

Business as usual

Arms flows to Darfur 2009-12

Introduction

After nine years of rebellion, proxy arming, and shifting alignments between the Government of Sudan (GoS) and both Arab and non-Arab populations in the region, the Darfur conflict appears little closer to resolution than it did in 2003.¹ Successive mediation efforts—in Abuja (2006), Tripoli (2007), and Doha (2009–12), among other initiatives—have not bridged the gaps between Khartoum and the multiplicity of Darfur armed opposition groups. In fact, although some parts of Darfur have become appreciably more peaceful, the last 18 months has witnessed an evolution of the conflict as a whole. Over this period, ground fighting and aerial bombardment reappeared across eastern Darfur, and sporadic airstrikes and fighting involving both regular Sudanese army units and tribal-based militias have spilled over South Darfur into the Western and Northern Bahr al Ghazal borderlands of South Sudan. At the same time, significant non-Arab groups have entered the conflict as part of the paramilitary Popular Defence Force (PDF) militias (*al-diffa al-shabi*), while Darfur rebel groups have built connections to intra-Sudanese conflicts elsewhere, particularly in South Kordofan and elsewhere along the eastern part of the Sudan–South Sudan borderlands.

An essential enabling factor in the ongoing violence is the steady and demonstrable flow of military resources, especially small arms and light weapons and their ammunition, into Darfur despite international sanctions designed to prohibit this supply. It is clear that the UN arms embargo on Darfur has not had the intended effect on the ground.

This *Issue Brief* draws on fieldwork conducted in 2011–12 in Darfur, South Sudan, and South Kordofan, and on reports to the Sudan Committee of the UN Security Council by the UN Panel of Experts on the Sudan and their former members. It reviews arms supplies and arms use in Darfur since 2009, when the Small Arms Survey last reviewed Sudanese arms stocks and flows.² It finds that:

- The primary types of weapons and munitions used on all sides of the conflict have remained consistent since 2009, with more recently manufactured versions of the same small arms and light weapons systems and ammunition types appearing through 2012. This confirms the view that arms initially supplied to the Sudan Armed Forces (SAF), in violation of the embargo, remain the major source of supply for all sides of the conflict.
- SAF and allied militias in Darfur continue to acquire newly made Chinese-manufactured small arms and light weapons ammunition less than 12 months after manufacture.
- Despite the ample evidence since 2008 that Chinese-origin weapons were being illegally retransferred into Darfur in violation of end-user undertakings and the UN embargo, the same supplier appears to have secured new contracts for arms supplies to Sudan in 2008 and 2010.
- Familiar patterns of small arms and light weapons ammunition flows to Darfur have, since mid-2011, been replicated to SAF in Blue Nile and South Kordofan (Sudan) and to non-state armed groups in Greater Upper Nile (South Sudan), fuelling the conflicts in those areas.

- Empirical weapons identification techniques indicate that Sudanese Air Force assets stationed in Darfur may be directly responsible for attacks in South Sudan in 2011 and 2012, corroborating other evidence that SAF efforts to target Darfurian rebels has spilled over into Northern and Western Bahr Ghazal states since 2010.
- There is little concrete evidence of significant arms inflows from Libya's Ghaddafi-era arsenals into Darfur in the aftermath of the 2011 Libya conflict, though the Justice and Equality Movement (JEM) and possibly Sudan Liberation Army-Minni Minawi (SLA-MM) did acquire materiel from Libya during 2011.

The evolution of the Darfur conflict and the role of arms

Conflict dynamics

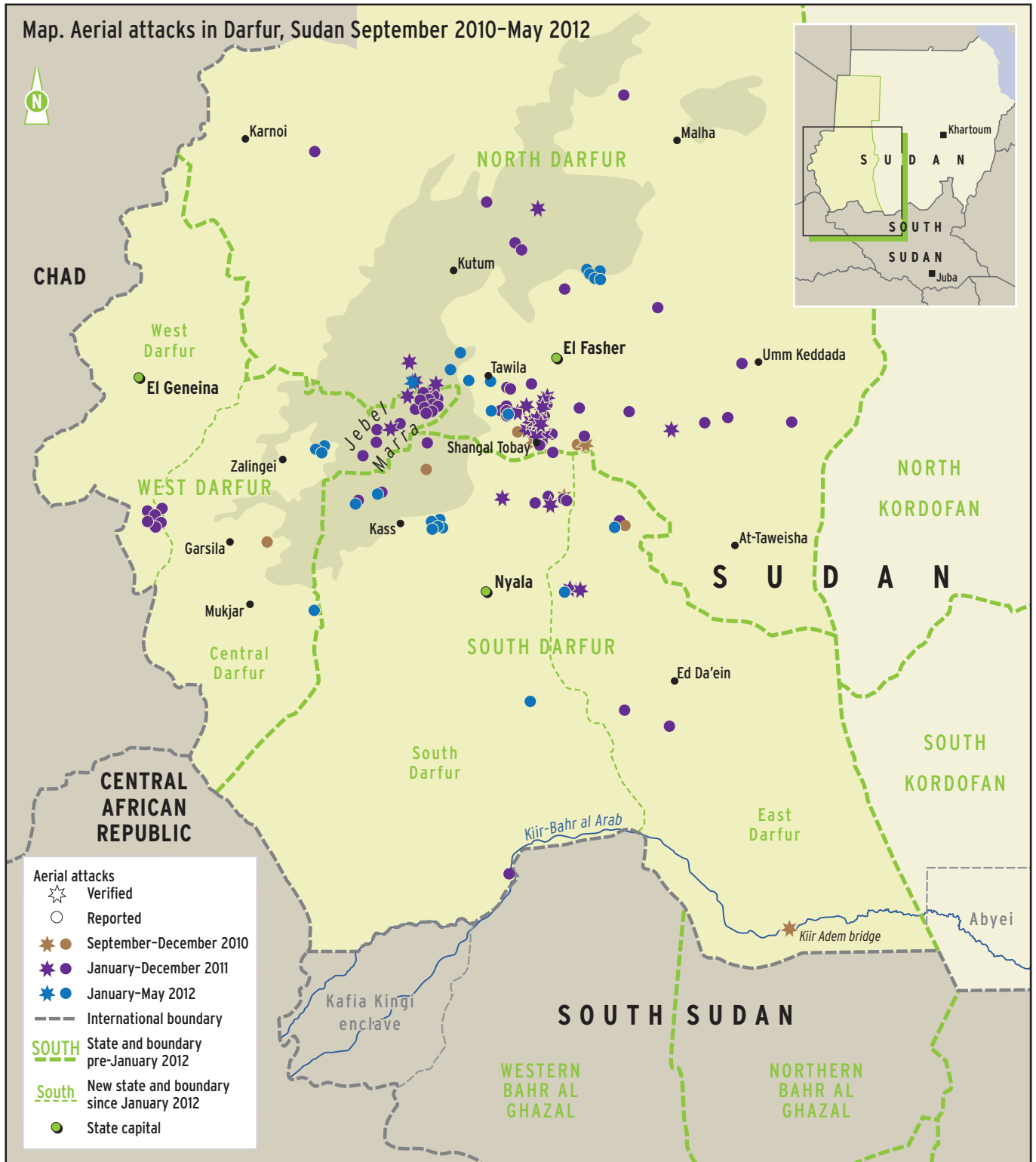
Since late 2010, the internal and external dynamics of the Darfur conflict, including its geography and levels of violence, and the relation of the Darfur rebels to other intra-Sudanese conflicts, have evolved considerably.

