small arms survey

INDIA ARMED VIOLENCE ASSESSMENT

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Small Arms of the Indian State

A Century of Procurement and Production

Introduction

Small arms procurement by the Indian government has long reflected the country's larger national military procurement system, which stressed indigenous arms production and procurement above all. This deeply ingrained priority created a national armaments policy widely criticized for passivity, lack of strategic direction, and delivering equipment to the armed forces which was neither wanted nor suited to their needs. By the 1990s, critics had begun to write of an endemic 'failure of defense production' (Smith, 1994, p. 222). Later analysis found India's 'defense acquisition system . . . in a state of dysfunction' and singled out Army production as particularly weak (Cohen and Dasgupta, 2010, p. 143).

Under this larger procurement system, dominated by a culture of conservatism and a preference for domestic manufacturers, any effort to modernize the small arms of India's military and police was held back, even when indigenous products were technically disappointing. While the topic of small arms development never was prominent in Indian security affairs, it all but disappeared from public discussion in the 1980s and 1990s. Instead, reviews of the modernization of Indian security emphasized major conventional and nuclear weapons (Bedi, 1999; Gupta, 1990). Overlooked in this way, the Indian small arms industry developed its own momentum, largely disconnected from broader international trends in armament design and policy. It became one of the world's largest small arms industries, often overlooked because it focuses mostly on supplying domestic military and law enforcement services, rather than civilian or export markets.

As shown in this Issue Brief, these trends have changed since the 1990s, but their legacy will continue to affect Indian official small arms procurement for decades to come. Key findings of this Issue Brief include:

Mumbai police constables with Lee-Enfield rifles, the iconic Indian Army and police firearm through most of the 20th century, still in widespread use with Indian security services, Mumbai, December 2008. © Sajjad Hussain/AFP

- Decentralization of small arms procurement since the 1990s has devolved purchasing authority from the central government to security agencies, states, and cities. This facilitated unprecedented diversification of official small arms and suppliers.
- As Indian state governments and government agencies diversify their small arms procurement, their arsenals have become more modern, but less homogeneous.
- A definitive history of Indian small arms manufacturing has yet to be published. Consequently, total production and official inventory figures can only be estimated.
- Total official Indian inventories are estimated to contain 5.6 million small arms. Approximately 2.6 million of these belong to the military, 1.3 million to paramilitary agencies, and 1.7 million to police.
- This research uncovered no reports or records of surplus small arms destruction by the Indian armed services.
- Iconic and archaic, the bolt-action Lee-Enfield rifle will remain the most numerous official Indian firearm for many years to come. Roughly 1.9 million remain in service.
- Since the 2008 Mumbai terror attacks, Indian security agencies are relying less on domestic production of arms and more on modernization through imports.
- Planned modernization creates a potential requirement for almost 6 million new firearms for Indian military, paramilitary, and police.
- With a monopoly in domestic arms production, the Indian small arms industry is economically secure. But with official customers increasingly free to buy arms from foreign suppliers, the national industry seems destined to become a supplier of last resort.

This Issue Brief examines the small arms of the Indian state from two related perspectives. First, it examines the main types of firearms in service, noting three historical waves of procurement from production and imports. Second, it examines the total size of the firearms inventories belonging to government agencies. The research, based on hard data and estimates, forms a tentative picture of the main types and total scale of the arsenal of small arms of the Indian state. This Issue Brief focuses on firearms, for which data is more readily available, not less documented light weapons, such as heavy machine guns, mortars, and rockets.

This Issue Brief shows that after the Mumbai terror attack of November 2008 India's conservatism in small arms procurement yielded. As after the 1962 Sino-Indian war, the 2008 attacks triggered a race to modernize Indian security agencies and their armaments. Official small arms policy has begun to resemble other elements of Indian federalism, with power concentrated not in the central government, but in semi-autonomous agencies, states, and municipalities. In place of national small arms procurement, Indian states and agencies pursue distinct and individual armaments policies, sometimes buying ageing domestic equipment, sometimes importing the most advanced designs available anywhere. This has resulted in a blended arsenal of state-of-the-art and older models.

