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Sustaining the Conflict: Ammunition for Attack
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Introduction

A regular supply of large quantities of ammunition is crucial in theatres of conflict. Ammunition is a good that cannot be used twice and it therefore needs to be resupplied constantly, unlike weapons which can be used reliably for many years before needing to be replaced.[1] An illustration of this disparity in life expectancies is that two of the *mortars* used in Liberia in 2003 by Liberians United for Reconciliation and Democracy (LURD) dated from 1973 while, in the shelling of Monrovia, Liberia, in the same year, the *mortar rounds* used by LURD were new and had been recently supplied (Human Rights Watch, 2003b, p. 18).

This chapter examines how ammunition reaches theatres of conflict, how it influences combat, and what happens to it when the fighting is over. It focuses mainly on civil conflicts and non-state armed groups, for which patterns of ammunition procurement and use are often not well documented. This study also examines the overall demand for ammunition in times of conflict, in terms of the quantity and the types of rounds that are most sought after by combatants. Patterns of ammunition use during conflict provide a better understanding of issues related to control and command and other structures inside armed groups through, for example, restrictions—or their absence—on the use of ammunition or 'shooting discipline'.

The aftermath of conflict also poses huge challenges to communities whose safety remains endangered by leftover stocks of ammunition and unexploded ordnance.

The main findings of this chapter are:

- Ammunition stockpiles are quickly exhausted during the early violent exchanges in a conflict, making constant resupply necessary. A shortage of the desired type of ammunition can, in some cases, make existing stocks of weapons unusable.
- The lack of security at existing ammunition stockpiles can fuel conflicts. Leakages are a source of procurement for armed groups and, when they occur far from a conflict zone, they are exploited by arms dealers who ship ammunition to conflict zones.
- Shortages of ammunition during a conflict are likely to impose a 'shooting discipline' on armed groups while plentiful supplies make restraint less likely and can result in abuses and violations of human rights.
- Ammunition flows in violation of embargoes or other restrictions could be tracked through their supply chain to identify nodes of diversion into the illicit sphere. There are no international standards or required norms, however, on measures such as ammunition marking, record keeping, or cooperation between states in tracing illicit ammunition.
- Failure to properly collect and destroy ammunition along with weapons increases the risk that a conflict will reignite and also contributes to potential health hazards associated with abandoned explosives.

Bringing ammunition to conflict zones
Demand

The amount of ammunition that is required on a battlefield is dependent on a number of factors. In small insurgencies that can rely on few vehicles or porters for logistic support (or that have no encampment or storage area nearby) the weight of the ammunition is an issue.

As an illustration, combatants in Mali in the early 1990s usually carried 300 rounds each if they had a machine gun, 150 rounds each if they had an assault rifle (corresponding to five or six magazines), and a maximum of two anti-tank rounds.[2] Similar figures were given by Burundian combatants from the Conseil National pour la Défense de la Démocratie—Forces pour la Défense de la Démocratie (CNDD–FDD), who carried three or four magazines of 30 rounds (usually for AK-47s).[3]

Other factors that can determine the amount of ammunition carried by combatants include:

- The amount of weapons owned by the group: if only small stocks are available, ammunition will be distributed to combatants more carefully in order to stretch supplies and ensure that those killed in combat do not provide large quantities of material to the enemy.
- The nature of the terrain: if it is difficult (e.g. hilly or wooded) combatants defending a position will usually need less ammunition than the attackers.
- The strategic position: in the case of ambushes, defenders generally need much more ammunition than attackers because it takes them some time to identify the exact location of the enemy and they will often 'spray' bullets for protection and lack of better option.[4]
- The shooters' skills and level of training: the UN Group of Experts on the Problem of Ammunition and Explosives noted in 1999 that '[a] general lack of training leading to poor accuracy and lack of fire discipline is characteristic of inexperienced combatants involved in many of the conflicts being fought around the world' (UNGA, 1999, sec. 48, p. 9). The less skilled a shooter is, the more likely he is to 'spray' at the target and waste large amounts of ammunition, depleting the group's stockpiles. Moreover, a group with limited ammunition may, in turn, be more reluctant to use it for training to improve combatants' shooting skills.

The use of ammunition for training depends on the wealth of the group or state involved and on the number of cartridges at its disposal. Until recently, the Chad Army, for instance, could only provide its soldiers with eight bullets each for basic training. For comparison, in an average US marine infantry battalion the carrier of an M249 Squad Automatic Weapon (SAW) light machine gun routinely uses up to 950 rounds per year for training purposes (Cargile, 2001, p. 27). The training ammunition capacity in Chad, however, rose to more than 700 bullets per soldier for those who benefited from a six-week joint training exercise in counter-terrorist tactics with the US Marines, a programme funded by US military aid (McLaughlin, 2004). Many non-state armed groups as well as troops from poorer countries, on the other hand, undergo virtually no training, in part because of the need to save the limited supplies of ammunition for combat.

The type of military operation undertaken can also be an important factor in the amount of ammunition needed by an armed group. Small-scale operations such as ambushes require fewer rounds of ammunition than assaults on enemy positions. In the latter case, weapons with rapid rates of fire such as machine guns are needed to cover the position of assailants. When it comes to large-scale operations, even wealthy states can encounter difficulties regarding ammunition supply. Faced with two simultaneous conflict theatres—Afghanistan and Iraq—as well as an increased training requirement, the United States found its production capacity stretched to the limit. Between 2000 and 2005, US Army requirements for small calibre ammunition increased from about 730 million rounds per year to nearly 1.8 billion rounds (US GAO, 2005, p. 9),[5] while medium calibre ammunition requirements increased from 11.7 million rounds to more than 21 million (US GAO, 2005, p. 10).[6] In spite of additional investment in the ammunition manufacturing industry by the US Department of Defense (close to USD 100 million was devoted to modernization efforts between 2000 and 2005), the military production capacity still lags behind need (US GAO, 2005, p. 3). The only government-owned production facility for small-calibre ammunition, the Lake City Army Ammunition Plant in Missouri, has already increased production from 350 million rounds per year in 2000 to 1.2 billion rounds in 2005. Yet the US Army is still short by 300 million rounds per year of the quantity required to replenish stocks and set aside strategic reserves (Pappalardo, 2005). In fiscal year (FY) 2004, the US Army purchased ammunition from Israeli, South Korean, Swedish, and US commercial ammunition producers as well as 120 million rounds from the British war reserve stocks (US GAO, 2005, p. 12; Pappalardo, 2005).

