which country or countries China supplied the rockets, it is extremely difficult to trace the precise chain of custody of the items. But considering that two identical lot numbers appeared in Eritrean-supplied ONLF stocks and with Athor's stocks at a time when he seemed to be in close contact with Asmara, the rounds most likely all trace back to Eritrea. Another possible scenario is that the rockets were originally supplied from China to Sudan, which transferred some of them across the border to Eritrea and others to Athor in Jonglei.
- 23 The timing of these two consignments, totalling 450 missiles combined, suggests that Sudan may have purchased the missiles from China for potential use against the South Sudanese military and its newly procured fleet of tanks, which arrived around the same time as the order, rather than for an internal counter-insurgency.
- 24 Author correspondence with a former UN expert on Darfur, 15 November 2013.
- 25 Author correspondence with a former UN expert on Darfur, 15 November 2013.
- 26 Human Rights Watch (1998) was one of the first observers to provide details of Iranian weapons in Sudan, documenting them among the stockpiles of SAF weapons captured by the SPLA during the civil war. The dates of manufacture of many of the weapons indicated that they had been produced in the early 1990s.
- 27 Unlike Iranian RPG launchers found in other conflict arenas, these launchers usually do not bear any markings, rendering the origin difficult to ascertain. Since these features are distinctly Iranian, however, the launchers are most likely Iranian-produced, fully produced in Khartoum based on Iranian design, or the parts are fabricated in Iran and shipped to Khartoum for assembly.

- 28 Olony's forces did not allow the Small Arms Survey to photograph their weapons, but the launchers were identified visually.
- 29 Sudan signed the Anti-Personnel Mine Ban Convention (Ottawa Treaty) in 1997 and ratified it in 2003, thereby banning the use, stockpiling, production, and transfer of landmines.
- 30 The SPLM-N did not allow the inspectors to photograph the landmines because they considered them SPLM-N stockpiles.
- 31 Author correspondence with a former UN expert on Darfur, 15 November 2013.
- 32 Author correspondence with a former UN expert on Darfur, 15 November 2013.
- 33 Sudan has not reported any exports to UN Comtrade, nor has any country reported imports from Sudan. Sudan's Military Industry Corporation (MIC), however, stated publicly that it had sold weapons to Ethiopia and Mozambique (Binnie, 2013; *Alkbaleej*, 2013). Sudan has also covertly supplied weapons to Côte d'Ivoire and Somalia (UNSC, 2013a; 2013b).
- 34 On the presence of Sudanese arms and ammunition in other conflict zones, see, for example, Anders (2013) on Côte d'Ivoire, Chivers and Schmitt (2013) on Syria, and UNSC (2013a, p. 289) on Somalia.
- 35 Small Arms Survey interview with a former Giad engineer, Khartoum, June 2011.
- 36 Survey investigators have observed that, in 2010 at least, the Yarmouk Industrial Complex was producing mortar rounds. It is possible that the production had moved over to Yarmouk or that Al Shaggara was absorbed into Yarmouk.
- 37 Author telephone interview with a Saria representative, 26 November 2013.
- 38 Sudan's MIC claims to produce general-purpose and heavy machine guns, which appear to be identical to those manufactured by China. According to the MIC website, the factory produces a 7.62 × 54 mm general-purpose machine gun called the Mokhtar and a 12.7 x 108 mm heavy machine gun called the Khawad, which are copies of the Chinese Type 80 (based on the Russian PKM) and Type 85 machine guns (based on the Russian DShKM machine gun), respectively. It is not clear whether Sudan manufactures these weapons under licence from China, or if it assembles them in Khartoum. The Sudanese factory markings are distinct from those applied by China.
- 39 The markings and construction of the weapons were identical to those on display at the 2013 IDEX convention.
- 40 These rounds closely resemble Bulgarian types. The Bulgarian manufacturer, Arsenal Joint Stock Company, manufactures the same 82 mm and 120 mm designations, but it does not manufacture the same type of 60 mm rounds. Bulgaria reports having authorized licences for the export of manufacturing equipment for the production of 82 mm and 120 mm mortar rounds to Sudan between 1996 and 1998. Sudan has assigned the following names to its mortar ammunition: 'Nimir 60 mm (HE)', 'Aboud 82 mm (HE)', and 'Ahmed 120 mm (HE)' (MIC, n.d.c). According to Yarmouk documents, which were viewed by Survey investigators and correspond to markings on the rounds and shipping boxes, MIC's mortar rounds are manufactured at Factory A10 in Workshop 116. Most Sudanese mortar rounds observed by the HSBA tend to be hybrids, often containing Chinese-manufactured fuzes and Bulgarian ignition charges.