Three waves of Indian small arms procurement

Government small arms procurement for security agencies—the military, paramilitary, and police—falls into three waves, distinguished by procurement strategies and types of weapons:

- *1900 to 1963*, weapons based on older British designs were manufactured by the Indian Ordnance Factories (IOF). The era was distinguished by great homogeneity in small arms types: all agencies used similar equipment, all produced by the same supplier. The dominant small arms were the Lee-Enfield rifle and the Webley revolver.
- *1964 to 2007*, following the Sino-Indian war, India began acquiring greater numbers of semi-automatic and automatic firearms, still relying mostly on local production of foreign models, with some efforts at indigenous design. The dominant weapons of this era were the Self-Loading Rifle (SLR) followed by the Indian Small Arms System (INSAS) rifle, the Sterling sub-machine gun, and the 9 mm Auto pistol. Insistence on domestic production yielded slightly, enabling imports of specialty weapons.
- *2008 to the present*, Indian security agencies switched from domestic procurement to rapid modernization through imports. Homogeneity gave way to heterogeneity as government agencies and state governments procure weapons to serve their distinctive requirements. The IOF lost their monopoly on government sales and consequently now compete with foreign suppliers for contracts.

Through these three waves, Indian security services gradually accumulated large arsenals. The following section reviews the acquisitions and estimated quantities of the most numerous types of Indian government firearms.

First wave: the Lee-Enfield rifle

Archaic and iconic, the bolt-action Lee-Enfield rifle defined the first modern wave of official Indian small arms procurement. The rifle was produced in several versions by IOF Ishapore from 1907 to 1974.[1] Despite efforts to replace it, as of end-2013 the Lee-Enfield rifle remains more widely deployed among Indian security services than any other weapon (see Table 1).

Despite the ubiquity of the Indian Lee-Enfield, its production history is not well understood. In the early 1900s, India imported Lee-Enfield rifles at a rate of roughly 50,000 annually (Walter, 2005, p. 87). Given the scale of its needs, the British colonial government was persuaded to support local production, a major concession by a regime previously opposed to domestic Indian industry. Plans for domestic production began in 1901 (OFB, 1999). Early licensed manufacturing was troubled, however, and series production only began in 1907, standardizing the short-magazine Lee-Enfield (SMLE) Mk III, which remained in production for over 60 years (Skennerton, 1993, pp. 331, 335; MGA, n.d.).

Table 1. **Documented examples of rifle production rates at Ishapore, 1939–2011**

Designation	Type	Total built	Years	Average annual rate	Source
.303 Lee-Enfield	Bolt-action	692,567	1939-45	115,000	Skennerton, 1993, p. 341
2A1 Lee-Enfield	Bolt-action	250,000	1963-74	22,000	Skennerton, 1993, p. 345
SLR 7.65	Semi-automatic	350,000	1965-71	32,000	Eger, 2006
SLR 7.65	Semi-automatic	300,000	1965-66	300,000	Graham, 1984, pp. 167-68
INSAS 5.56	Automatic	269,612	1998-2000	90,000	CAG, 2001, para. 47.7.1.1
INSAS 5.56	Automatic	100,000	2011	100,000	MoD, 2012

In 1926 the colonial government had 650,000 Lee-Enfield rifles. The following year production expanded to roughly 60,000 annually, accruing a total inventory of some 830,000 rifles by 1931 (Skennerton, 1993, pp. 339–40). Production slowed thereafter; only 17,620 were built or overhauled in 1939–40. But wartime pressures led to further rapid expansion. In all, 692,567 rifles were manufactured by the IOF during the Second World War (Skennerton, 1993, p. 341). While the number is impressive, it should be measured against the growth of the Indian Army. By August 1945 the Army ranks held 2.5 million soldiers, suggesting that additional rifles were imported, presumably from the United Kingdom (Guy, Boyden, and Harding, 1997, p. 172).

As early as 1927 some Lee-Enfield rifles were converted to .410 muskets (shotguns) for police use. Regarded as a less lethal weapon for riot control, the .410 differs from the Lee-Enfield rifle in its modified receiver, barrel, feed mechanism, and use of shotgun shells (Skennerton, 1993, p. 342). The Lee-Enfield rifle remains among the most common police firearm, although it is being replaced where possible (Raghavan, 1993; Siddiqui, 2009). The number of .410 musket conversions is not known, but about 250,000 are estimated to exist as of end-2013 (see 'Total police small arms').