Looking at conflicts worldwide, the type of small arms ammunition in greatest demand seems to be the 7.62 x 39 mm ('Soviet') round used in AK-47-type assault rifles, the many makes of which from various producing countries represent the weapon of choice in most current conflicts in Asia and Africa. In Uganda, for instance, all combatants—from the Lord's Resistance Army (LRA), Uganda People's Defence Forces (UPDF), and the police to local defence units or even civilians—commonly use AK-47s.[7] Ammunition for RPK [Ruchnoy Pulemyot Kalashnikova] light-machine guns is also in great demand. In general, larger calibre ammunition is the most sought after by non-state armed groups

A Nigerien soldier loads ammunition into clips during a training exercise in September 2004 in Samara, Niger. Through the Trans-Sahara Counter Terrorist Initiative, US Marines are training local forces in the region to fight Al Qaeda and other terrorist groups. © Jacob Silberberg/Getty Images

and the most difficult to get because it is relatively more expensive than small arms ammunition.[8] In Mali in the early 1990s Tuareg combatants sought to acquire mortar and anti-tank rounds but with little success—partly because even the Malian government was experiencing a shortage and the chances of recovering some on the battlefield or stealing some from government stock-piles were therefore quite low.[9]

The availability of ammunition can also have an impact on a group's choice of weapons: in Papua New Guinea, NATO-standard (5.56 x 45 mm and 7.62 x 51 mm) calibre ammunition can easily be found locally, while other types of ammunition must be obtained from abroad and are difficult to import. Com-batants therefore use mainly NATO-type ammunition and the corresponding weapons, in stark contrast to neighbouring Asian countries where Kalashnikov derivatives using 7.62 x 39 mm ammunition are most often used (Alpers, 2005, p. 75). There is strong anecdotal evidence to show that ammunition availability governs the types of weapons most often used—and in some cases leads to weapons being discarded even if they are in perfect working order. In Mindanao

(Philippines), **7.62** x **39** mm rounds were in short supply, leading Moro National Liberation Front (MNLF) combatants to gradually discard their AK-47s (Davis, **2003**). In Burundi, armed groups fighting the government army were able to seize a number of Belgian FAL rifles, but these weapons proved useless because the corresponding ammunition was almost impossible to find. These were the rifles handed in first to authorities during the ensuing disarmament, demobilization, and reintegration (DDR) process.[10] In Kenya, researchers found that although G-3 rifles were more expensive than AK-47s, they were nonetheless preferred—partly because the ammunition was easier to find, possibly because it is the weapon commonly carried by the Kenyan security forces (Human Rights Watch, **2002**, p. **11**).

Supply

In **2003**, the UN Panel of Experts on Somalia noted that '[s]ince large quantities of . . . weapons are already available throughout the country, most armed groups require steady access to ammunition rather than arms' (UNSC, **2003c**, p. **17**, para. **72**). Ammunition is spent quickly during conflict and resupply is therefore a constant concern for combatants. For non-state armed groups that cannot rely on normal military procurement, sources of ammunition are very much the same as those for weapons: they include capture of material from enemy combatants, seizures and leakages from enemy or government stockpiles, transfers from supportive states, small-scale transfers (the so-called 'ant trade', e.g. from diasporas), and in-conflict trade (see Chapter **4**). This means that ammunition can be obtained from global, regional, and local sources. In cases where the conflict situation does not seem serious enough to warrant restrictions on ammunition transfers, transfers may legally enter conflict zones. In other cases, ammunition comes from illicit sources and may reach its final destination by convoluted means.

Global transfers

In numerous cases the ammunition used in conflict theatres has come from distant places of production. The arms and ammunition industry is globalized and products are often resold and retransferred. The UN Group of Experts on Côte d'Ivoire, for instance, investigated in **2005** the case of Israeli **9** mm ammu-

nition that had been manufactured in 2002 for the Netherlands military and ended up in Côte d'Ivoire in spite of the embargo (UNSC 2005, p. 24, para. 82). Another illustration of the convoluted routes that ammunition can take is the identification in 2002 by the Liberian government of 81 mm mortar rounds seized in a LURD stronghold, which turned out to have been produced in the United Arab Emirates (UAE). The UAE identified these rounds as part of a military assistance package they had sent to Guinea (Human Rights Watch, 2003b, p. 18). This identification was made possible by markings on some of the mortars that gave the country of origin (in this case the UAE). Other information is often needed to trace the route ammunition takes to its ultimate destination. Human Rights Watch, drawing on ammunition markings, cargo records, and eyewitness testimonies, determined that mortars used by LURD in attacks on Monrovia in 2003 had been sourced from Guinea, which imported them from Iran (Human Rights Watch, 2003b, p. 15). A similar attempt to trace the ammunition found in the Gatumba camp in Burundi after the massacre of more than 150 Congolese refugees in August 2004 was less successful. The cartridges retrieved from the site were of Bulgarian, Chinese, and Yugoslavian origin and their respective years of production were stamped on the casing but, in the absence of a lot number, it was not possible to determine where these cartridges had been exported from before ending up in Gatumba (Amnesty International et al., 2004, pp. 6–7; see Chapter 7).

Arms embargoes, which attempt to prevent the transfer of military material including ammunition to states where this would fuel conflict, are often circumvented. Recommendations to strengthen capacities to enforce embargoes include 'profiling brokers and transportation companies, improving the inspection of cargo at airports, and enhancing law enforcement and customs cooperation' (Centre for Humanitarian Dialogue, 2004, p. 52). The existence of loopholes in the monitoring of transportation activities (including forged end-user certificates) is not the only cause of illicit arms and ammunition transfers. Ammunition dealers also take advantage of lax controls on weapons stocks and offshore financing (Small Arms Survey, 2004, pp. 143–47). When international arms dealer Leonid Minin was arrested in Italy on 5 August 2000, the police found in his hotel room documents showing that he—together with a Russian air cargo company, Aviatrend—had brokered a deal to supply 113 tons (five million rounds)

of 7.62 mm ammunition to the former Côte d'Ivoire ruler General Robert Gueï. The ammunition went from Ukraine to Côte d'Ivoire with an end-user certificate signed by Gueï, before departing again for Monrovia, where it ended up in the hands of the Revolutionary United Front (RUF) (Traynor, 2001; UNSC, 2001, pp. 46–49). Earlier in 1999, Burkina Faso had re-exported to Liberia, in spite of the end-user certificate it had signed, the bulk of a shipment of 68 tons of Ukrainian weapons including '715 boxes of weapons and cartridges, and 408 boxes of cartridge powder' (UNSC, 2000, p. 35, paras. 203–07). Another example is a forged purchase order, which falsely identified the Panamanian National Police as purchaser, that was used in November 2001 to supply 2.5 million rounds of 7.62 mm ammunition and 3,000 AK-47s from Nicaragua to the Autodefensas Unidas de Colombia (AUC) in Colombia on the *Otterloo* freighter (OAS, 2003).

The efficiency of embargoes largely depends on the will of the international community to enforce them strictly. The embargo on Somalia, for instance, was established in 1992 but not monitored until 2002. In Côte d'Ivoire, the UN Group of Experts noted 'an improvement in UNOCI [United Nations Operation in Côte d'Ivoire] reporting and investigation of alleged sanctions violations since May [2005], although often there is no follow up by UNOCI' (UNSC, 2005, p. 24, para. 82). Another factor that reduces the impact of embargoes is the fact that combatants with the means to do so often rush to import weapons before an anticipated arms embargo comes into force. In the Rwandan case, the interim government appears to have engaged in intense purchasing of arms and ammunition in April 1994, shortly before an embargo was declared on 17 May (Human Rights Watch, 1999). Another example is the government of Côte d'Ivoire buying large quantities of arms and ammunition prior to the embargo established in November 2004 by UN Security Council Resolution 1572 (UNSC, 2005, p. 25, para. 85).