- 41 Author correspondence with a former UN expert on Darfur, 15 November 2013.
- 42 It is not clear which group captured these specific items from SAF in the joint attack by the SPLA and JEM.
- 43 Mortar rounds are ordinarily manufactured in phases. The bomb casings are usually produced first and are engraved with a manufacture date. The bombs are later filled with explosives and given a lot number that, along with the year and workshop code, is painted on the final product. This number is important both for storage and identification purposes.
- 44 Further confirming the origin of the mortar ammunition, Sudanese-manufactured 60 mm, 82 mm, and 120 mm mortar rounds were on display at the 2013 IDEX weapons convention. Although painted in a colour distinct from those documented previously, the construction and marking configurations are identical to those observed in Sudan and South Sudan. According to the markings, the rounds were manufactured in 2012 in Workshop 116.
- 45 See MIC (n.d.d).
- 46 Most of the weapons in the SLA-AW's arsenal at the time were weapons captured from SAF during battle.
- 47 The 'V' denotes that it is a complete round, as opposed to the PG-7 warhead.
- 48 Author correspondence with a former UN expert on Darfur, 15 November 2013.
- 49 See, for example, de Waal and Flint (2005).
- 50 Small Arms Survey interviews with dozens of former Southern insurgents, South Sudan, 2011–13.
- 51 Small Arms Survey interviews with dozens of former Southern insurgents, South Sudan, 2011–13.
- 52 Author correspondence with an arms investigator with ties to China, August 2013.
- 53 Author phone interviews with Lou Nuer and Murle community members and UNMISS officials, July 2013.
- 54 Author interviews with Western diplomats, Juba, South Sudan, 2011–13.
- 55 HSBA fieldwork conducted throughout 2012.
- 56 Author correspondence with a UN official close to the conflict, 15 October 2013.

BIBLIOGRAPHY

- Africa Confidential*. 2012. 'Target Khartoum.' Vol. 53, No. 22. 2 November.
- AI (Amnesty International). 2006. *Sustaining Conflict and Human Rights Abuses: The Flow of Arms Accelerates*. June. <<http://www.amnesty.org/en/library/asset/ASA17/030/2006/en/be25c03a-d42b-11dd-8743-d305bea2b2c7/asa170302006en.pdf>>
- Al Amyal (Al Amyal Aviation Services). n.d. 'Safat.' <www.vba.ae/main/al-amyal/safat>
- Alkhaleej*. 2013. 'Sudan Tanks Made Locally [in Arabic].' 23 February. <<http://www.alkhaleej.ae/alkhaleej/page/4fd728a0-ef61-4aa5-8585-01653aad5a95>>
- Al Toum, Rasha. 2012. 'Statement of Director General of Sariya Industrial Complex Mohamed Bushra.' *Alintibaba*. 14 October. <<http://bit.ly/1cPmM5J>>
- Anders, Holger. 2013. 'Identifying Sources: Small-calibre Ammunition in Côte d'Ivoire.' Unpublished background paper. Geneva: Small Arms Survey. 28 July.
- Ashour, Kareem. 2013. 'Iran Officially Intervenes in the Khartoum War against Its Rebels: The Sudanese Army Uses Iranian Weapons in Operations [in Arabic].' *Alwatanalarabi*. 11 May. <<http://bit.ly/17d8RDI>>
- Barzashka, Ivanka. 2013. *Sudan's Weapons Production Capabilities: Investigating the Bulgarian Connection*. Unpublished background paper. Geneva: Small Arms Survey.
- Bevan, James. 2009. 'Revealing Provenance: Weapons Tracing during and after Conflict.' In Small Arms Survey. *Small Arms Survey 2009: Shadows of War*. Cambridge: Cambridge University Press.
- Binnie, Jeremy. 2013. 'IDEX 2013: Sudan Makes First Appearance at IDEX.' *Jane's Defence Weekly*. February.
- BolKol1000. n.d. Uploaded videos. <<http://www.youtube.com/user/BolKol1000#p/u/4/hC2RzJFs-2s>>
- Bors, Quds. 2007. 'Sudan Reveals Manufactured Drones and Its Intention to Produce Missiles: The Defense Minister Says Sudan Is the Third African Country in the Military Industry [in Arabic].' *Al Arabiya*. 3 September. <<http://www.alarabiya.net/articles/2007/09/03/38638.html>>
- CEU (Council of the European Union). 1994. Council Decision 94/165/CFSP of 15 March 1994 on the Common Position Defined on the Basis of Article J.2 of the Treaty on European Union Concerning the Imposition of an Embargo on Arms, Munitions and Military Equipment on Sudan. 15 March.