Production of Lee-Enfields continued after Indian independence, probably into the early 1960s. After 1962 Lee-Enfield production continued in the form of the Ishapore 2A1, modestly adapted to use the same 7.62 × 51 mm cartridge as the new semi-automatic Ishapore rifle, which also entered production at that time (Skennerton, 1993, p. 345). According to Skennerton, about 250,000 Ishapore 2A1s were made before production ceased in the mid-1970s (1993, p. 345). Other sources maintain that approximately 500,000 were delivered to Indian security agencies (MGA, n.d.). Symbolizing the conservatism of Indian arms procurement, 'the Ishapore 2A1 has the distinction of being the last non-sniper military bolt action rifle ever designed and issued to an armed force' (MGA, n.d.).

Post-independence production of the Lee-Enfield Mk III rifle and its derivative models fluctuated between 22,000 and 115,000 annually, averaging 70,000 a year throughout 65 years of manufacturing at Ishapore (Skennerton 1993, pp. 341, 345). At that rate, total post-independence Indian production from 1947 to the mid-1970s would amount to approximately 2 million.

This estimate of 2 million produced is close to the estimate of 2.15 million in government control today (1.9 million rifles and 250,000 shotgun versions). The total today also includes other sources of supply, especially earlier production and imports from the UK. It also reflects subsequent losses, especially from events such as the surrender of Singapore in 1942 and the partition of India in 1947. The inventory was also reduced by exports such as the transfer of 100,000 Lee-Enfields to Afghanistan rebels in the early 1980s (Yousaf and Adkin, 1992, p. 85).

Many more Lee-Enfields were cascaded from the Army to Indian police and paramilitaries, where they remain common, despite efforts to replace them (CAG, 2010, p. 159). Examples found in public hands suggest that an unknown but significant number have made their way to civilian owners (Marwah, 2010, p. 23). Including past production and imports, and allowing for losses from war, partition, pilferage, and limited exports, Indian security services appear to be equipped with roughly 1.9 million Lee-Enfield rifles as of 2012 (see Table 8).

Second wave: small arms

In the second wave of Indian small arms procurement, efforts were made to match international trends, but with a strong preference for domestic design and production, even when results were disappointing. Greater diversity of types and suppliers emerged as new types entered production, including the SLR and 9 mm Auto pistol. Further diversity resulted from limited imports such as Heckler and Koch MP5 submachine guns imported in the 1980s for the Special Protection Group, India's VIP protection force (Ezell, 1988, p. 202).

The second wave also witnessed the introduction of additional types of domestically made small arms. This diversification coincided with the opening of new factories at Kanpur in 1943 and Tiruchirappalli in 1967 (OFB, n.d.a, OFB, n.d.b). Other second-wave products included the light machine gun version of the 5.56 mm INSAS rifle and the 7.62 mm medium machine gun (MMG). These two machine guns are still produced at an annual rate of 6,000 and 300 respectively (MoD, 2012). Bren light machine guns and Russian heavy machine guns started in production at Kanpur and Tiruchirappalli too.

Self-Loading Rifle (SLR)

Already in the 1950s the obsolescence of the Lee-Enfield rifles and other first-wave small arms was evident. Prime Minister Jawaharlal Nehru and Defence Minister V. K. Krishna Menon considered replacements as part of the

Members of the Indian Central Reserve Police Force conduct a ceremony over SLR and INSAS rifles, a Kalashnikov rifle, a mortar, and Sterling sub-machine gun, held in Amritsar, October 2010. © Narinder Nanu/AFP/Getty Images. © Narinder Nanu/AFP/Getty Images

general modernization of the Indian armed forces, but ultimately neither the modernization nor the replacements took place. Sentiments changed following the Indian Army's defeat in 1962 by the Chinese People's Liberation Army, the latter armed with more advanced semi-automatic and automatic rifles (Kavic, 1967, pp. 91, 184). Compounding the sense of backwardness, in 1963 the Pakistan Army contracted to equip its forces with German-designed G3 automatic rifles (Grässlin, 2001).

The Sino-Indian war provoked massive expansion of India's armed forces. The Army doubled to 830,000 troops (Thomas, 1978, p. 166). The new Defence Minister, Y. B. Chavan, the author of Indian defence reform, personally promoted small arms modernization despite resistance from the Army and Ordnance Factories (Pradhan, 1998). A semi-automatic version of the Belgian FAL rifle, previously selected and redesigned to avoid licensing fees, was pushed into production, as the Self-Loading Rifle (SLR) (Smith, 1994, p. 81; MoD, 2012). It appears that the Sterling sub-machine gun and 9 mm Auto pistol entered production as part of the same initiative.