In the absence of arms embargoes, self-restraint on the part of the supplying countries can play an important role in averting potentially dangerous ammunition transfers. The 1998 European Union Code of Conduct on Arms Exports, which covers ammunition, politically binds member states to avoid exporting such material to countries that would use the proposed export aggressively against another country, where it could threaten regional security and stability,

or where the material could be diverted (EU, 1998). Similarly, Australia and New Zealand, at one time the main suppliers of ammunition to Papua New Guinea, eventually became wary of fuelling conflict there and drastically limited their exports from 2002. Within two years of the introduction of these more restricted export licences, the price of ammunition had doubled in the Southern Highlands Province of Papua New Guinea (Alpers, 2005, pp. 78–79). Although lack of reporting on firearm-related incidents makes it hard to produce exact figures, this increase in prices coincided with a diminution of firearm-related injuries and deaths in the province, following a peak in the years 2000–01.[11]

Regional transfers

Ammunition transfers may originate from neighbouring countries wishing to tip the balance of forces in favour of their preferred side. In the Republic of Congo, for instance, Cobra forces supporting Denis Sassou-Nguesso against Pascal Lissouba received at least two major shipments of weaponry, including ammunition, from Angola and Gabon in September 1997 (Demetriou, Muggah, and Biddle, 2002, p. 13). The UN Security Council identified Burkina Faso, Liberia, and Niger as supply lines for arms and ammunition to the RUF in Sierra Leone (UNSC, 2000, p. 34, para. 195). Because of the importance of such regional transfers, international scrutiny must target not only the country at war, but also its neighbours.[12] In a recent report, Amnesty International observes that in 2003 four flights loaded with ammunition went from Tirana, Albania, to Kigali, Rwanda. The cargo included 3,590,000 rounds of 7.62 mm ('Soviet') ammunition commonly used in AK-47s and 85,000 rounds of 9 mm ammunition, which can be used in pistols or sub-machine guns (Amnesty International, 2005). Considering that Rwanda has been supporting armed groups in eastern Democratic Republic of the Congo (DRC)—notably the RCD [Rassemblement congolais pour la démocratie]-Goma and the Union of Congolese Patriots (Union des patriotes congolais, UPC)—and provided them with weapons and ammunition in 2003, it is possible that a sizeable part of this shipment may have fuelled violence in the Great Lakes region (UNSC, 2004b, p. 13–14, para. 29; Amnesty International, 2005). The United Nations Mission in the Democratic Republic of the Congo (MONUC) also found that arms and ammunition manufactured at the Nakasongola factory in Uganda had been delivered to a Congolese armed

group in the Ituri district of DRC (Amnesty International, 2005). Uganda is known to have provided arms and training to most armed groups in this area (UNSC, 2004b, p. 12–13, para. 27).

In other words, when legally binding arms embargoes are put in place, they are often circumvented by neighbouring states supporting one side of the conflict. In the case of Somalia—under UN arms embargo since 1992—the UN Security Council in 2003 noted 'with serious concern the continued flow of weapons and ammunition supplies to Somalia, as well as allegations of the role of some of the neighbouring states in breach of the arms embargo' (UNSC, 2003a). In 2003, Liberia—then under UN arms embargo pursuant to Security Council Resolution 1343 (2001)—was another instance where arms were transferred to conflict parties and where 'weekly sanctions-busting flights of ammunition were arriving in Monrovia' (Vines, 2003, p. 256). The transfer from Iran to Guinea of ammunition that ended up in the hands of LURD and was used to shell Monrovia (mentioned above) is another case in point (Human Rights Watch, 2003b, p. 15).

Other common sources of supply are regional black markets. The usefulness of these markets to local armed groups depends on several factors, among them the number of active conflicts in the region and the choice of ammunition calibres made by other countries in the area. Arms and ammunition are available on these markets when neighbouring conflicts in the region come to an end, freeing up large quantities of military material for purchase. This was the case, for instance, in South and Central America in the mid-1990s, when the ammunition from several conflicts that had petered out ended up in the hands of the Fuerzas Armadas Revolucionarias de Colombia (FARC) in Colombia.[13] The ammunition calibres used by other countries is also an important issue: the end of the conflict in Peru provided FARC with large amounts of the 7.62 mm Soviet calibre ammunition for use in their AK-47 rifles. In recent years, however, the amount of available 7.62 mm rounds has declined in the region,[14] compelling FARC to buy it at relatively high prices on the black market or clash violently with the paramilitaries who still use that particular type of ammunition (Fundación Ideas Para la Paz, 2005). Venezuela's recent official switch from Belgian FALs and their NATO ammunition to AK-type Russian assault rifles is therefore worrying because it is likely to bring a fresh supply of 7.62 mm rounds to the region.[15]

Local transfers

Groups lacking support from external states usually rely heavily on procurement from local sources (Capie, 2004, p. 5). Capture from the enemy was the main source for arms and ammunition cited by former members of Malian armed groups, closely followed by small-scale purchases in neighbouring countries such as Mauritania.[16] Leakages from corrupt officials and local craft production must be added to this list.

The issue of ammunition stockpile security is important for countries at peace, and even more crucial for countries at war. Poor security at military storage facilities was responsible for the looting of weapons and ammunition during the coup in Fiji in May 2000 (Capie, 2003, p. 106). Similar incidents were also commonplace during the war in the Republic of Congo when, between 1993 and 1999, three different rebel groups or militias (the Ninjas, the Cobras, and the Cocoyes) repeatedly pillaged police and military arsenals (Demetriou, Muggah, and Biddle, 2002, pp. 10–11). Leakages from police and defence stockpiles represent another source of ammunition procurement (Capie, 2004, p. 5). In Papua New Guinea, most of the ammunition that ended up in the hands of Karints combatants came from these sources (Alpers, 2005, p. 76), and, in Cambodia, Khmer Rouge combatants could purchase ammunition from the government forces who were so badly paid that they resold their own supplies. Russian troops also exchanged ammunition for other goods in Chechnya (Gentleman, 2000). This problem is exacerbated by the fact that in many countries all security forces, including the regular police, carry assault rifles. This drives the proliferation of these weapons and their ammunition, increasing the chance of 'leakages' from local stockpiles (e.g. armouries in police stations). Armed groups who have state support may also have recourse to local sources. The Sudan Liberation Army (SLA) and Justice and Equality Movement (JEM), for instance, complemented the shipments they received from, among others, Chad, Eritrea, and Libya (UNSC, 2006, p. 25, para. 79) with a substantial amount of weapons and ammunition obtained from 'poorly guarded Sudanese Army garrisons and police posts' (UNSC, 2006, p. 26, para. 82).

A final local source of ammunition is craft production. The one advantage of manufacturing ammunition during a conflict is self-reliance. It is, however, a fairly marginal activity because it is time-consuming and requires raw materials

(i.e. primers and explosives) that are difficult to produce and often no easier to import than a complete round of ammunition (see Chapter 2). The mortar rounds and hand grenades produced by FARC rural workshops in Colombia, however, demonstrate that during protracted conflicts a small ammunition production industry can be set up to supply the war (Dreyfus, forthcoming).

Use and misuse of ammunition during conflict

Stockpiling ammunition

Bringing ammunition to the theatre of conflict can be achieved in a number of ways, using means of transportation that range from donkeys crossing the Sahel,[17] to aircraft making intercontinental flights. In the case of illicit military transfers between Guinea and LURD in Liberia, some of the ammunition was carried by Liberian refugees who were forced by LURD to act as porters (Human Rights Watch, 2003b, p. 16). Some ammunition was also delivered by truck to the Guinean border, where it was transported on by LURD (Human Rights Watch, 2003b, p. 17). Ammunition can be easier to conceal than weapons because it can be divided into small quantities. In Iraq soldiers recently seized three trucks and four trailers transporting some 1,500 rounds of ammunition mixed with scrap metal that was to be destroyed (Task Force Liberty, 2005).