Internal dynamics. In December 2010 the Darfur conflict entered a new phase initiated by the return to armed opposition of the only rebel group to have signed the 2006 Darfur Peace Agreement, SLA-MM. Minawi rejoined the insurgency after his position as special assistant to President Bashir, which entailed little real authority or power, was not renewed, and after the government insisted he integrate his forces into SAF.³ Following a visit by Governor Osman Mohamed Yusif Kibir to

Dar-es-Salam and Shangal Tobay in eastern Darfur to compel SLA-MM integration, SLA-MM personnel attacked the governor's convoy near Shangal Tobay and then entered and looted the town. In retaliation, the Sudanese government and the North Darfur governor launched a heavy offensive against SLA-MM and allied SLA-Justice posi-

tions in the area. The counter-insurgency soon evolved into ethnically-directed attacks on the Zaghawa population perceived to be supporting the rebellion (SLA-MM is primarily a Zaghawa group), with the government arming new non-Zaghawa militia units against them. From March to June 2011, this ethnic violence, accompanied by indis-

criminate aerial SAF bombardment, precipitated the flight of some 70,000 civilians from eastern Darfur—the largest displacement since the most intense wave of violence in 2003–05.⁴ The anti-Zaghawa violence led, in turn, to retaliatory acts by Zaghawa against the new PDF units as well as civilians.



This Small Arms Survey-generated map is based on a dataset of air attack incidents from September 2010—the start of the Sudanese Armed Forces' renewed offensive in eastern Darfur—to May 2012. This dataset has been compiled from incidents reported by UN, non-governmental, and private sources, either corroborated by credible sources or physically verified. It does not include air attacks in Western Bahr al Ghazal (South Sudan) close to the border with South Darfur which arguably form part of the Darfur conflict but are not within the state boundaries of Darfur.

Partly as a result of the government's offensive, a rapprochement emerged between the long-estranged SLA-MM and the Fur-dominated SLA-Abdul Wahid (SLA-AW), as well as with JEM. Ultimately, this paved the way for the unification of these three rebel groups with SPLM-North (SPLM-N) under the banner of the Sudan Revolutionary Front (SRF) alliance in November 2011. The SRF has national aspirations to overthrow the National Congress Party (NCP) and rejects the Doha peace process, though the Darfur groups in the SRF have pledged not to attack the signatories to the Doha Document for Peace in Darfur.

External dynamics. Since its initial phases, the conflict in Darfur has been connected to the wider region—involving political influence and military support to proxy forces from three of Darfur's neighbours (Chad, Libya, and South Sudan). This regional context has changed dramatically between 2010 and 2012, with political upheaval or rapprochement in each neighbouring state affecting established supply lines to Darfur rebel groups. Darfur is no longer the scene of a proxy conflict between Chad and Sudan,⁵ but since 2010 the conflict and actors have pushed beyond the confines of Darfur in ways previously not seen. Most notably:

- Since mid-2011 JEM has become increasingly engaged in fighting outside Darfur's borders, in South Kordofan and in contested parts of neighbouring Unity state in South Sudan.⁶ JEM's growing extra-Darfur activities and the formation of the SRF alliance now provide a common forum for rebellions both in Darfur and in other disputed areas of Sudan.
- SAF and Sudan People's Liberation Army (SPLA) occupations in contested parts of the borderlands between South Darfur and South Sudan have led to largely unreported ground clashes and airstrikes in the northern parts of Western Bahr al Ghazal since late 2010. This is discussed further below.

The combination of internal and external change has shifted the geography of the conflict from west to east. Parts of West Darfur, formerly an epi-

centre of fighting near and across the Chadian border during 2006–09, have become comparatively peaceful. By contrast, eastern Darfur has seen the most significant ethnic violence and displacement since the conflict's early phases.⁷

Despite these new dynamics, key tactics of the conflict endure: high-altitude aerial bombardment and ground-attack airstrikes. Their targets have included small but stubborn pockets of remaining rebel-held territory, particularly areas still held by SLA-AW elements in the massif of Jebel Marra in West Darfur and around Jebel Meidob in North Darfur; and mobile rebel groups in various parts of South, East, and North Darfur, as well as settlements perceived to be supporting them. The Map shows reported and verified instances of aerial bombardment and airstrikes from September 2010 through May 2012.

Major arms vectors

Between 2005 and 2011, arms moved into Darfur from the wider region along three primary known vectors:⁸ (a) arms originating in Libyan govern-

ment stockpiles, particularly supplied to JEM and SLA-MM, reportedly via Libyan security officials; (b) arms originating in the stockpiles of the Chadian Armed Forces, provided either officially or through the collusion of Chadian army officers to JEM and other rebel groups moving between eastern Chad and western Darfur; and (c) the SAF domestic supply chain, furnishing weapons to SAF forces in Darfur and also reaching non-state armed actors on all sides through direct supply, theft, and battlefield capture. Additional claims that Eritrea has supplied weapons to JEM have not been verified,⁹ though the group has maintained a small rear base in western Eritrea for several years.

Political change within Chad and Libya during 2010–11 has significantly diminished the first two vectors, but the SAF supply chain continues to bring weapons and ammunition into Darfur despite the Darfur sanctions regime, initiated in 2004 and expanded in 2005, 2006, and 2010 (see Box 1).

Chad. The flow of weapons from Chadian government stockpiles into

Box 1 The UN sanctions regime

In July 2004, in response to an international outcry over the humanitarian impact of the Darfur conflict, the UN Security Council adopted Resolution 1556. The resolution demanded that the GoS 'fulfil its commitments to disarm the Janjaweed militias' and established a ban on supplies of arms and related materiel to 'non-governmental entities and individuals, including the Janjaweed' operating in North, South, and West Darfur.¹⁰ 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.

In the absence of tangible security improvements in Darfur, the Security Council reshaped the sanctions regime in March 2005 by adopting Resolution 1591, which extended the arms embargo and the ban on military assistance to all parties to the N'Djamena Ceasefire Agreement¹¹—thus including the Sudanese national security forces—and any other belligerents operating in the three states of Darfur. This resolution also established a Sanctions Committee with a mandate to monitor the implementation of the sanctions regime, to designate individuals to be subject to targeted sanctions, to consider requests submitted by the GoS for movement of military equipment and supplies to Darfur,¹² and to appoint a Panel of Experts to assist the Committee's work. Resolution 1591 also established a prohibition on offensive military flights in and over the Darfur states.¹³

In parallel, the Council of the European Union (EU) integrated the UN sanctions—and, in particular, its exemptions on assistance and supplies provided in support of the implementation of the 2005 Comprehensive Peace Agreement (CPA)—to its existing regime of restrictive measures on Sudan, which had first been imposed in March 1994.¹⁴ The EU embargo, however, covers the entirety of Sudanese territory rather than just the Darfur states.¹⁵

In April 2006, the Security Council slightly enlarged the scope of the sanctions regime, while also adopting targeted sanctions—a travel ban and the freezing of personal assets held outside Sudan—against four individuals.¹⁶ After the establishment of this initial list of individual sanctions, the architecture of the regime remained unchanged until October 2010. In response to robust evidence that weapons supplied lawfully to Khartoum were being moved with impunity into Darfur, Resolution 1945 introduced a requirement for states to seek end-user documentation for all arms exported to the whole of Sudan; this measure was designed to prevent their deployment in contravention of resolutions 1556 and 1591.¹⁷ It was adopted unanimously with one abstention (China), on 14 October 2010.

Source: adapted from Tubiana and Gramizzi (2012, p. 41).