The FAL rifle was an uncontroversial choice, except for advocates of military–industrial self-sufficiency who favoured a completely domestic design (Pradhan, 1998). The Belgian-designed FAL, the trend-setting Western rifle of its day, had already equipped several militaries, including the British Army, a major influence on Indian thinking (Long, 1998, pp. 19–21). Using the 7.62 × 51 mm NATO cartridge, similar to Lee-Enfield ammunition, its range and accuracy were comparable to the older rifle. Semi-automatic action, which requires a separate trigger squeeze for each shot, to control the ammunition consumption, made the FAL an obvious choice. The Indian version, although clearly an FAL rifle, is a distinct variant using a unique mix of avoirdupois and metric measurements (Skennerton, 1993, p. 345). Often referred to as the Ishapore rifle, it should not be confused with the Lee-Enfield, although it is often called the same.

Total Indian SLR production has not been made public. One account reports at least 350,000 units made between 1965 and 1971 (see Table 1; Eger, 2006). This almost certainly is low. Another author notes that, 'during and immediately after the 1965 war with Pakistan the Ordnance Factories were run on two ten-hour shifts, [and] produced 25,000 Ishapore rifles a month . . .', equal to 300,000 annually in the subsequent year alone (Graham, 1984, pp. 167–68). Although it was to be replaced by the INSAS rifle, the SLR has remained in production some 50 years later, mostly produced for use by Indian police (CAG, 2010, pp. 4–5; MoD, 2012; Gangan, 2011).

9 mm Auto pistol

In India, military and police officers (of sub-inspector rank and above) are issued sidearms (i.e. handguns). The first modern sidearm produced in large quantities in India was the Webley Mk IV revolver, made at Ferozepore in the early 1900s, before production was moved to Ishapore and Kanpur (Roy, 2003, p. 409). Versions of the Webley are still produced for sale to civilians (MoD, 2012). A replacement for the military appears to have been sought around 1963–64, most likely under the same defence programme that introduced the SLR.

The pistol that was introduced, the 9 mm Auto, remains the standard military and police sidearm. A copy of the Belgian-made Browning FN High Power, one of the most popular pistol designs ever, it was a long-established and conservative choice when introduced in India (Valpolini, 2009). If manufacturing began in 1963 and the production rate did not change much from what it was in 2012—averaging 12,000 annually (see 'The future of the Indian Ordnance Factories')—a total of approximately 650,000 have been manufactured, most of which probably remain in service.

Although it was the first high-capacity magazine pistol in widespread use (holding 13 cartridges) and remains serviceable, the 9 mm Auto also shows its age. With weaker safety features and lesser capacity than more modern designs, it is a candidate for imminent replacement. There is a report, unsubstantiated by official sources, that India might be manufacturing the Czech CZ 75 pistol, an updated, low-cost version of the Browning M1911, using the same 9 mm ammunition (Roberts, 2011).

Sterling sub-machine gun

Sub-machine guns are relatively rare in much of the world, used mostly for VIP protection and other niche roles. In India, sub-machine guns are often called carbines and appear to be the firearm of choice. The British-designed Sterling sub-machine gun was initially imported in the mid-1960s, with 32,536 purchased outright (Thompson, 2012).[2] Indian domestic production began around that time at the IOF Kanpur plant (IOB, n.d.) Though production was probably higher before, it averaged 5,000 annually as of 2012 (see Table 3). This suggests at least 400,000 units

Table 2. **Selected Indian central government firearms imports, 1995–2012**

Buyer	Supplier	Description	Type	Quantity	Delivery	Sources
Army	Romania	Kalashnikov-pattern	Automatic rifle	100,000	1995	Forecast, 2012
Special Forces	Israel	Tavor	Automatic carbine	3,070	2007	DID, 2007
MHA	Switzerland	SG 551	Automatic rifle	675	2010?	*All India*, 2012
MHA	Russian Federation	Kalashnikov-pattern	Automatic rifle	29,260	2010-12	*All India*, 2012
MHA	Israel	X95 9 mm	Sub-machine gun	12,000	2012?	Unnithan, 2011
MHA	Italy	Mx4 9 mm	Sub-machine gun	34,000	2011-12	Baddeley, 2012, p. 28

have been bought altogether. This corresponds to the current requirement of 380,000 to 400,000 replacement submachine guns: 160,080 for the Army, the rest for paramilitaries and police (Bedi, 2012a). One major study, however, contends that by the mid-1990s, total IOF production was over 1 million Sterlings (Laidler and Howroyd, 1995, p. 211).