For rebel groups who, unlike their state counterparts, do not have proper arsenals, the issue of ammunition stockpiling can be problematic. Ammunition components are sensitive to moisture, heat, and dramatic temperature change. In adverse surroundings, such as the equatorial forest, they must be stored properly to keep them in working order. In Uganda the LRA stores the excess weapons and ammunition received from Sudan in large pits dug in northern Uganda and southern Sudan. Large storage pits, however, are, by their nature, immovable and cannot be used to resupply LRA battalions while they are on the move. For this latter purpose, smaller pits are dug for weapons and ammunition captured on the battlefield. These are guarded by local officers, and the material is covered in grease to prevent rusting and wrapped in plastic sheets for further protection.[18]

Caches can hold a considerable amount of ammunition at any one time. In Prijedor (Republika Srpska) in 2004, two arms caches were discovered in ware-

houses. The first contained 10 SA7 anti-aircraft missiles and the other held '37,200 rounds of 7.62 mm ammunition, 3,000 rounds of other ammunition, 12 mortar shells, 24 anti-tank rockets and an anti-aircraft gun' (BBC, 2004). Ammunition is usually stored with explosives. In northern Iraq, for instance, soldiers uncovered a weapons cache that contained '16 rocket propelled grenade rounds, one mortar round, one case of fuses, two bags of charges, one pound of C4 explosives, and a case of ammunition' (Task Force Freedom, 2005). Ammunition caches can be easier to detect than weapons caches because the smell of explosive materials can be detected by dogs that could be trained for this purpose (SEESAC, 2003b).

Ammunition caches can present a hazard to the population around the site. In May 2005 at least 28 people were killed and more than 70 injured when the ammunition that a local Afghan militia leader had stockpiled in the middle of a village, in a bunker near his house, exploded. The accident reportedly happened when some of the explosives were being moved (AP, 2005; IRIN, 2005). Such ammunition dumps, where the materiel is often old (and thus becoming volatile and potentially dangerous), are commonplace in Afghanistan in spite of the efforts undertaken by the UN and NATO to collect and destroy ammunition (IRIN, 2005). In Iraq, failure to properly secure ammunition caches has also resulted in civilian casualties (Human Rights Watch, 2003a).

Patterns of use in conflict

As argued above, ammunition shortages can be an issue for state and non-state actors alike, and can have many consequences. The first can be to put an end to the fighting as happened, for instance, in Liberia in late June 2003 when LURD ran out of ammunition and had to retreat (Human Rights Watch, 2003b, p. 2). This did not, however, lead to a de-escalation of the conflict because both parties used this respite to find more weapons and ammunition (in the case of LURD, from Guinea) and the fighting resumed with even more intensity (Human Rights Watch, 2003b, p. 2). A similar situation arose in Burundi during the civil war that raged there from 1993 to 2001. When faced with ammunition shortages, rebel groups retreated and avoided all contact with government forces until they could resupply. What little ammunition they had left was used to protect strategic positions.[19] Ammunition shortage can also lead to a change

in combat strategy. Because one of the main sources of weapons and ammunition is seizure from enemy forces, such shortages can compel groups to launch risky attempts to obtain more ammunition from this source. Former combatants from Mali and Uganda responded to a lack of ammunition by launching small-scale attacks, such as ambushes, against government forces in order to gain materiel (Small Arms Survey and CECORE, 2004; Florquin and Pézard, 2005, p. 55). More generally, the significance of ammunition shortages depends on numerous factors. Ammunition shortage will be less of an issue if it is possible for insurgents to find safe havens in other states (e.g. because of a lack of control over borders or support from neighbouring states), if they have the support of large segments of the population, or if the state forces they oppose are not well trained and easily leak ammunition (through corrupt soldiers or poor security at storage facilities).

The existence or otherwise of good 'shooting discipline' in an armed group (i.e. being trained to open fire only in certain circumstances) often depends on the quality of command and control within the group, and whether there is a well-defined chain of authority. Research suggests that during the 1990–96

Weapons with a high rate of fire, such as machine guns, require a constant resupply of ammunition.
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Tuareg insurgency in Mali, ammunition was scarce and the group enforced strict orders to avoid wastage of ammunition by combatants; for example, shooting in the air as a celebration was prohibited and severely punished (Florquin and Pézard, 2005, p. 56). Similarly, former Ugandan combatants in the Uganda National Rescue Front II (UNRF-II) reported that they were forbidden to use their ammunition to shoot at birds or animals (Small Arms Survey and CECORE, 2004). In Guinea in 2000 and 2001, child soldiers enrolled as 'young volunteers' in local militias by the Guinean military were given ammunition only when sent on a combat mission, and fired only under the orders and supervision of adults. In contrast, in Liberia and Sierra Leone child soldiers reported playing shooting games, which suggests that control on the use of ammunition within the group was much more lax (Wille, 2005, pp. 184, 205).

It is a reasonable assumption that shooting discipline would be enforced in groups where ammunition is scarce because of the need to ration its use, and in groups that seek long-term political gains (rather than short-term gains such as those derived from looting and banditry) because they have an incentive to control their firepower to avoid alienating the local population (Small Arms Survey, 2005, p. 196). This factor may explain former UNRF-II members' statements that they were forbidden to shoot in certain places such as markets and health centres, and in areas where large numbers of civilians were present.[20] The desire to gain international support or legitimacy for their cause may be another reason they would see value in exercising restraint.

Conversely, the magnitude of ammunition flows can be an indication of the severity of the fight to come. The UN Panel of Experts on Somalia estimated, for instance, that '[t]he potential for escalation is limited by a general reluctance to suffer casualties and by the cost of ammunition. . . . When a serious confrontation is anticipated, however, larger quantities of arms and, more importantly, ammunition enter the Mogadishu market' (UNSC, 2003c, p. 17, para. 71).

After the dust settles: post-conflict situations
Demobilization and disarmament
The purpose of DDR programmes is to reintegrate former combatants into civilian life and reduce insecurity. The removal of their weapons plays an impor-

tant role in this process. Being the indispensable complement to any weapon, ammunition would be expected to be made part of such programmes. In the past, however, ammunition has been unevenly incorporated into DDR programmes (see the Annexe), ranging from a complete lack of concern for it (Mali) to cases where a certain number of ammunition rounds allowed former combatants to qualify for entry into the DDR programme (Liberia). Mali is an interesting case because it was 'the first country to deliberately adopt an integrated approach to development and security by linking weapons collection to the provision of development assistance, directly targeted at measures that would enhance community security' (Small Arms Survey, 2002, p. 288). Nonetheless, the 'flame of peace' that celebrated in 1996 the end of the Tuareg rebellion by publicly burning the weapons that had been used in the conflict (Poulton and Ag Youssouf, 1998, p. 120) was not accompanied by the destruction of ammunition. According to some former combatants, ammunition was kept and stockpiled by former combatants and civilians, and provided them with an incentive to obtain new weapons that could be used with their ammunition.[21]

More recent weapons collection programmes have tended to include ammunition. In Liberia, the United Nations Mission in Liberia (UNMIL) has collected and destroyed more than 5 million rounds of small arms ammunition, along with 20,000 weapons (UN News, 2004). By handing in 150 cartridges, an individual could qualify for entry into the DDR programme (Paes, 2005, p. 257). In the case of the arms collection programme undertaken by the Inter-African Mission to Monitor the Bangui Accords (MISAB) in the Central African Republic in 1997–98, the monetary reward offered for ammunition ranged from CFA francs 25 for a round of 5.56 mm, 7.5 mm, 7.62 mm, or 9 mm ammunition, to CFA francs 50 for a round of 12.7 mm or 14.4 mm ammunition, to CFA francs 500 for a grenade, and CFA francs 45,000 for a complete 81 mm mortar (Berman, forthcoming).[22] Within less than a year, MISAB had collected 430,271 rounds of small arms ammunition, mainly 7.5 mm French and 7.62 mm Soviet calibres (Berman, forthcoming). The DDR programme planned in Côte d'Ivoire is likely to include ammunition (UNSC, 2005, p. 7, para. 8).