Darfur appears to have largely dried up following the 2010 rapprochement between the governments of Sudan and Chad,¹⁸ and with the deployment of a joint Sudanese-Chadian force along the border between western Darfur and north-eastern Chad. While this border may not be effectively patrolled—JEM fighters and vehicles, for example, crossed the border twice in August 2011 to extract Khalil Ibrahim from Libya—the political repercussions of the rapprochement appear to have curtailed Darfuran groups' sponsors within the Chadian security apparatus, at least for the time being.¹⁹ Prior to 2010, Chadian-sourced arms and ammunition held by Darfur armed groups included Israeli- and Serbian-manufactured 5.56×45mm ammunition supplied by Israeli companies to the Chadian armed forces, and Israeli-made Tavor and Galil assault rifles. These have not been documented by the UN Panel of Experts on the Sudan since 2010.²⁰

Libya. The countrywide uprising in Libya, which began in February 2011 and led to the removal of the Gaddafi regime by October, appears to have ended the government-sponsored flow of weapons from Libya to Darfur rebels. While the unstable security situation and unsecured weapons stockpiles in southern Libya may have facilitated the movement of some weapons with JEM personnel returning from Libya, there is no concrete evidence of major new flows of Libyan-sourced weapons into Darfur or other parts of Sudan since early 2011. The Belgian 106mm recoilless rifle ammunition and Spanish 106mm M40A2 recoilless rifles traced to Libyan state stockpiles that the UN Panels of Experts on the Sudan previously documented in Darfur have not been reported since 2010.²¹

The apparent absence of significant Libyan arms flows into Darfur contrasts strongly with verified arms flows from Libya to North and West Africa, including verified interdictions of armed convoys and a shipment of smuggled military explosives in Niger in 2011,²² and strong indications of Libyan weapons being acquired by the Azawad National Liberation Movement in northern Mali in 2011–12.²³

Indeed, the flow of weapons between Libya and Sudan appears to have

reversed during 2011: with the rapid development of military ties between Khartoum and the Libyan National Transitional Council (NTC),²⁴ there have been unverified but consistent reports of SAF presence in Kufrah in south-eastern Libya, north of the border with North Darfur, from where several Darfuran rebel groups claim SAF convoys have moved back to Dongola in northern Sudan.²⁵ NTC defence ministry officials in Benghazi confirmed to the UN Panel of Experts on Libya that Kufrah provided a staging post for Sudanese supplies of small arms and light weapons and other materiel to NTC forces during 2011, including supplies transported on two Ilyushin-76 cargo aircraft flying from Sudan to Kufrah and also directly to Benghazi.²⁶

The strongest accounts of Libyan arms flows *into* Darfur come from JEM personnel. Three senior JEM members, one of whom directly participated in the extraction of late JEM leader Khalil Ibrahim from Libya into Darfur on 28 August 2011, separately stated that during this operation, which took place via the Sudan–Libya–Chad tri-border area, the JEM convoy of around 150 vehicles acquired some materiel found opportunistically along its route.²⁷ Those opportunities were reportedly limited by the need to avoid Libyan military facilities during Khalil's extraction. Foreign diplomatic sources and Darfur rebels have also made unconfirmed claims that SLA-MM brought materiel from the Libyan stockpiles into Darfur in early 2011, which SLA-MM representatives deny.²⁸

South Sudan. The rapprochement between Sudan and Chad coincided with renewed claims by the GoS that the SPLA was providing support to Darfur rebel forces, particularly across the border between South Darfur and Northern/Western Bahr al Ghazal.²⁹ Small groups of Darfur rebels have indeed been present in these areas of South Sudan since 2010, with informal links to SPLA forces there. But the SPLA's relationship with them has remained ambivalent, and there is still no concrete evidence of the SPLA providing significant weaponry, vehicles, or other material support.³⁰

Nevertheless, military coordination between JEM, SPLM-N, and SPLA forces

emerged in 2011 and early 2012, building on JEM recruitment in the Nuba Mountains since before the start of the South Kordofan conflict. Smaller sections of JEM and SPLM-N Missiriya fighters fought in Meram and Kharasana in southern South Kordofan from July 2011 onwards. More numerous JEM forces joined them further east in the borderlands of South Kordofan and Unity state alongside SPLA and SPLM-N forces from early 2012, including in the disputed area of Jaw in February 2012, and in the Heglig area during the SPLA's short occupation in April 2012.³¹ JEM's significant and growing presence in South Kordofan and Unity has afforded them the opportunity to seize SAF vehicles and weapons.³²

With limited—if any—material support from South Sudan, and arms flows from Libya and Chad drying up, the importance of SAF as a source of materiel for Darfur's fragmented rebel groups has only increased in recent years. Rebel group members from all sides have asserted that battlefield capture of SAF weapons, along with weapons and vehicles supplied by the GoS to SLA-MM prior to its return to rebellion in December 2010, are now their main supply source.³³ It is difficult to confirm these claims without systematic access to rebel group arms holdings, but it is notable that the arms and ammunition that previously exemplified Chadian- or Libyan-origin supply are no longer being identified in Darfur rebels' arms holdings.

At the same time, ammunition located at the site of fighting between government-aligned and rebel forces since 2010 has almost exclusively matched that previously identified in the hands of SAF forces.³⁴ In short, all sides in Darfur now appear to be fighting with substantially the same ammunition for their small arms and light weapons, with SAF as the critical vector for the resupply of these 'consumables'.

SAF arms: stocks, supplies, and sources

Since 2009 SAF's 'suite' of equipment in Darfur appears to have remained fairly constant, characterized by:

An ubiquitous set of logistical platforms including MAN 4×4 trucks, Dong Feng 4×4 trucks, and Toyota Land Cruiser vehicles; generally mounted with 12.7mm × 108mm ('Dushka') machine guns, 14.5mm and 23mm anti-aircraft guns/cannons, 107mm rocket launchers, SPG9-type 73mm, or B10-type 82mm recoilless rifles.³⁵

Mainly Soviet-bloc-calibre small arms and light weapons, including AK-type (7.62×39mm calibre) assault rifles, particularly Chinese-manufactured Type 56 variants; SMG-type (7.62×54mm calibre) general-purpose machine guns; RPG-2 and RPG-7 grenade launchers; and 60mm, 82mm, or 120mm mortars.³⁶ The only small arms and light weapons of identifiable recent manufacture in SAF stocks are Chinese-manufactured QLZ87 35mm automatic grenade launchers, a comparatively new weapon first shown publicly by Chinese arms companies in 2003³⁷ and identified with Khartoum-aligned armed groups since 2006,³⁸ ammunition for which was identified by the UN Panel of Experts in Tukumare village in North Darfur in May 2011, marked with a 2007 manufacture date.³⁹

This relatively low-tech suite of equipment reflects the mobile, vehicle-based, small-group fighting used by both SAF and rebel groups to operate across Darfur's large desert expanses: a distinctive Darfurian/Chadian form of war, reproducing the 'Toyota War' tactics of the Chad-Libya conflict during the 1980s.⁴⁰ This symmetry of tactics and equipment on both sides of the Darfur conflict (with the obvious exceptions of SAF's armoured vehicles and aircraft, described below) helps explain why SAF equipment has been so easily appropriated by rebel groups, whose inventories have increasingly come to mirror those of SAF.