INSAS rifle

By the 1970s, international trends in military small arms were moving away from rifles using heavy ammunition such as the SLR. Instead, fully automatic rifles using smaller ammunition, such as the NATO-standard 5.56 × 45 mm cartridge, were being adopted. In 1980, although large numbers of Lee-Enfields had yet to be replaced, the Indian Army was poised to replace the SLR (Guruswamy, 2006).

The initial development contract in November 1982 was awarded to the Pune-based Armament Research and Development Establishment (CAG, 1995, para. 40.1). Development was slow. Between 1983 and 1987, the Ordnance Factory Board (OFB) produced only 36 of the new rifles for testing (CAG, 1995, para. 40.5.1). While the proposed weapons were being considered, 'in 1987 the Army came under criticism for its prevarication over which rifle to choose as a replacement for the indigenous Ishapore' (Smith, 1994, p. 117).

The new rifle was supposed to enter service by 1988 and re-equip the entire Indian Army by 1998, goals that were manifestly impossible to achieve (CAG, 2001). It probably is not coincidental that in the late 1980s, inquiries were made for potentially ordering 10 million East German AK-74 rifles, but nothing came of the request (Ezell, 2001, pp. 140–41). It is impossible to determine whether the deal failed due to the collapse of East Germany or it was only meant to pressurize the IOF to move faster.

Instead, the INSAS rifle was expected to become the standard Army rifle (CAG, 2001, para. 47). The indigenous 5.56 mm design is unique, but borrows extensively from foreign inspirations, including the operating mechanism of the Kalashnikov-pattern rifle, and incorporating features from the SLR and other rifles (Cutshaw, 2006, pp. 370–71). The INSAS family also includes a 5.56 mm carbine and light machine gun (LMG).

The new rifle was to be manufactured at Rifle Factory Ishapore and subsequently at the IOF's Tiruchirappalli plant (also known as Trichy), while the LMG and carbine versions were to be produced at the Small Arms Factory Kanpur (CAG, 2001, para. 47.3). In August 1993, the Army placed an order for 210,000 such rifles to be delivered by 1998, towards an initial requirement for 528,000 rifles. Full-scale production did not begin in 1998. A total of 269,612 rifles were finished by early 2000, or roughly 80,000 annually (CAG, 1995, para. 40.8.1; CAG, 2001, para. 47.7.1.1.).

Despite its lengthy gestation, the INSAS rifle was subject to harsh criticism even before it entered service. This criticism reached Parliament in 1997, at which time the Ministry of Defence maintained that the weapon was certified and denied allegations that its ammunition was defective (Rajya Sabha, 1997). In response to a parliamentary question in 2000, the Minister of State for Defence confirmed that the Army had accepted the INSAS rifle and its performance 'has been found to be very satisfactory' (Rajya Sabha, 2000a).

Criticism of the manufacturing standards of the INSAS rifle and its reliability was not voiced only in India. The Nepalese Army, the largest export customer for the INSAS, was especially dissatisfied (Karp, 2013b). Initially the complaints might have been attributed to early development problems, but after almost two decades of development, this was far from satisfactory. Apparently, the carbine version was never authorized for series production. It appears to have been abandoned in favour of alternative designs, some of which are also still under development a quarter century after the project was launched (Raghavan and Anand, 2009).

No data on the total number of INSAS rifles produced has been published since reports that 300,000 were completed as of 2000 and 80,000 more were scheduled for production for the following year (Rajya Sabha, 2000a). At that rate, the initial requirement of 528,000 would have been completed by 2002–03. More recently, the Ministry of Defence reported that an average of 100,000 units continued to be manufactured annually (MoD, 2012). This would mean that approximately 900,000 more have been completed, for a total of roughly 1.4 million. This estimate seems high, particularly since many Army units have yet to receive a modern rifle (Bedi, 2012b). A total production of 700,000 to 900,000 INSAS rifles as of 2012 is a more likely estimate.