In many cases, however, the status of ammunition is not clearly defined. In Sierra Leone in 2001, for instance, members of the Civil Defence Forces (CDF) who were in the process of being disarmed argued unsuccessfully that hand

grenades, rocket-propelled grenades, and mines should qualify as weapons that attract financial benefits when they are handed in (Thusi and Meek, 2003, p. 29). In spite of these difficulties, the National Committee for Disarmament, Demobilization and Reintegration (NCDDR) succeeded in collecting 1.2 million rounds of ammunition during the four years of the programme (Thusi and Meek, 2003, p. 25). The sheer amount of ammunition in circulation in some cases may be quite discouraging with regard to collection and destruction efforts. In Afghanistan, the first phase of the DDR programme undertaken by the government with the help of the UN allowed for the collection of 1.7 million munitions of all types,[23] although there is still an estimated minimum of 30,000 tons of munitions in the country (AFP, 2005a).

Arms and ammunition reduction programmes

In addition to DDR programmes, some post-conflict recovery efforts have been targeted at civilians in order to ensure a weapons-free and safer environment

Albanian President Rexhep Meidani helps children collect bullets in the northern village of Blinisht, 85 km from Tirana. Some 50,000 cartridges and 22,000 bullets shot in 1997 were collected in this programme. © Reuters

for all communities. In many cases, the two types of programme (often called 'phase one' and 'phase two') complement each other. In Sierra Leone, for instance, a civilian disarmament programme (the Community Arms Collection and Destruction Programme, or CACD) which started in 2001 was seen as a complement to the ongoing DDR programme that had started three years before, because it covered other types of weapons (e.g. shotguns) and different categories of individuals (Thusi and Meek, 2003, pp. 29–30).

Civilian disarmament is not limited to post-conflict situations. A number of such programmes (usually gun buy-back programmes coupled with changes to legislation) have been implemented in so-called 'societies at peace' to reduce gun violence. Australia, Brazil (see Chapter 6), and the United Kingdom are examples of countries where such programmes have been implemented (Small Arms Survey, 2004, pp. 184, 188). Weapons collection in Albania is another such example. The civilian population looted an estimated 900 million to 1.6 billion cartridges from state arsenals in March 1997 (Van der Graaf and Faltas, 2001, p. 165; UNDP, 2004, p. 6) and 117 million rounds of ammunition were recovered between 1999 and 2004 (South East European Times, 2004).

Post-conflict weapons reduction programmes use a variety of means, including public awareness campaigns, changes to legislation (to facilitate legal registration of weapons and counter illicit ownership of arms), gun amnesties (to allow the collection of illicitly held weapons), regional border agreements (to limit illicit transfers), and implementation of practical schemes designed to convince people (either individuals or communities) to hand in their weapons and ammunition in exchange for money or other incentives (Small Arms Survey, 2005, p. 276). The success of these schemes depends on a proper identification of the factors driving the demand for arms and ammunition, and on ensuring that people's reasons for owning guns (lack of security, insufficient infrastructure, and mistrust in neighbouring communities or local authorities) are addressed. Because of the local specifics surrounding the factors determining demand, the design of such programmes must be tailored to the target community (Atwood, Glatz, and Muggah, 2006, p. 56).

As for DDR programmes, schemes to disarm civilians have not been consistent in their approach to ammunition (see the Annexe). In the 'Goods for Guns Programme', a voluntary weapons handover that took place in El Salvador

between September 1996 and June 1999, grenades and mines were initially given an exchange value of USD 15. So many of them were handed in, however, that the exchange value had to be reduced to USD 3 in order for the programme to remain sustainable. No specific reward was provided for other types of ammunition (Laurance and Godnick, 2000, p. 19). The problems encountered during ammunition collection are usually the same as for weapons collection: the quality of the ammunition handed in is often poor (in Liberia there were cases where cartridge cases filled with sand were passed off as live ammunition), and there is a risk of fuelling demand by artificially raising the resale value of ammunition (Small Arms Survey, 2002, p. 306; Paes, 2005, p. 257). Such programmes may also appear to reward the individuals or communities who took up arms, while leaving behind those that did not (Centre for Humanitarian Dialogue, 2004, p. 30). One way to improve the implementation of such DDR programmes would be to link the amount of the payment or compensation made to the quality of the ammunition handed in, as is often already the case for weapons.[24]

Unexploded ordnance and ammunition destruction

The main purpose of ammunition collection is to ensure that it is removed from circulation. Considering the lack of stockpile security in many countries, destruction of the collected ammunition is the only way to ensure that this removal is final. However, the fact that ammunition contains explosive material makes it more difficult to collect and destroy than firearms. It must be subject to specific methods of destruction, which depend on the amount to be disposed of and its condition (UNDDA, 2001, pp. 25–49). When small quantities are concerned, ammunition can be burned or simply expended. More elaborate methods, however, must be employed for larger amounts (see Chapter 9).

Since ammunition is sometimes stored alongside high-power explosives, and has explosive qualities itself, it has to be carefully handled during its destruction process. In the case of Sierra Leone's disarmament programme, for instance, it was noted that although the United Nations Mission in Sierra Leone (UNAMSIL) and the NCDDR usually worked with NGOs to destroy the weapons that had been collected, '[i]n general UNAMSIL took responsibility for the destruction of ammunition and explosives, some of which were highly unstable when

they were handed in' (Thusi and Meek, 2003, pp. 32–33.). In the Central African Republic, the first weapons destruction ceremony undertaken under the National Programme of Disarmament and Reintegration (Programme National de Désarmement et de Réinsertion, PNDR) on 15 June 2002 saw 714 weapons incinerated but, for security reasons, no ammunition was destroyed. This problem was solved by the time of the second ceremony, held one year later, during which '134,352 rounds of ammunition, 1,361 grenades, 27 mortar shells, 54 rockets and one anti-personnel mine' were destroyed along with 212 weapons (Berman, forthcoming). Disposing of ammunition safely is a complex task. In Takhar province (Afghanistan), two German soldiers from the International Security Assistance Force (ISAF) and six Afghan civilians were killed in June 2005 when ammunition accidentally exploded while being loaded on to a truck as part of a munitions collection programme (AFP, 2005b; see Chapter 9).

Considerable amounts of ammunition used in conflict theatres have never been collected or destroyed and remain where combatants abandoned them. The Pacific islands, for instance, are known to contain many remnants from the Second World War. US and Japanese ammunition can still be found in the Solomon Islands, particularly in Guadalcanal where major fighting took place and leftover ammunition was never destroyed (Capie, 2003, pp. 110–11). In particular, .50 calibre ammunition seems to have stood up better to time and adverse physical conditions than other types of ammunition commonly found in the area. The .50 rounds are used in the Solomon Islands with home-made weapons (Capie, 2003, p. 112). Other larger unexploded ammunition such as mortar rounds can be found in Papua New Guinea, presenting serious hazards to the local population, especially children, because of the risk of accidental detonation (Capie, 2003, p. 113; Alpers and Twyford, 2003, p. 25).

Conclusion and recommendations

The constant need for large quantities of ammunition in warfare suggests that regulating its supply could have a direct impact on the intensity of conflict and on the way ammunition is used or misused, in particular against civilians. The recommendations below are changes that, if implemented by the international community, could help verify this hypothesis and limit wartime abuses:

- Better monitor ammunition flows and improve scrutiny of end-user certificates for countries that border conflict zones or are known to support parties to a conflict;
- Mark ammunition more comprehensively to allow rounds used in embargoed countries, as well as in war crimes and other violations of international humanitarian law or human rights law, to be traced. This measure could also help to identify defence or police forces whose stockpiles are sources of ammunition leaked to conflict parties;
- Encourage better governance and reduce official corruption, as part of an endeavour to improve defence and police stockpile security;
- Make ammunition an integral part of all DDR programmes;
- Subject former theatres of conflict to extensive ammunition/unexploded ordnance (UXO) clean-up and destruction programmes, and systematically inform local populations in affected areas of the potential hazards represented by ammunition;
- Encourage exporting countries to show self-restraint in their transfers of ammunition to potentially unstable countries.