This state of affairs may also partly explain the persistent military stalemate in the conflict. Following significant territorial gains by the government in 2010, particularly in North and West Darfur, SAF has remained unable to stop highly mobile rebel forces moving within the remote triangles of Kordofan/South Sudan/South Darfur and southern Libya/eastern Chad/North Darfur, or to dislodge them decisively from their small remaining territorial

strongholds—particularly areas held by SLA-AW in Jebel Marra in the centre of Darfur and Jebel Meidob in North Darfur.⁴¹

SAF also continues to provide offensive air support to its ground operations and those of allied militias. Air support is provided by three relatively unsophisticated aircraft types, operating from Darfur's three main airports at El Fasher, El Geneina, and Nyala, and all resupplied since 2009:⁴²

- **Mi-24 attack helicopters.** Photographic evidence from the Russian Federation, and reported sightings in Khartoum and Darfur, suggest that a newer batch of Mi-24s was transferred from the Russian Federation to Sudan during 2011.⁴³ The sequence of tail numbers (applied prior to export) of the Mi-24s observed in Darfur suggest that some of the newest arrivals have already been moved into Darfur during 2012.⁴⁴

- **Antonov-26 and Antonov-32 transport aircraft.** These are used in imprecise, high-altitude raids to drop predominantly 'craft-produced' unguided bombs rolled from the loading ramp of the aircraft.⁴⁵ Supplies of Antonov-26 aircraft to SAF have continued since 2009: according to a report by former members of the UN Panel of Experts, two additional An-26 aircraft now operated by SAF (one in Darfur) were delivered from Ukraine to Sudan in November 2009 and February 2010, operated by the Ukrainian aviation company Meridian and owned by a Greek-registered company, Asterias Commercial S.A.⁴⁶

- **Ground attack fighter aircraft.** In January 2007 SAF deployed Chinese-manufactured Fantan-A5 ground attack aircraft into Darfur.⁴⁷ Since 2010 these have been replaced by Su-25 ground attack aircraft, supplied to Sudan by the Government of Belarus between 2008 and 2010.⁴⁸ Although technically capable of guided weaponry, SAF's Su-25s are equipped primarily with basic unguided air-to-ground rockets. In 2011, the UN Panel documented these aircraft fitted with wide 'area effect' weapons, such as thermo-

baric 'fuel-air' rocket variants designed to produce an extensive pressure wave destroying people and vehicles, and flechette variants designed to kill and injure over a wide area by disseminating a wide cloud of metal darts.⁴⁹

Without targeted weapons or tactics, the use of these aircraft—particularly high-altitude Antonov bombing—has tended to harass the movements of rebel forces and cause civilian displacement rather than decisively inhibiting rebel activities.⁵⁰ This is arguably a tactical choice: SAF's air inventory does contain more sophisticated aircraft capable of precision ground targeting, including the nine MiG-29 fighter aircraft acquired from the Russian Federation in 2004, but these are not routinely based or used in Darfur, and were first documented photographically in Darfur at Nyala airport only in December 2011 (MiG-29 tail number '612').⁵¹

As well as resupplies of major weapons platforms like military aircraft, since 2008 SAF has also received a continuous resupply of fresh 'consumables', such as munitions and ammunition, from outside Darfur. The most striking evidence for this resupply is the persistent appearance of small arms and light weapons ammunition in Darfur manufactured since the imposition of the embargo in 2005. Since 2009 UN panels have noted increasingly newer ammunition in the hands of both state and non-state actors in Darfur, manufactured less than 12 months before its discovery on the ground (Table 1). Similar ammunition types, with similar factory codes—all consistent with Chinese manufacture—have also reappeared with successively more recent manufacture dates, suggesting consistency of supply sources since 2009.

International and domestic flows

The routes taken by foreign-made small arms and light weapons ammunition into Darfur are almost always difficult to verify, but identification and tracing methods developed and employed by the Small Arms Survey,

Table 1 **Recently manufactured ammunition identified in Darfur by the UN Panel of Experts on Sudan**

Year of manufacture	Year found in Darfur			
	2008	2009	2010	2011
2000	12.7x108mm Chinese	12.7x108mm Chinese		
2001	7.62x54R Chinese	7.62x39mm origin not reported 7.62x54mm Chinese		7.62x54R Chinese
2003				7.62x39mm Sudanese
2004				7.62x39mm Sudanese
2006	5.56x45mm Serbian 7.62x54R Chinese 12.7x108 mm Chinese	12.7x108mm Chinese	5.56x45mm Israeli 7.62x39mm Chinese 7.62x51mm Sudanese 7.62x54R Chinese 12.7x108mm Chinese	7.62x54R Chinese
2007	7.62x54mm Chinese 12.7x108mm Chinese	7.62x54R Chinese 12.7x108 Chinese	5.56x45mm Israeli 7.62x39mm Chinese 7.62x39mm Sudanese 7.62x54R Chinese 12.7x108mm Chinese	7.62x39mm Chinese 12.7x108mm Chinese
2008			7.62x39mm Chinese 7.62x39mm Sudanese 7.62x54R Sudanese	7.62x39mm Chinese 7.62x54R Chinese
2009			7.62x39mm Chinese 7.62x54R Chinese	12.7x108mm Chinese
2010				12.7x108mm Chinese

Notes: Entries in black indicate ammunition found in the possession of actors from all sides, but matching those identified in SAF possession. Entries in red indicate ammunition found in the possession of non-state actors that do not match those identified in SAF possession. No ammunition manufactured in 2002 or 2005 has been identified in Darfur over the period.

Sources: UNSC (2008, paras. 197-231); UNSC (2009, paras. 138-47); UNSC (2011, paras. 48-53); *Africa Confidential* (2012, paras. 44-56; Annexes I-IV).

various UN panels and others, are helping to clarify the picture.⁵² These techniques involve close examination of weapons and ammunition recovered from battles or displayed after capture, matching of weapon and ammunition type, package, batch, and series numbers from different actors and locations, and tracing requests made to exporting states to illuminate the chain of custody of particular weapons shipments.

Evidence from packaging suggests that Chinese-origin weapons and ammunition are exported to at least two state-owned companies in and around Khartoum—the Sudan Technical Center (STC) in El Shagra near Khartoum and the Yarmouk Industrial Complex (YIC)—from where they have subsequently moved into Darfur by air or land. It is unclear whether STC and YIC serve simply as recipients of these Chinese-origin weapons, or whether they repackage or even assemble the Chinese-made weapons

themselves. The contract numbers on YIC- and STC-related packaging of Chinese-made weapons found in Darfur and South Kordofan are all in the same format, containing the initials of the respective Sudanese companies and the country contraction for Sudan (SU/SD), suggesting successive foreign supply contracts concluded by the same foreign supplier with these Sudanese companies⁵³ (see Figure 1). For example:

- Wooden crates for 7.62x39mm ammunition, marked 'STC' with a 2006 contract date, were documented following fighting with a SAF-supported Chadian opposition group near Abeche in eastern Chad in November 2007.⁵⁴ Identically constructed and marked wooden crates carrying 2008 and 2010 contract dates, containing boxes of Chinese-manufactured 12.7x108mm armour-piercing incendiary ammunition, have subsequently been

found in North Darfur in May 2011, and among SAF stocks captured in El Hamra, South Kordofan, in July 2011.⁵⁵

- Wooden crates similarly marked 'Yarmouk Industrial Complex' with a 2006 contract date were filmed with an 'Arab' militia led by Mohamed Hamdan Dagolo ('Hemeti') in Darfur in 2008, contained Chinese-manufactured small arms ammunition.⁵⁶ Similar wooden crates have since been found among SAF stocks in El Hamra, South Kordofan, marked with 2008 contract dates, and containing Chinese-manufactured QLZ87 35mm grenade launchers.

Sudan's international arms suppliers—including China—insist that they are not complicit in violations of the Darfur embargo since exports to Sudan authorized from their country are lawfully consigned to Khartoum along

with end-user declarations requiring that they are not moved into Darfur.⁵⁷ But ample, publicly available information since 2008 indicates that weapons from China and other international suppliers continue to be unlawfully retransferred into Darfur. Persistent violations of such end-user undertakings and the UN embargo notwithstanding, the supplier of the Chinese-made weapons identified in Darfur appears to have concluded new supply contracts in 2008 and 2010, according to the contract numbers detailed above.