Third wave: 2008 to the present

As frustration with the domestic industry grew, in the Ministries of Defence and Home Affairs support for military–industrial self-sufficiency waned. Instead of an emphasis on

dominant, iconic weapons, diversity became more accepted in discussions of arms procurement. Military and police arsenals gradually lost their long-standing homogeneity.

The third wave of small arms procurement was pioneered by India's Special Forces, which began to accumulate highly diverse arsenals in the 1980s (Sharma, 2008, pp. 73, 109, 131, 151, 258). The breakthrough towards greater diversity was the decision to acquire Kalashnikov-pattern rifles from 1993 to 1995. This decision was an exception, though, until the 2008 Mumbai terrorist attack ended most official opposition to small arms imports and ushered in the third wave of Indian small arms procurement.

Kalashnikov-pattern rifle

The Indian military became reliant on Soviet-designed weaponry in the 1960s and emerged as Moscow's largest military client (Smith, 1994, pp. 82–84, 94–98). But India did not adopt the former Soviet Union's signature firearm, the Kalashnikov rifle. This anomaly may have reflected the British orientation of the Indian Army, its preference for NATO-calibre ammunition, or its suspicion of fully automatic fire. Automatic-rifle-armed enemies were encountered in Sri Lanka in 1987. After deciding not to buy Kalashnikov-versions from East Germany in 1987–88, pressure became irresistible in the early 1990s, when fully automatic weapons were needed to combat well-armed guerrillas in Kashmir, Maoist insurgents, and Northeast Indian separatists (Kartha, 1993). Ezell reports that roughly 20,000 Kalashnikovs seized from separatists in Kashmir, Punjab, and elsewhere were pressed into official service, apparently the first of their kind in official use (Ezell, 2001, p. 186).

Captured equipment aside, Indian paramilitary forces were unable to match insurgent firepower with their Lee-Enfields. With the INSAS rifle delayed, the Army bought 100,000 Kalashnikov-pattern rifles in 1993 for the Rashtriya Rifles, the paramilitary force operated by the Army. Initially the Army turned to a Bulgarian supplier for the rifles and North Korea for ammunition. Unexplained complications precipitated a switch to supplies from Romania, with whom the Ministry of Defence signed a contract for rifles in June 1995 and for ammunition in December 1996 (CAG, 2001, para. 47.8; Rajya Sabha, 2000b). The reason for choosing Kalashnikovs was not made public. The extremely low cost—USD 88 per rifle—may have been decisive (Forecast, 2012, pp. 5–6). The Rashtriya Rifles continue to use these weapons as of 2013 (*India Today*, 2013).

The Kalashnikov-pattern rifle represented a tentative step toward diversification. But no comparable purchases of Soviet-style small arms followed. An effort to acquire 64,000 Kalashnikovs failed in 2002–03, when negotiations with a Bulgarian firm ended due to Russian demands for licensing control over the deal (Khanna, 2004). The order was replaced with a smaller purchase from the Russian Federation in 2010. The initial Kalashnikov deal did not lead to mass equipment of Indian security services, but it ended India's reliance on domestically manufactured small arms, establishing a precedent for more large-scale imports (*All India*, 2012).

The import explosion

A variety of foreign weaponry was ordered by Indian security agencies in the 1970s and early 1980s, but the quantities appear to have been low (Ezell, 1988, pp. 201–202). Beginning with the Kalashnikov rifle deal, larger foreign orders became more common in the 1990s and after. One highly publicized order was the Army purchase in 2002 of 3,074 Israeli-made Tavor TAR-21 carbines for the Special Forces (Rajya Sabha, 2005). These carbines were delivered at about INR 880 million (USD 20 million) in 2007 (DID, 2007).

The 2008 Mumbai terrorist attacks precipitated a flood of imports. The Mumbai police, widely considered among the best in the country, fought initially with outdated Lee-Enfield rifles against terrorists armed with Kalashnikovs and grenades (Page, 2008). Senior police, including the chief of the Bombay Police Anti-Terrorist Squad, Hemant Karkare, died because their protective gear was ineffective against Kalashnikov rifle fire (Page, 2008).

With domestic manufacturers unable to respond quickly, there was a rush to rearm with foreign equipment. Of all imports, those of the central government are best documented (see Table 2). The police forces of many Indian states and cities also re-equipped, but details are often lacking. While the types of weapons acquired in this rush often are known, quantities and acquisition dates usually are not. With over 1.66 million constables in their employ (NCRB, 2012, p. 167), Indian municipal and state police forces may have procured hundreds of thousands of new weapons.