A Liberian girl prepares to hand over ammunition to the UN during a disarmament process in December 2003. For every 150 bullets, the UN paid USD 75. © Sven Torfinn/Panos Pictures

Annexe **Post-conflict ammunition collection: a selection of initiatives**
Barbara Gimelli Sulashvili and Stéphanie Pézard

Region	Country	Programme type	Duration	Implementing agency	Target group(s)	Were munitions specifically targeted?	Incentives offered for ammunition hand-in	Number of units of ammunition collected	Number of rounds destroyed
Africa	Niger[25]	Arms for development (AfD)	December 2001 to August 2004	UNDP	Civilians in the N'Guigmi district	Yes[26]	None; only communities who surrendered weapons could benefit from micro-projects	6 hand grenades, 2 RPG rockets, 20 rounds of 7.5 mm and 7.62 mm	All destroyed
	Liberia[27]	DDR[28]	7 December 2003 to 31 October 2004[29]	JIU, UNMIL, UNDP, other UN agencies and partners	Government of Liberia; LURD and MODEL	Yes	Entry into the DDR programme was conditional on the handing in of either • 2 grenades • 4 smoke grenades • 150 rounds of ammunition or • 1 rocket / mortar bomb of 60, 81, or 120 mm	6,486,136 rounds of small arms ammunition[30]	All destroyed or scheduled for destruction
	Republic of Congo[31]	DDR, arms collection	May 2000 to November 2002	IOM, UNDP, and Government of the Republic of Congo	Ex-combatants	No[32]	N/A[33]	Brazzaville, Cuvette, Plateaux, and Pool: 22,835 units of ammunition for small arms and light weapons[34] Niari, Bouenza, Lekoumou, and Kouilou: 4,714 units of ammunition for small arms and light weapons[35]	Some rounds have been destroyed using controlled explosions

	Programme	Dates	Actors	Eligible groups	Ammunition included?	Incentives	Quantity	Destruction
Sierra Leone[16]	DDR	October 1998 to January 2002	Government of Sierra Leone (NCDDR) and UNAMSIL	All combatants of the RUF, CDF, Sierra Leone army, and paramilitary groups	Yes	There is evidence that only weapons turned in, counted in order for ex-combatants to become eligible for the DDR programme	1.2 million rounds	All of them
Central African Republic (CAR)[37]	Voluntary Surrender	1997 to 2000	MISAB followed by MINURCA	Former mutineers and pro-government militias	Yes	Monetary incentives for turning in ammunition[38]	464,604 rounds of small arms ammunition, mainly 7.5 mm and 7.62 mm rounds	Some unserviceable ammunition was destroyed by MINURCA, but most of it was transferred to the CAR government
Afghanistan[39]	ANBP: Ammunition Survey[40]	January 2005 to date	UNDP Afghanistan	AMF[41] and former members of armed groups	Yes[42]	None[43]	2.35 million rounds of unboxed ammunition 736,125 items of boxed ammunition[44]	All the loose and unsafe ammunition (equivalent to 5,000 tons) was destroyed[45]
Asia-Pacific Solomon Islands[46]	Weapons collection: three periods of amnesty	October 2000 to August 2003[47]	RSIP, MEF, IFM, IPMT, PMC, PMC/NPC, RAMSI[48]	1st and 2nd amnesty: ex-combatants of the MEF and IFM 3rd amnesty (WFV): civilian communities	Yes	1st, 2nd, and 3rd amnesties: weapons amnesty[49] and general amnesty;[50] increased penalties for illegal weapons and ammunition possession after expiry of the 3rd amnesty period	To NPC (for the three amnesties): 17,267 rounds of mostly 5.56 mm and .22 calibres[51] To RAMSI (for the 3rd amnesty): over 300,000 rounds	RAMSI destroyed the 300,000 rounds of ammunition it collected

Indonesia (Aceh)[52]	DDR	15 September 2005 to 31 December 2005[53]	GoI, GAM, monitored by AMM	Any illegal groups or parties, especially combatants from GAM	Yes	No specific incentives and no sanctions[54]	4,849 rounds of various calibres, including some RPG-7 grenades, 40 mm grenades, and home-made grenades[55]	All ammunition was destroyed immediately after collection
Europe Georgia[56]	WED	End of 2001 to 2003	OSCE	Communities (civilians and ex-combatants)	Yes	Financial, administrative, and logistic support to community projects[57]	12,034 rounds of ammunition,[58] including shells, rockets, grenades, RPG missiles, and 66 anti-tank mines	All destroyed at the end of 2002 or in April 2004
Bosnia-Herzegovina (Project Harvest)[59]	Voluntary surrender, search, and seizure	Operations regularly conducted throughout BiH since 1998	Armed forces, local police, and local authorities of BiH with the support of SFOR, replaced by EUFOR as of December 2004	Civilians	Yes	No reward, only amnesty from prosecution; SFOR once rewarded weapons handover with lottery tickets	1998 to 2001: More than 5,385,130 rounds of ammunition and 82,346 mortars, mortar rounds, hand and rifle grenades, and hand-made ordnance.[60] 2002 to February 2006: Over 9 million rounds <20mm; over 120,000 rounds 20–76 mm; almost 1,000 rounds >76 mm; over 125,000 hand grenades; over 15,000 mines[61]	All weapons and ammunition are destroyed by SFOR/EUFOR or BiH authorities if they have the facilities available

Region	Country	Program	Dates	Implementing agency	Target group	Compensation	Compensation for ammunition	Quantities collected	Disposal
	Macedonia[62]	DD (Operation Essential Harvest)	27 August to 26 September 2001	NATO	Albanian insurgents from UCK	Yes	None	397,625 pieces of mines, explosives, and ammunition[63]	All of the collected ammunition was publicly destroyed
		Voluntary Surrender,[64] WEI	1 November to 15 December 2003	GoM[65]	Civilians	Yes	None[66]	100,219 rounds	All of the collected ammunition was destroyed[67]
	Serbia[68]	Voluntary surrender, search and seizure	25 March to 24 April 2003	GoS[69]	Civilians	No	None	2,005,459 rounds of ammunition	42,000 rounds of ammunition
Latin America and the Caribbean	El Salvador[70]	Voluntary weapons collection (Goods for Guns)	September 1996 to June 1999	MPCD (NGO founded by local businessmen)[71]	Individual civilians	Not initially, but this changed after the revision of the initial laws	No compensation for ammunition alone	129,696 rounds and 3,157 clips (equivalent to 94,710 rounds)[72]	All
	Guatemala[73]	Disarmament	3 March to 14 May 1997	URNG, monitored by MINUGUA	URNG combatants	Yes	Unlikely[74]	535,102 rounds of SAA ammunition (534,955 rounds of ammunition up to 12 mm, and 147 grenades)	The weapons and ammunition were turned in to the government authorities[75]