- . 2004. Common Position 2004/31/CFSP of 9 January 2004 Concerning the Imposition of an Embargo on Arms, Munitions and Military Equipment on Sudan.
- . 2005. Common Position 2005/411/CFSP of 30 May Concerning Restrictive Measures against Sudan and Repealing Common Position 2004/31/CFSP.
- . 2011. Council Decision 2011/423/CFSP of 18 July 2011 Concerning Restrictive Measures against Sudan and South Sudan and Repealing Common Position 2005/411/CFSP. 18 July.
- Chivers, C. J. and Eric Schmitt. 2013. 'Arms Shipments Seen from Sudan to Syria Rebels.' *New York Times*. 12 August. <http://www.nytimes.com/2013/08/13/world/africa/arms-shipments-seen-from-sudan-to-syria-rebels.html?pagewanted=all&_r=0>
- Collins, Toby. 2012. 'Sudanese Ambassador to the UK: Israeli Lobby's Anti-Sudan Campaign.' *Sudan Tribune*. 26 November. <http://www.sudantribune.com/spip.php?iframe&page=imprimable&id_article=44635>
- Conflict Armament Research. 2012a. 'Identifying Marks on Kalashnikov-pattern Rifles.' Field Guide No. 4. London: Conflict Armament Research. <http://www.conflictarm.com/images/FG4_Kalashnikov-pattern_marks_.pdf>
- . 2012b. 'The Distribution of Iranian Ammunition in Africa: Evidence from a Nine-country Investigation.' London: Conflict Armament Research. December. <http://www.conflictarm.com/images/Iranian_Ammunition.pdf>
- Craze, Joshua. 2013. *Dividing Lines: Grazing and Conflict along the Sudan–South Sudan Border*. HSBA Working Paper 30. Geneva: Small Arms Survey. July.
- de Waal, Alex and Julie Flint. 2005. *Darfur: A Short History of a Long War*. New York: Zed Books.
- El Jamali, Hasnaa. 2013. 'Khartoum-reported Imports of Small Arms and Light Weapons, Their Ammunition, and Conventional Weapons, 2001–12.' Unpublished background paper. Geneva: Small Arms Survey.
- Gramizzi, Claudio. 2013. *At an Impasse: The Conflict in Blue Nile*. HSBA Working Paper No. 31. Geneva: Small Arms Survey. December.
- , Mike Lewis, and Jérôme Tubiana. 2012. 'Letter Dated 24 January 2011 from Former Members of the Panel of Experts on the Sudan Established Pursuant to Resolution 1591 (2005) and Renewed Pursuant to Resolution 1954 (2010) Addressed to the Chairman of the Security Council Committee Established Pursuant to Resolution 1591 (2005) Concerning the Sudan.' *Africa Confidential*. 13 April. <<http://bit.ly/1jpkqp>>
- and Jérôme Tubiana. 2013. *New War, Old Enemies: Conflict Dynamics in South Kordofan*. HSBA Working Paper No. 29. Geneva: Small Arms Survey. March.
- Human Rights Watch. 1998. *Global Trade, Local Impact: Arms Transfers to All Sides in the Civil War in Sudan*. August. <<http://www.hrw.org/legacy/reports/reports98/sudan/>>
- Jane's. 2002. *Jane's Infantry Weapons 2003–2004*. Coulsdon: Jane's Information Group.
- Jenzen-Jones, Nic. 2013. *The Identification of Small Arms, Light Weapons, and Associated Ammunition: An Introductory Guide*. Unpublished HSBA Workshop Training Manual. Geneva: Small Arms Survey.
- Leff, Jonah and Emile LeBrun. 2014. *Following the Thread: Tracing Arms and Ammunition in Sudan and South Sudan*. HSBA Working Paper No. 32. Geneva: Small Arms Survey.

- Lewis, Mike. 2009. *Skirting the Law: Sudan's Post-CPA Arms Flows*. HSBA Working Paper No. 18. Geneva: Small Arms Survey. September.