National Security Guards with Heckler & Koch MP5 sub-machine guns imported from Germany, primarily for VIP protection, Mumbai, June 2009.
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Recent purchases appear to include numerous types of firearms. The most common new types are Glock pistols, an international favourite with a reputation for firepower, simplicity, and safety. There are important exceptions such as the Mumbai police, which re-equipped its constables and officers with Smith & Wesson pistols (Swami, 2009).The state of Uttar Pradesh has begun to re-equip part of its police force with German MP5 sub-machine guns (ToI, 2012).

The import breakthrough dramatically affected the armament of central government forces as well. The homogeneity, which had characterized the first 50 years of post-independence armament, collapsed in the country's rush to update to more modern weaponry. Another effect was transforming the role of the IOF, which were reduced from a monopolistic provider to one competitor among many. Where previously IOF small arms designs were supplied irrespective of complaints from their purchasers, the IOF now must compete for deals, with no guarantee of contracts.

Decentralization through imports allowed specific security agencies to purchase smaller quantities of a wide range of products. For example, the National Security Guard (an elite counterterrorism agency) previously armed primarily with German MP5 sub-machine guns, acquired a highly diversified arsenal including 675 Swiss SIG SG 551 automatic rifles (*All India*, 2012).

The future of the Indian Ordnance Factories

While imports provide cutting-edge equipment, IOF still appear to supply the greatest quantity of official firearms to India. They produce an average of roughly 130,000 weapons annually for official customers, plus an additional 47,600 handguns and rifles and an unknown number of shotguns for sale to civilians (see Table 3).

Mostly the IOF manufacture small arms that are dated or ambivalently regarded. Most of their mass-produced small arms are based on designs from the 1950s or earlier, with the most prominent exception of the INSAS family, based on the 65-year-old Kalashnikov design. Current production is dominated by the INSAS rifle, still made at three facilities: Ishapore, Kanpur, and Tiruchirappalli (MoD, 2012). Statistics reveal that the SLR, the weapon the INSAS rifle was designed to replace, remains in production. The Sterling sub-machine gun and 9 mm Auto pistol are also still in production, although both are being replaced gradually by more modern imports.

Facing pressure to compete for sales, the IOF have shown unprecedented originality. In addition to developing variants of existing products, they have unveiled new products, such as the Trichy automatic rifle, the Zittara carbine, and several others. Of these new products, only the Vidhwansak anti-materiel rifle is known to be in service (ToI, 2011; OFB, n.d.; *The Hindu*, 2008; OFB, n.d.).

Table 3. **Annual IOF firearms production, 2012**

Designation	Description	First produced	Annual production
Official use			
5.56 mm INSAS	Indigenous automatic rifle	1994	100,000
5.56 mm INSAS LMG	Light machine gun	1997?	6,000
7.62 mm SLR	FAL semi-automatic rifle	1963	6,000
7.62 mm MMG	Medium machine gun, FN-MAG	n/a	300
9 mm Auto	Browning FN35 pistol	n/a	12,000
9 mm carbine	Sterling sub-machine gun	1967	5,000
Official use total			**129,300**
Civilian use			
.315 sporting rifle	Civilian, Lee-Enfield based	1956	14,000
.22 sporting rifle	Civilian RF	1971	600
.22 revolver	Civilian .22 LR	2002	2,500
.32 revolver	Civilian Webley ICF	1980	22,000
.32 pistol	Civilian Browning 1910	n/a	8,500
12 bore single-barrel	Civilian shotgun	1953	n/a
12 bore double-barrel	Civilian shotgun	1953	n/a
Civilian use total			**47,600**
Total annual small arms production by IOF, 2012			**176,900**

Notes: This table is not comprehensive. Calculations do not include specialized weapons known to be in production, such as the Vidhwansak, grenade launchers, and sniper rifles. Production total does not include civilian shotguns. n/a indicates the date or quantity is unknown

Sources: MoD (2012). Production start of Sterling sub-machine gun sourced from OFB (2005). The first year of civilian firearms production is sourced from OFB (1999), except the production start of the .22 rifle and .32 revolver, which is sourced from Skennerton (1993, p. 345).