List of abbreviations

AfD	Arms for Development (Sierra Leone)
AMF	Afghan Military Forces
AMM	Aceh Monitoring Mission
ANBP	Afghanistan's New Beginnings Programme
AUC	Autodefensas Unidas de Colombia
BICC	Bonn International Center for Conversion
BiH	Bosnia and Herzegovina
CACD	Community Arms Collection and Destruction programme (Sierra Leone)
CAFF	Children associated with fighting forces
CAR	Central African Republic
CDF	Civil Defence Forces (Sierra Leone)
CNDD-FDD	Conseil National pour la Défense de la Démocratie/Forces pour la Défense de la Démocratie (Burundi)
DD	Disarmament and demobilization
DDR	Disarmament, demobilization, and reintegration
DIAG	Disbandment of illegal armed groups (Afghanistan)
DRC	Democratic Republic of the Congo
EUFOR	European Union Force in Bosnia and Herzegovina
FARC	Fuerzas Armadas Revolucionarias de Colombia
FROLINA	Front pour la Libération Nationale (Burundi)
FY	Fiscal Year
GAM	Gerakan Aceh Merdeka (Free Aceh Movement, Indonesia)
GoI	Government of Indonesia
GoM	Government of Macedonia
GoS	Government of Serbia
IANSA	International Action Network on Small Arms
IFM	Isatabu Freedom Movement (Solomon Islands)
IOM	International Organization for Migration
IPMT	International Peace Monitoring Team (Solomon Islands)
ISAF	International Security Assistance Force
JEM	Justice and Equality Movement (Sudan)
JIU	Joint implementation unit (Liberia)

Kaze-FDD	Kaze Forces pour la Défense de la Démocratie (Burundi)
KFOR	NATO Kosovo Force
Indumil	Industria Militar (Colombia)
LRA	Lord's Resistance Army (Uganda)
LURD	Liberians United for Reconciliation and Democracy
MEF	Malaita Eagle Force (Solomon Islands)
MINUGUA	United Nations Observer Mission in Guatemala
MINURCA	United Nations Mission in the Central African Republic
MISAB	Inter-African Mission to Monitor the Bangui Accords (Central African Republic)
MNLF	Moro National Liberation Front (Philippines)
MODEL	Movement for Democracy in Liberia
MONUC	United Nations Mission in the Democratic Republic of the Congo
MPCD	Movimiento Patriotico contra la Delinquencia (Patriotic Movement against Crime, El Salvador)
NATO	North Atlantic Treaty Organisation
NCDDR	National Committee for Disarmament, Demobilisation and Reintegration (Sierra Leone)
NGO	Non-governmental organization
NPC	National Peace Council (Solomon Islands)
OSCE	Organization for Security and Co-operation in Europe
PMC	Peace Monitoring Council (Solomon Islands)
PNDR	National Programme of Disarmament and Reintegration (Central African Republic)
RAMSI	Regional Assistance Mission to the Solomon Islands
RCD-Goma	Rassemblement congolais pour la démocratie
RPK	Ruchnoy Pulemyot Kalashnikova
RSIP	Royal Solomon Islands Police
RUF	Revolutionary United Front (Sierra Leone)
SAA	Small arms ammunition
SAW	Squad automatic weapon
SEESAC	South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons

SFOR	Stabilization Force (Bosnia and Herzegovina)
SLA	Sudan Liberation Army
UAE	United Arab Emirates
UCK	Ushtria Çlirimtare e Kosovës (National Liberation Army) (Kosovo)
UNAMSIL	United Nations Mission in Sierra Leone
UNDP	United Nations Development Programme
UNMIL	United Nations Mission in Liberia
UNOCI	United Nations Operation in Côte d'Ivoire
UNRF-II	Uganda National Rescue Front II
UPC	Union des patriotes congolais (DRC)
UPDF	Uganda People's Defence Forces
URNG	Unidad Revolucionaria Nacional Guatemalteca (Guatemalan National Revolutionary Unit)
UXO	Unexploded ordnance
WED	Weapons in exchange for development
WEI	Weapons in exchange for incentives
WFV	Weapon Free Villages campaign (Solomon Islands)

Endnotes

1 This is true for most small arms and light weapons, from assault rifles to mortars. For some weapons such as machine guns, however, the barrel needs to be replaced after heavy use because the rifling wears out.

2 Interview with Malian ex-combatants, Bamako, Mali, 2–3 September 2004.

3 Interview with Burundian ex-combatants, Bujumbura, Burundi, 1–2 February 2006.

4 Interview with Burundian ex-combatants, Bujumbura, Burundi, 1–2 February 2006.

5 Including 5.56 mm, 7.62 mm, 9 mm, and .50 calibres.

6 20 mm, 25 mm, 30 mm, and 40 mm calibres.

7 Interview by James Bevan, researcher at the Small Arms Survey, with former LRA fighters, Gulu, Northern Uganda, 18–27 May 2005.

8 Interview with Malian ex-combatants, Bamako, Mali, 2–3 September 2004.

9 Interview with Malian ex-combatants, Bamako, Mali, 2–3 September 2004.

10 Interview with Burundian ex-combatants, Bujumbura, Burundi, 1–2 February 2006.

11 Correspondence with Philip Alpers, gunpolicy.org, 12 August 2005.

12 This need has been underlined on numerous occasions at the international level. The increased use and proliferation of small arms was one of the three issues addressed by the UN Secretary-General in his 2004 report on 'ways to combat subregional and cross-border problems in West Africa' (UNSC, 2004a).

13   Correspondence with Jorge Restrepo, CERAC and Universidad Javeriana, 26 June 2005.
14   Correspondence with Pablo Dreyfus, Viva Rio, 15 June 2005. One reason for the lack of 7.62 mm rounds in Colombia is the fact that Indumil [Industria Militar] does not produce these types of rounds anymore (Fundación Ideas para la Paz, 2005).
15   Correspondence with Jorge Restrepo, CERAC (26 June and 20 August 2005), Pablo Dreyfus, Viva Rio (16 June and 18 August 2005), and Robert Muggah, Small Arms Survey (16 June 2005).
16   Interview with Malian ex-combatants, Bamako, Mali, 2–3 September 2004.
17   Interview with Malian ex-combatants, Bamako, Mali, 2–3 September 2004.
18   Interview by James Bevan, researcher at the Small Arms Survey, with former LRA fighters, Gulu, Northern Uganda, 18–27 May 2005.
19   Interview with Burundian ex-combatants from CNDD-FDD, Kaze-FDD, and Front pour la Libération Nationale (FROLINA), Bujumbura, Burundi, 1–2 February 2006.
20   Interview by James Bevan, researcher at the Small Arms Survey, with former LRA fighters, Gulu, Northern Uganda, 18–27 May 2005.
21   Interview with Malian ex-combatants, Bamako, Mali, 2–3 September 2004.
22   The equivalent of these amounts in 1997 USD is approximately 5 cents, 10 cents, USD 1, and USD 75, respectively.
23   UN figures as of 9 June 2005.
24   In the Central African Republic, for instance, different remunerations were offered between 1997 and 2002 depending on whether the weapons handed in were in good, fair, or poor condition. An assault rifle was therefore worth CFA francs 8,000 in good condition, CFA francs 5,000 in fair condition, and CFA francs 2,000 in poor condition (equivalent in 1997 USD to approximately USD 14, USD 9, and USD 3.5, respectively). The same differentiation did not exist, however, for ammunition (Berman, forthcoming).
25   Sources for the Niger case: UNDP, 2001; UNDP and Government of Niger, 2004; correspondence with Tankary Alou, UNDP-Niger, 20 December 2005.
26   Ammunition was, in principle, specifically targeted, but it was not included in the public awareness campaign that accompanied the collection of weapons.
27   Sources for the Liberia case: GoL, LURD, and MODEL, 2003; UNSC, 2003b; Nichols, 2005; UNDP Liberia, n.d.
28   Including weapons reduction, demobilization, and livelihood assistance.
29   The programme was suspended from 27 December 2003 to 15 April 2004.
30   An additional 3,513 rounds of heavy and small arms ammunition has been collected since the formal end of the disarmament period.
31   Sources for the Congo case: UNDP and IOM, 2000a, 2000b, 2000c, 2001; correspondence with Hervé Gonsolin, Principal Technical Counsellor, Arms for Development Project, UNDP Congo (Brazzaville), 15 February 2006.
32   Ammunition was mentioned in one instance, but was not a specific focal point of the programme. However, the project was formulated in such vague terms that ammunition could be part of the qualification for the DDR programme.
33   See note 32.
34   Broken down as follows: 507 full clips (equivalent to 15,210 rounds), 5,733 defensive grenades, 1,333 offensive grenades, 3 deafening grenades, 39 castor grenades, one 40 mm grenade, 9 anti-personal rockets, 6 anti-tank rockets, one 60 mm mortar shell, 500 rounds of miscellaneous ammunition.