- MIC (Military Industry Corporation). n.d.a. 'Products.' <<http://www.mic.sd/index/en/products>>
- n.d.b. 'About.' <<http://www.mic.sd/index/en/about>>
- n.d.c. 'Ammunitions.' <<http://www.mic.sd/index/en/products/ammunitions>>
- n.d.d. 'Small Arms.' <<http://www.mic.sd/index/en/products/smallarms>>
- OCHA (United Nations Office for the Coordination of Humanitarian Affairs). 2013. 'United Nations Grants Sudan \$10 Million from the Central Emergency Response Fund.' Press release. 28 August. <<http://staging-01.unocha.org/cerf/node/1480>>
- Raheel, Ibrahim. 2012. 'MIC Profile [in Arabic].' *Alintibaba*. 25 October. <<http://bit.ly/12uZqfM>>
- Reuters. 2012. 'Obama Lifts Ban on U.S. Defense Exports to South Sudan.' 6 January.
- Saria Industrial Complex. n.d. 'Saria Industrial Complex [in Arabic].' <<http://saria.sd/site/shoes/index.htm>>
- Siri, Mustafa. 2013. 'Sudanese Forces Begin to Use Sophisticated Rocket and Technical Expertise from Iran and China [in Arabic].' *Asbarq Al-Ausat*. 9 May. <<http://www.aawsat.com/details.asp?section=4&article=727825&issue=12581=UgzC76zhfvA>>
- Small Arms Survey. 2009. *Supply and Demand: Arms Flows and Holdings in Sudan*. HSBA Issue Brief No. 15. Geneva: Small Arms Survey. December.
- 2012a. *Reaching for the Gun: Arms Flows and Holdings in South Sudan*. HSBA Issue Brief No. 19. Geneva: Small Arms Survey. April.
- 2012b. *Business as Usual: Arms Flows to Darfur, 2009–12*. HSBA Issue Brief No. 20. Geneva: Small Arms Survey. September.
- 2012c. *My Neighbour, My Enemy: Inter-tribal Violence in Jonglei*. HSBA Issue Brief No. 19. Geneva: Small Arms Survey. October.
- 2012d. 'White Army Arms and Ammunition.' HSBA Tracing Desk Report. 22 March. <<http://www.smallarmssurveysudan.org/fileadmin/docs/facts-figures/arms-ammunition-tracing-desk/HSBA-white-army-arms-ammunition.pdf>>
- 2013a. 'Weapons in Service with David Yau Yau's Militia, Jonglei State, February 2013.' HSBA Tracing Desk Report. April 2013. <<http://www.smallarmssurveysudan.org/fileadmin/docs/facts-figures/arms-ammunition-tracing-desk/HSBA-Tracing-Desk-Yau-Yau-April-2013.pdf>>
- 2013b. *Pendulum Swings: The Rise and Fall of Insurgent Militias in South Sudan*. HSBA Issue Brief No. 22. Geneva: Small Arms Survey. November.
- n.d.a. 'Human Security Baseline Assessment for Sudan and South Sudan.' <www.smallarmssurveysudan.org>
- n.d.b. 'HSBA Arms and Ammunition Tracing Desk.' <<http://www.smallarmssurveysudan.org/facts-figures/arms-and-ammunition-tracing-desk.html>>
- Sudan Tribune*. 2007a. 'Sudanese Minister Visits Iranian Military Airplane Complex.' 17 January.
- 2007b. 'Iran Offers to Train and Equip Sudan's Army.' 9 January.
- Tubiana, Jérôme. 2011. *Renouncing the Rebels: Local and Regional Dimensions of Chad–Sudan Rapprochement*. HSBA Working Paper 25. Geneva: Small Arms Survey.
- UNGA (United Nations General Assembly). 2013. Arms Trade Treaty. 'Certified true copy (XXVI-8).' May. <https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVI-8&chapter=26&lang=en>
- UNSC (United Nations Security Council). 2004. Resolution 1556. S/RES/1556 of 30 July.
- 2005. Resolution 1591. S/RES/1591 of 29 March.
- 2009. *Report of the Panel of Experts Established Pursuant to Resolution 1591 (2005)*. S/2009/562 of 29 October 2009.
- 2011a. *Report of the Panel of Experts Established Pursuant to Resolution 1591 (2005)*. S/2011/111 of 8 March 2011.
- 2011b. *Report of the Monitoring Group on Somalia and Eritrea Submitted in Accordance with Resolution 1916 (2010)*. S/2011/433 of 18 July.
- 2013a. *Report of the Monitoring Group on Somalia and Eritrea Pursuant to Security Council Resolution 2060 (2012): Somalia*. S/2013/413 of 12 July.
- 2013b. *Midterm Report of the Group of Experts on Côte d'Ivoire Pursuant to Paragraph 19 of Security Council Resolution 2101 (2013)*. S/2013/605 of 14 October.
- White House. 2012. 'Presidential Memorandum—Presidential Determination on the Eligibility of South Sudan to Receive Defense Articles and Defense Services.' 6 January.

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