Ammunition for larger weapons platforms also continues to flow to SAF in Darfur in violation of the embargo. In 2011 the UN Panel of Experts gathered 30x165mm cannon ammunition

cartridges manufactured in 2010 from the site of fighting between SAF and SLA-Justice⁵⁸ members in Tukumare (North Darfur). These appear to have been fired from a ground-based vehicle.⁵⁹ There is less conclusive evidence for the post-embargo resupply of air-delivered munitions used in Darfur, such as the S5 and S8 rockets commonly used by SAF's Mi-24 helicopters and Su-25 ground attack aircraft, which appear to be of Soviet-bloc manufacture. The lot numbers of these rockets indicate they were manufactured during the 1980s—though they could have been delivered to Sudan much more recently.⁶⁰ SAF's national stocks of such weapons have certainly been recently replenished: according to a report by members of

the UN Panel, 3,998 S8 air-to-ground rockets (suitable for use by SAF's Belarussian-supplied Su-25 aircraft, deployed in Darfur) were delivered to Khartoum from Belarus in at least three deliveries by air in January and February 2011. Shipments included S8KO high explosive variants and S8DM thermobaric variants of a type identified in use in Darfur during May 2011.⁶¹

The resupply of rockets of the kind used by SAF's Su-25 aircraft in Darfur has arguably made the continued combat operations of these aircraft possible—not only in Darfur itself but beyond its borders as conflict has spilled over into South Sudan. Sudan's primary ground attack aircraft, its Su-25s and Mi-24s, have a comparatively short range, with combat radii of about 375km and 160km respectively.⁶² Sudan's ability to move them into Darfur in defiance of the embargo, and to maintain and resupply them there, has made it possible for SAF to carry out airstrikes in neighbouring areas of South Sudan.⁶³ Significantly, S8 rockets from the same batch have been documented in SAF airstrikes both in eastern Darfur and in an airstrike next to an SPLA base in Firga, Western Bahr el Ghazal, during 2011 (see photos on p. 9).⁶⁴ The rockets used in these attacks were not only of the same type but had the same lot number. While it cannot presently be ruled out that a single lot of rockets could have been split between different Sudanese Air Force units inside and outside Darfur, it seems likely that the same Darfur-based SAF air units—whose Su-25 combat aircraft were supplied between 2008 and 2010, and moved into Darfur since 2009 in open violation of the UN arms embargo—were used in the airstrikes in both North Darfur and South Sudan. This scenario is supported by SPLA eyewitnesses of the Firga airstrike, who described the attacking SAF Su-25 aircraft coming from the direction of South Darfur.⁶⁵

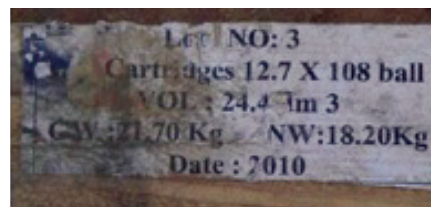
Matching S8 rockets used in airstrikes on both sides of the Darfur border thus illustrate how violations of the Darfur arms embargo have affected the security of the wider region, facilitating attacks not only within Darfur but also in South Sudan.

Although scarcely reported until this year, SAF airstrikes in South Sudan's

Figure 1 Boxes containing Chinese-manufactured arms and ammunition found in Chad, Darfur, and South Kordofan, 2007-11



(20-)06 contract date on box of 7.62x39mm ammunition (likely Chinese) captured from Chadian opposition group near Abeche, Chad, November 2007. (Source: © Sonia Rolley/AFP/Getty Images)



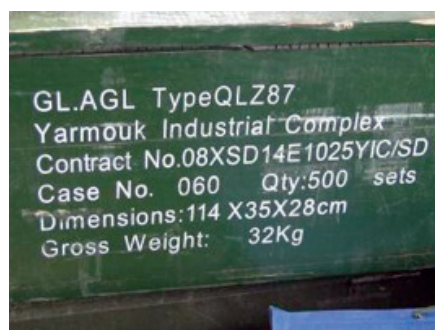
(20-)10 date on box containing Chinese-made 12.7x108mm ammunition found in Tukumare, North Darfur, May 2011. (Source: *Africa Confidential* (2012, Annexe VIII))



(20-)10 contract date on box containing Chinese-made 12.7x108mm ammunition captured from SAF at El Hamra, South Kordofan, July 2011. (Source: confidential)



(20-)08 contract date on box containing Chinese-made 12.7x108mm ammunition captured from SAF at El Hamra, South Kordofan, July 2011. (Source: confidential)



(20-)08 contract date on box containing Chinese-made QLZ-87 35mm grenade launcher, captured from SAF at El Hamra, South Kordofan, July 2011. (Source: confidential)



Older (1974-75) 7.62x39mm ammunition boxes with Chinese markings captured from SAF at El Hamra, South Kordofan, July 2011. Note same construction as newer (2008 and 2010) boxes. (Source: confidential)

Box 2 History repeated: Common SAF weapons flows to Darfur, South Kordofan, Blue Nile, and South Sudan

The evidence outlined in this *Issue Brief* indicates that Sudan's major international arms suppliers, including the Russian Federation, Belarus, and China, have continued to supply SAF with weapons despite sustained evidence that SAF is continually and unlawfully moving these weapons into Darfur. Since early 2011, many of the same types of ammunition and munitions identified in the hands of all sides in Darfur have also appeared among forces fighting in South Kordofan, Blue Nile, and South Sudan. The apparent common source, as in Darfur, is SAF stocks, used by SAF and its proxies, and captured from them by SPLM-N and JEM fighters. The commonalities between the arms and ammunition used in Darfur, South Kordofan, Blue Nile, and South Sudan show history repeating itself: the same international arms flows into Sudan that have consistently supplied the Darfur conflict over

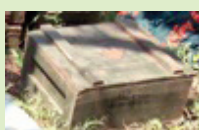
the last seven years are now supplying the larger conflicts along the Sudan-South Sudan border.⁶⁶

The tables below provide examples of these persistent commonalities. They map three distinctive types of weapons, apparently from the same manufacturer and of recent manufacture, identified repeatedly between 2006 and 2011 in the hands of SAF in Darfur, South Kordofan, and Blue Nile; among Darfur and SAF-aligned Chadian rebel groups; and among South Sudanese armed groups fighting against the SPLA. This illustrates: (i) the significance of a comparatively small number of international suppliers of weapons to Sudan, who thereby furnish weapons to all of Sudan's conflicts; and (ii) the significance of a single vector, SAF itself, in providing arms to all sides of those conflicts.

Figure 2 82mm and 120mm mortars of unconfirmed origin, but matching those advertised by Sudan's Military Industrial Corporation⁶⁷



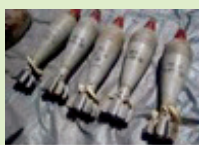
Former stockpile of Pibor Defence Forces, Jonglei, South Sudan, disarmed 2007-08



Captured SAF stocks, near Kurmuk, Blue Nile, October 2011



Captured SAF stocks, Kornoy, North Darfur, May 2009



Captured SSLA stocks from Peter Gadet's forces, Unity state, South Sudan, May 2011⁶⁸



Captured SAF stocks, South Kordofan, July 2011



Captured SAF stocks, South Kordofan, May 2012⁶⁹



Sources: Confidential sources, except photographs from Kornoy © Jérôme Tubiana.