35   Broken down as follows: **67** full clips (equivalent to **2,010** rounds), **9** defensive grenades, **6** offensive grenades, **15** anti-personal rockets, **2,674** rounds of miscellaneous ammunition.

36   Sources for the Sierra Leone case: GoSL and RUF, **1999**; Ekundayo Rowe, **2003**; Thokozani and Meek, **2003**.

37   Source for the Central African case: Berman, forthcoming.

38   These monetary incentives went from USD **0.04** (CFA francs **25**) for a **5.56** mm, **7.5** mm, **7.62** mm, or **9** mm round of ammunition to USD **1.60** (CFA francs **1,000**) for a **81/82** mm or **120** mm shell.

39   Sources for the Afghanistan case: ANBP Web site; correspondence with Nikolay Vanchev, UNDP/ANBP/Ammunition Project, Afghanistan, **13** December **2005**.

40   The ANBP is made up of three components: a DDR programme (targeting the regular army), a Disbandment of Illegal Armed Groups (DIAG) Programme, and an Ammunition Survey that covers the ammunition issue for both programmes. While the DDR programme was completed on **7** July **2005**, the other two are ongoing. It is therefore too early to assess their final results.

41   Registered officers and soldiers.

42   For both the DDR and the DIAG programmes it is unclear whether the ammunition identified was mainly ammunition for small arms and light weapons or whether it was mixed with larger calibre ammunition.

43   Cooperative behaviour on the part of the target group could lead to a recommendation by ANBP that the region, city, or village be selected for development programmes implemented by UNDP, other UN agencies, as well as international and national NGOs.

44   This ammunition was found in **681** caches (survey as of **14** December **2005** of both the DDR and the DIAG programmes).

45   Destroyed as of **14** December **2005** by both the DDR and the DIAG programmes.

46   Sources for the Solomon Islands case: Townsville Peace Agreement, **2000**; Muggah and Bevan, **2003**; NPC, **2003**; Nelson and Muggah, **2004**; IANSA, **2005**; correspondence with Bruce Edwards, Policy and Operations Advisor, NPC, **19** November **2005**; intervention by M. Robert G. Aisi for the Pacific Islands Forum, UNGA **2006**.

47   First weapons amnesty: October **2000** to July **2001**; second weapons amnesty: April **2002** to May **2002**; third weapons amnesty (Weapons Free Villages campaign): August **2002** to August **2003**.

48   1st and 2nd amnesty: RSIP, MEF, IFM, monitored by IPMT and PMC; 3rd amnesty (WFV): PMC/NPC followed by RAMSI.

49   Related to theft and possession of arms and ammunition.

50   Related to criminal acts connected with armed violence over a defined time period.

51   Including **3,600** rounds for the first amnesty.

52   Sources on the Indonesia case: AMM, **2005**; GoI and GAM, **2005**; correspondence with Tarmo Kauppila, AMM, **25** November **2005**; correspondence with Jüri Laas, AMM, **14** February **2006**.

53   Expected date of completion.

54   However, non-compliance was pointed out as endangering the entire peace process (psychological pressure).

55   These figures are confirmed as of **14** February **2006**, including the last phase of the programme.

56   Sources for the Georgia case: OSCE, **2002**; correspondence with Lieutenant Colonel Zbigniew Fec, OSCE Mission in Georgia, **8** and **10** November **2005**.

57   There was no set scale of rewards.

58   Rounds of ammunition ranged from 5.56 mm to 23 mm heavy machine gun and anti-aircraft ammunition. Most of it was 5.56 mm and 7.62 mm.

59   Sources for the Bosnia-Herzegovina case: SFOR, 2001; *SFOR Informer Online*, 2000, 2001; Dunphy, 2003; correspondence with Lieutenant Commander Jem Thomas, EUFOR spokesman, 7 November 2005 and 13 February 2006; correspondence with Adrian Wilkinson, Team Leader, SEESAC, 15 December 2005.

60   This estimation is based on the figures for the period from January 1999 to August 2001.

61   These figures include the ammunition collected by SFOR and EUFOR, but not those collected by BiH authorities.

62   Sources for the Macedonia case: NATO, 2001, 2002a, 2002b; Grillot, Paes, Risser, and Stoneman, 2004; correspondence from Hans Risser, UNDP, Belgrade, 8 November 2005; correspondence with Adrian Wilkinson, Team Leader, SEESAC, 15 December 2005; correspondence with Alain Lapon, UNDP/PCSS, Skopje, Macedonia, 15 December 2005.

63   Most of the ammunition collected seems to be small arms ammunition (statement by Brig. White-Spunner at the press briefing held at the NATO Press Centre in Skopje on 26 September 2001).

64   This programme followed the approval of the law on voluntary surrender and collection of firearms, ammunition, and explosive materials and for legalization of weapons in June 2003, as well as the revision of the legislation on the possession of firearms and ammunition.

65   The government of Macedonia was supported by UNDP and included observers from the OSCE and ICRC (International Committee of the Red Cross).

66   People were given a lottery ticket for every complete weapon surrendered; however, this did not include ammunition (including hand grenades) or explosives; lottery prizes included cars, computers, books, and scholarships.

67   Grillot, Paes, Risser, and Stoneman, 2004 also note that 'The law on voluntary surrender and collection of firearms, ammunition, and explosive materials requires that all weapons surrendered be [. . .] destroyed no later than 90 days following the end of the amnesty period' (p. 32).

68   Sources for the Serbia case: GoSM, 2003; SEESAC, 2003a, 2004; correspondence with Adrian Wilkinson, Team Leader, SEESAC, 15 December 2005.

69   The government of Serbia was supported by SEESAC and UNDP.

70   Source for El Salvador case: Laurance and Godnick, 2000.

71   This is an unusual case, because the initiative came from the local private sector, rather than the government or an international organization.

72   Calculation based on an average of 30 rounds per magazine.

73   Sources for the Guatemala case: GoG and UNRG, 1996; UNSC, 1996, 1997; Laurance and Godnick, 2000; BICC Web site, n.d.

74   For weapons handed over by the URNG to MINUGUA, incentives were an amnesty and a demobilization certificate. It is unlikely that there existed further incentives for ammunition.

75   It appears that 'as no explicit provisions for the destruction of the weapons and ammunition were created, upon completion of the demobilization process, the weapons collected were turned over to the Guatemalan authorities' (BICC Web site, n.d.).

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A woman walks by a supermarket window after shots were fired in Rio de Janeiro, February 2003. Brazil's capital experienced unrest as drug gangs torched buses and attacked stores. © Sergio Moraes/Reuters