Figure 3 35mm grenades and QLZ87 35mm grenade launchers consistent with Chinese manufacture



Observed with FUC (Chadian rebel) forces, West Darfur, 2006



Captured from SAF, South Kordofan, May 2012⁷⁰



Captured from UFR forces (then backed by GoS) in eastern Chad, May 2009



Found in Tukumare, North Darfur, May 2011



Captured from SAF, South Kordofan, 2011



Captured from SAF in El Hamra, South Kordofan, July 2011

Sources (counter clockwise): © Daniel Pepper; UNSC (2009, para. 135); *Africa Confidential* (2012, Annexe I); confidential; confidential; confidential.

Figure 4 Chinese-produced 'Factory 945' 7.62x54R machine gun ammunition, manufactured in 2009



Used by SAF in North Darfur, July 2010



Observed in use by PDF militia in North Darfur, May 2011

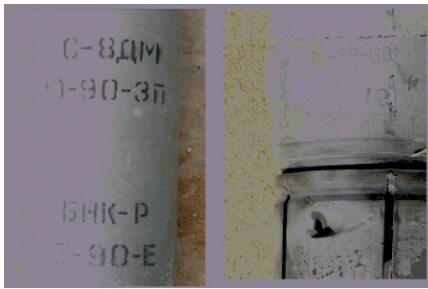


Captured from George Athor's forces in Jonglei, April 2011



Captured from SAF in El Hamra, South Kordofan, July 2011

Sources (top to bottom): UNSC (2011, para. 52); *Africa Confidential* (2012, Annexe II); Small Arms Survey (2011, p. 4); confidential.



S8 rockets observed by UN Panel of Experts in Shangal Tobay area, North Darfur, May 2011 (note lot number 86-89-68). Source: *Africa Confidential*, 2012, Annex Xl



S8 rocket from Su-25 airstrike next to SPLA base at Firga, Western Bahr el Ghazal, South Sudan, 23 February 2011 (N.B. lot number in inset photograph (86-89-68) is inverted). Source: confidential

Bahr al Ghazal states appear to have sharply increased since April 2010, when confrontations near the Western Bahr el Ghazal/South Darfur border between the SPLA and armed Rizeigat were accompanied by a wave of SAF aerial attacks as far south as Timsah, which local government officials claim left 150 people dead.⁷¹ A second wave of airstrikes in the northern part of Western Bahr al Ghazal took place between November 2010 and February 2011, including the Firga attack noted above as well as the better publicized airstrike at Kiir Adem in the South Darfur/Northern Bahr al Ghazal border area in November 2010. SAF claimed the latter was aimed at a JEM convoy moving southwards into South Sudan. Finally, a third wave of air attacks occurred in December 2011 in Western Bahr al Ghazal, mainly in areas that Sudan claimed were harbouring fighters from JEM, SLA-MM, and other Darfur rebel groups.⁷²

Military logistics into Darfur

SAF has continued to deliver equipment, personnel, and other materiel by air from Khartoum and El Obeid to the airports of Darfur's state capitals.⁷³ This Darfur air bridge is partly operated by SAF's own fleet of white Antonov 24/26/32 transport aircraft, under a mix of civilian and military registrations, some of which are also used for aerial bombing.⁷⁴ As noted above, this fleet was reportedly expanded by the new acquisition of two Antonov 26s from Ukraine in November 2009 and February 2010.⁷⁵

SAF's air bridge into Darfur also involves ostensibly commercial Sudanese air operators. For example, the commercial Sudanese air company

Azza Transport was identified by the UN Panel of Experts in 2007 flying into Darfur for SAF.⁷⁶ Azza's Il-76 aircraft, carrying the Sudanese civilian registration ST-AZZ, has continued to operate under a SAF military call sign not only in Sudan but elsewhere in East and West Africa during 2011. It was also photographed in El Fasher, North Darfur, in January 2012.⁷⁷

Finally, in 2011 the UN Panel reported the first known involvement of a *foreign* commercial air operator in SAF's Darfur air bridge. According to members of the UN Panel, between April and June 2011 an Il-76 operated by the Armenian air cargo company V-Berd Avia moved cargo, which reportedly included vehicles, from Khartoum and El Obeid into Darfur under a contract with the Sudanese Ministry of Defence, again flying under a Sudanese military call sign.⁷⁸ The UN Panel also reported a second foreign Il-76 offloading SAF cargo in Darfur in December 2011, but did not identify its operator.⁷⁹

SAF is also able to access the assets and services of a wider circle of commercial companies, both Sudanese and foreign, for the maintenance, servicing, and refuelling of its aerial assets.

Photographs from Nyala airport in South Darfur in late 2011 and early 2012 show SAF Antonov-26 transport aircraft and Su-25 ground attack aircraft apparently being refuelled on the airport's military apron by fuel trucks of the Malaysian state-owned oil company Petronas.⁸⁰ In response to this evidence, Petronas told the Small Arms Survey that its subsidiary 'Petronas Marketing Sudan Limited (PMSL) provides refueling services at the Nyala Airport, which is a civilian airport. The services are operated by

individuals employed by PMSL on contract basis. It must be noted, however, that the Sudan Civil Aviation Authority from time to time takes control of the operation of the services, particularly during certain situations it deems fit to do so.'⁸¹

The Ukrainian aircraft manufacturer Antonov Company has also confirmed to the Small Arms Survey that during 2010-11 it carried out work in Khartoum Airport for the 'extension of service life' of five Antonov transport aircraft, all five of whose 'tail numbers' correspond to the registrations used by the Sudanese Armed Forces.⁸² Antonov Company stated that this work was carried out on the basis of contracts with a Sudanese company, Sudan Master Technology Engineering Company, and that '[t]he Sudan Master Technology Engineering Co. produced a documented assurance stating its implicit observance of the United Nations Security Council Resolutions No.1556 . . . and No.1591 [imposing the Darfur arms embargo], as well as the fact that all airplanes which belonged to or were operated by this company never participated, and would never take part in any hostilities over the North Darfur, South Darfur, and West Darfur states.'⁸³ Three of these five Antonov aircraft (numbers 7705, 7706, and 7777) have been listed in reports from the UN Panel as being operated by SAF in Darfur.⁸⁴

Since the UN embargo does not cover the whole of Sudan, the Sudanese government has also been able to establish domestic aircraft overhaul and maintenance facilities, developed entirely lawfully over the last four years with foreign assistance. Maintenance of SAF Antonovs and Mil-type military transport helicopters is carried out at the SAFAT Aircraft Plant, which opened near Khartoum in 2006 and has reportedly been fully operational since 2009.⁸⁵ SAFAT is described by Sudan's state Military Industry Corporation (MIC) as 'one of MIC strategic projects . . . to provide the Armed Forces with the necessary warfare to enable them perform their duties' [sic].⁸⁶ According to SAFAT's general agent, a Sharjah-based aviation company called Al Amyal Aviation Services FZE (part of a UAE-based trading group called VBA Incom),⁸⁷ the plant was set up in con-

junction with the Government of Sudan and foreign companies including the Russian Federation's Novosibirsk Aircraft Repair Plant (NARP), which since 2008 has been licensed by the Russian Federation's aircraft maintenance certification authority to maintain a range of Mil-manufactured Russian transport helicopters in Khartoum.⁸⁸ Al Amyal told the Small Arms Survey that neither Al Amyal nor VBA Incom themselves 'have any relation to military aviation, aircrafts of military type, their technical service or repair. . . . Our company works only with civil aviation. All our helicopters are based on the civil ramp and are served on standards of civil aviation of Russia with use of the equipment of SAFAT and nothing more.'⁸⁹ According to an authorization letter from SAFAT, Al Amyal was also appointed as SAFAT's general agent in 2008 'in Sudan, Africa and in the Middle East' for the maintenance and overhaul of 'any kind of Russian made helicopters'.⁹⁰

Conclusion

Since 2009 all sides in the Darfur conflict have continued to gain access to military resources. The 2005 UN arms embargo has been violated openly, consistently, and without consequence. Small arms, ammunition, light weapons, and larger weapons systems have been continually moved into Darfur and used to continue the conflict in ways it was hoped the embargo would prohibit. Likewise the Sudanese government has continued to move newly acquired military aircraft into Darfur, and to use them in routine violations of the Security Council's 2005 prohibition on 'offensive military flights'.

Despite its failure—documented in successive reports of the UN Panels of Experts on Sudan as well as published evidence from the Small Arms Survey, Amnesty International, and other non-governmental sources—the arms embargo on Darfur has been only minimally altered since 2005. Its 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. The embargo's limited scope has been exacerbated by a clear lack of due diligence on the part of arms-supplying states, which since 2009 have continued to supply weapons to Khartoum—the key 'junction-box' for arms supplies to all sides in Sudan's conflicts—despite clear evidence that its end-user agreements were being continually violated. In the last five years Sudan has also been able to increase its ability to sustain and maintain the logistical and military air assets used to violate UN resolutions on Darfur, a capacity assisted, entirely lawfully, by Sudanese and foreign companies. Nor has the embargo demonstrably modified the behaviour of the parties to the conflict more generally, which continue to replicate the same tactics and technologies that have characterized the conflict since its beginning.⁹¹

The Security Council's inaction in enforcing, amending, or expanding the sanctions regime is partly due to its lack of consensus on Sudan in general, and on the sanctions' scope, legitimacy, and effectiveness in particular. But a lack of consensus alone cannot fully account for the deadlock. Equally politically sensitive sanctions regimes—such as those on Iran and North Korea—have been toughened and expanded during this time. Rather, it appears that the Darfur sanctions regime is too sensitive to reach agreement without considerable political will, particularly since two of the Security Council's five permanent members have continued to supply to Sudan arms that have been repeatedly identified in use in Darfur.

The results of this diplomatic stalemate continue to play out in Darfur and in neighbouring South Sudan. Unless action is taken to actively enforce the existing embargo or expand it to cover the whole of Sudan, the status quo is likely to continue. Arms and other military materiel will continue to flow from Khartoum's international suppliers into Darfur, ultimately replenishing the stocks of SAF, its proxies, and Darfur rebel forces. As those forces are now engaged in the wider conflict outside Darfur along Sudan's contested southern border, the current sanctions and enforcement regime appears ever more inadequate. ■

Notes

This Issue Brief is based on fieldwork conducted in the South Sudan/Darfur and Unity/South Kordofan border areas between November 2011 and February 2012; desk research; and interviews outside Sudan.

- 1 For a month-by-month account of the Darfur peace process since May 2006, see Small Arms Survey (2012b).
- 2 Small Arms Survey (2009).
- 3 Gramizzi and Tubiana (2012, pp. 13–37).
- 4 Gramizzi and Tubiana (2012, p. 24).
- 5 Tubiana (2011).
- 6 Gramizzi and Tubiana (2012, pp. 69–81).
- 7 For more on these vectors, see *Africa Confidential* (2012, paras. 11–39); Gramizzi and Tubiana (2012, pp. 13–37).
- 8 For a summary, see Lewis (2009, pp. 45–52).
- 9 Lewis (2009, p. 75, note 82).
- 10 UNSC (2004).
- 11 AU (2004).
- 12 As a result of the new provisions on arms transfers, the UN sanctions regime included possible exemptions for movement of equipment under the supervision of the Sudanese national security forces; the Sanctions Committee previously had to be notified of and to approve such transfers (UNSC, 2005a, para. 3(a)).
- 13 UNSC (2005).
- 14 CEU (1994; 2004; 2005).
- 15 CEU (2005). The EU's unilateral measures against the whole of Sudan are similar to those unilaterally imposed by the United States in 1997 and renewed in 2011 (US, 1997).
- 16 UNSC (2006).
- 17 UNSC (2010a).
- 18 Tubiana (2011).
- 19 Interviews with members of JEM and SLA-Justice, Juba and Raja, South Sudan, December 2011.
- 20 UNSC (2007, para. 82); UNSC (2008, paras. 206–25); UNSC (2011, paras. 46–54).
- 21 UNSC (2007, para. 82); UNSC (2008, paras. 206–25); UNSC (2011, paras. 46–54).
- 22 UNSC (2012b, paras. 120–26).
- 23 Nossiter (2012).
- 24 *Sudan Tribune* (2011).
- 25 Interview with member of JEM, London, 25 November 2011; interview with member of SLA-Justice, Juba, 10 December 2011; *Daily Telegraph* (2011); Reuters (2011).
- 26 UNSC (2012b, para. 105).
- 27 Interviews with three senior JEM personnel, Juba, December 2011 and February 2012. For further details, see Gramizzi and Tubiana (2012, p. 52).
- 28 Gramizzi and Tubiana (2012, p. 52).
- 29 Tubiana (2011, pp. 58–60).
- 30 Gramizzi and Tubiana (2012, pp. 61–69).
- 31 Gramizzi and Tubiana (2012, pp. 69–75).
- 32 Gramizzi and Tubiana (2012, pp. 53–54).
- 33 Interviews with members of JEM, SLA-Justice, SLA-United, SLA-MM, SLA-AW, Juba and Raja, December 2011 and February 2012.
- 34 *Africa Confidential* (2012, paras. 44–56, Annexes I–VIII).
- 35 Observations and photographs of SAF vehicles in Darfur and Western Bahr el Ghazal, various dates, 2011.
- 36 Observations and photographs from North, South, and West Darfur, various dates.

- 37 AI (2006).
- 38 AI (2006); UNSC (2009).
- 39 *Africa Confidential* (2012, Annexe I).
- 40 Interviews with representatives of SPLM-N and various Darfur movements, Juba and Raja, December 2011 and February 2012. For more on different tactics in Sudan's various conflicts, and the tensions that these tactical difficulties have created within the SRF, see Gramizzi and Tubiana (2012, pp. 69–76).
- 41 One significant exception to the balanced firepower of SAF and rebel fighting units has been the reported appearance during 2011 of armoured vehicles in combat use, particularly BTR-80A infantry fighting vehicles of a kind imported from Belarus in 2004 (AI, 2012, p. 22). Other armoured vehicles, particularly Type-55 tanks, were photographed by the UN Panel in SAF barracks in Darfur during 2009 (UNSC, 2009), but not documented in use.
- 42 UNSC (2011, pp. 29–33); UNSC (2012a); *Africa Confidential* (2012, para. 130).
- 43 AI (2012, p. 18).
- 44 AI (2012, p. 18); Dutch Aviation Society, Soviet Transport database (www.scramble.nl/sovdb.htm) queried 20 May 2012, compiling anonymized reports from aviation observers in Sudan. The sequential 'tail numbers' of Sudan's Mi-24s appears to follow their supply dates.
- 45 Numerous eyewitness reports from observers in Darfur and the Darfur/South Sudan borderlands, 2011 and 2012; observations of unexploded bombs and fragments in Northern Bahr al Ghazal/South Darfur and Unity state (South Sudan), December 2011 and February 2012.
- 46 *Africa Confidential* (2012, paras. 137–41). Requests for comments sent by the Small Arms Survey to Meridian and Asterias Commercial S.A. were unanswered at the time of publication.
- 47 UNSC (2007, paras. 84–86).
- 48 UNSC (2011, para. 81); *Africa Confidential* (2012, paras. 128–29).
- 49 *Africa Confidential* (2012, paras. 151–64). Su-25s have been photographed in Darfur carrying both B-8M1 pods for firing S-8 80mm air-to-ground rockets, and UB-32 rocket pods for firing S-5 57mm rockets (AI, 2012, p. 19).
- 50 AI (2012, pp. 9–10); *Africa Confidential* (2012, paras. 148–64).
- 51 UN Register of Conventional Armaments, report of Russian Federation for calendar year 2004; photograph reportedly taken 28 December 2011, viewed by authors.
- 52 For more on the weapons identification and tracing techniques employed by the HSBA, see <http://smallarmssurveysudan.org/facts-figures-weapons-tracing-desk.php>.
- 53 These contract numbers follow a standard pattern. For instance: the 7.62x39mm ammunition crate identified in eastern Chad in 2007 carried the contract number '06XSD14B0921STC/SU', indicating a (20-)06 contract with STC in Sudan (SU).
- 54 Lewis (2009). Photograph taken by Sonia Rolley for AFP Photo/Getty Images.
- 55 *Africa Confidential* (2012, para. 47); El Hamra photograph from private source.
- 56 Lewis (2009). Ammunition crate filmed in a vehicle operated by militia led by Mohammed Hamdan in Darfur, February 2008 (Unreported World, 2008). For details on the YIC, see Lewis (2009, p. 33).
- 57 UNSC (2011, para. 58).
- 58 SLA-Justice is a splinter group from SLA-MM, the SLA faction which previously signed the Darfur Peace Agreement in 2006 and thus retained control, with Khartoum's acquiescence, of much of eastern Darfur. SLA-Justice's main military commander, Ali Abdallah 'Carabino', was based in the Shangal Tobay area during late 2010 and early 2011. Carabino's group formed part of the Liberation and Justice Movement (LJM) coalition engaged in the Doha negotiations during this period, but SLA-Justice has since left LJM and is now negotiating to join the SRF alliance.
- 59 *Africa Confidential* (2012, para. 57 and Annexe IX).
- 60 *Africa Confidential* (2012, Annexes X–XI).
- 61 *Africa Confidential* (2012, para. 104 and Annex XIII).
- 62 Gordon and Dawes (2004).
- 63 A SAF airstrike on South Sudanese territory further east, in Rubkhona on 15 April 2012, used a longer-range MIG-29 aircraft, perhaps because, unlike the territories adjacent to Darfur, SAF airfields within Su-25s' range were not available. Photograph from private source, viewed by author.
- 64 Confidential photographs from Western Bahr el Ghazal obtained by Small Arms Survey; *Africa Confidential* (2012, Annexe XI).
- 65 Interview with SPLA military intelligence officials in Raja, South Sudan, December 2011.
- 66 For further detail on sources of weapons to armed actors in South Kordofan, Blue Nile, and in Jonglei and Upper Nile, see the tracing reports of the HSBA Arms and Ammunition Tracing Desk at <http://smallarmssurveysudan.org/facts-figures-weapons-tracing-desk.php>.
- 67 60mm mortars of the same construction and apparent origin have also been identified in Heglig, South Kordofan, reportedly seized from SAF stocks (Small Arms Survey, 2012c).
- 68 For more detail on these weapons, see Small Arms Survey (2012a).
- 69 For more detail on these weapons, see Small Arms Survey (2012d).
- 70 For more detail on these weapons, see Small Arms Survey (2012d).
- 71 Gramizzi and Tubiana (2012, p. 66).
- 72 Gramizzi and Tubiana (2012, pp. 59, 65–68).
- 73 *Africa Confidential* (2012, paras. 117–27); UNSC (2012a, para. 94).
- 74 See, for example, the case of An-32 aircraft with registration ST-EIB in *Africa Confidential* (2012, fn. 77).
- 75 *Africa Confidential* (2012, paras. 135–42).
- 76 UNSC (2007, paras. 97–103).
- 77 Email correspondence with aviation source, 6 March 2012; photograph taken 26 January 2012 in El Fasher, on file.
- 78 *Africa Confidential* (2012, paras. 117–27; Annexe XIX).
- 79 UNSC (2012a).
- 80 Photographs taken 28 December 2011 and 17 April 2012. The UN Panel of Experts has previously argued that the movement of jet fuel for military purposes into Darfur constitutes a violation of the arms embargo, and that all states are also obliged to prevent the sale and supply of military fuel by their nationals or from their territories to parties to the conflict in Darfur: UNSC (2007, Section D).
- 81 Email correspondence from Petronas to Small Arms Survey, 3 August 2012.
- 82 Letter from Antonov Company to Small Arms Survey, 2 August 2012.
- 83 Letter from Antonov Company to Small Arms Survey, 2 August 2012.
- 84 For 7706 operating in Nyala during 2011, see *Africa Confidential* (2012, para. 143 and Annexe XXVI); for 7705 and 7777 operating in Darfur during 2008, see UNSC (2008, para. 96).
- 85 *Africa Confidential* (2012, para. 145); SUNA (2009). For maintenance of SAF military-registered Antonov-26 aircraft and Mi-17 transport helicopters at SAFAT, see undated photographs at http://www.safatavia.com/english/index.php?option=com_phocagallery&view=category&id=5:transport-aircraft-maintenance-center&Itemid=85.
- 86 <http://web.archive.org/web/20081225074938/http://www.mic.sd/english/orgization.htm>; dated 2007.
- 87 <http://www.vba.ae/main/al-amyal/safat>; accessed 3 September 2012; SAC (2008).
- 88 Certificate No. 2020081043 dated 24 January 2008 and certificate appendix, on file.
- 89 Email communication from General Manager of Al Amyal Aviation Services FZE to the Small Arms Survey, 24 July 2012.
- 90 SAC (2008).
- 91 *Africa Confidential* (2012); Lynch (2012). For more detail on the functioning of the UN sanctions regime, see Gramizzi and Tubiana (2012, pp. 41–43).

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HSBA project summary

The Human Security Baseline Assessment (HSBA) for Sudan/South Sudan is a multi-year project administered by the Small Arms Survey. It was developed in cooperation with the Canadian government, the United Nations Mission in Sudan (UNMIS), the United Nations Development Programme (UNDP), and a wide array of international and Sudanese partners. Through the active generation and dissemination of timely, empirical research, the project supports violence reduction initiatives, including disarmament, demobilization, and reintegration programmes, incentive schemes for civilian arms collection, as well as security sector reform and arms control interventions across Sudan and South Sudan. The HSBA also offers policy-relevant advice on redressing insecurity.

Issue Briefs are designed to provide timely periodic snapshots of baseline information in a reader-friendly format. The HSBA also generates a series of longer and more detailed *Working Papers*. All publications are available in English and Arabic at www.smallarmssurvey.org. We also produce monthly 'Facts and Figures' reports on key security issues at <www.smallarmssurvey.org/facts-figures.php>.

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Credits

Series editor: Emile LeBrun
(emile.lebrun@smallarmssurvey.org)

Cartographer: Jillie Luff, MAPgrafx (jluff@mapgrafx.com)

Design and layout: Richard Jones (rick@studioexile.com)

Contact details

For more information or to provide feedback, contact Jonah Leff, HSBA Project Coordinator, at jonah.leff@smallarmssurvey.org

Sudan Human Security Baseline Assessment
Small Arms Survey
47 Avenue Blanc
1202 Geneva
Switzerland

t +41 22 908 5777

f +41 22 732 2738