Ammunition production

Relatively little is known about small arms ammunition production in India. During the Second World War, the IOF produced over 1 billion rounds of small arms ammunition (Skennerton, 1993, p. 340). As part of its military assistance package to India after the 1962 Sino-Indian war, in 1963 the United States government transferred two additional assembly lines for small arms ammunition, capable of manufacturing several million rounds daily (Thayer, 1969, p. 297). As of 2009 the IOF reportedly produced 171 million small arms cartridges annually (Rajya Sabha, 2009).

This number seems impressive, but divided among 4.5 million state security personnel, the result is an average of just 38 cartridges per person per year. By comparison, the peacetime training requirement for the US Army before 11 September 2001 was 440 million rounds annually, 366 for every active and reserve soldier (Mengel and Braun, 2005, p. 10; IISS,

2000, p. 25). Combat requires much more ammunition. In Afghanistan, the US military consumed 1.8 billion small arms cartridges annually (Buncombe, 2011). Unless ammunition stocks are supplemented by large imports, Indian security services face shortages that hamper training and operations. Indian security agencies also require imported ammunition to support imported firearms, as was necessary when Kalashnikovs were purchased in 1995 (CAG, 2001, para. 47.8).

Total state small arms

Although India's selection of official small arms usually is reported, the size of the official aggregate small arms arsenal is not. Major types of weapons present are well known, as are particular purchases, but not the total quantities of small arms holdings. Until more precise data is made available, total figures must be approximated from limited data and application of standard estimating procedures.

Overall estimation is facilitated by the tendency of Indian security agencies to hang on to old equipment. The research for this Issue Brief uncovered no reports of systematic decommissioning or destruction of surplus small arms by Indian security agencies. The estimates assume some losses, especially from warfare and routine breakage. Further evidence of losses comes from reports of private ownership of former Indian military and police small arms, large transfers such as the export of Lee-Enfield rifles to Afghanistan, and widespread evidence of insurgents using the same types of weapons as the Indian security services.

Total military small arms

Insight into the scale of military inventories comes from the *Futuristic Infantry Soldier as a System* (F-INSAS), a programme to re-equip Indian Army infantry with as many as 2 million new automatic rifles (Bedi, 2012b, p. 40). This includes new equipment for 305,000 infantry who lack modern weapons (Bedi, 2012b, p. 44). Other types must also be added, such as handguns and machine guns. The Army's requirement for 2 million automatic rifles corresponds to an estimated total requirement for 2.5 million small arms of all types—including handguns, machine guns, and other types—for its active forces (Small Arms Survey, 2006, p. 56). Reserve units, presumably to be armed by cascading older weapons, are assumed in this research to be armed at one-half the rate of their active counterparts or less (see Table 4).

Table 4. **Estimated Indian military small arms requirements, 2012**

Organization	Personnel	Estimated firearms per person	Estimated total firearms
Army	1,129,900	1.8	2,000,000
Navy	58,350	0.25	14,500
Air Force	127,200	0.25	32,000
Coast Guard	9,550	1.8	17,000
Army reserves	960,000	0.5	480,000
Navy reserves	55,000	0.125	7,000
Air Force reserves	140,000	0.125	17,500
Total	**2,480,000**		**2,600,000**

Note: Totals may not agree due to rounding.

Sources: Personnel data from IISS (2012, p. 243); firearms ratios from Karp (2013a).

Table 4 shows the Army's dominance of India's military small arms; the Army and Army reserve control some 95 per cent of all military small arms. This is partially because the Army is much richer in personnel than the other services; 84 per cent of all Indian military personnel wear an Army uniform. Except for the Army and Coast Guard, other military services use small arms primarily for their guard duties.

Total police small arms

Police and paramilitaries control a large part of the Indian official small arms arsenal. Traditionally, Indian police constables have patrolled unarmed. Even for normal riot control duties, police usually rely on the *lathi*, a long bamboo truncheon. But firearms usually are available to them. Since independence, police have been armed primarily with military Lee-Enfields, often subsequently converted to .410 muskets (shotguns), considered less lethal for riot control. Officers from the rank of sub-inspector and higher normally were issued a Webley revolver, and more recently a 9 mm Auto pistol. These were the traditional Indian police firearms.[3]

This traditional homogeneity declined with the accelerating modernization of police armament from the mid-1990s. Police arsenals received a wide variety of firearms from a range of producers. Glock handguns, considered ideal for personnel with limited firearms experience, were among the most common additions to state police inventories, but many other types were purchased as well (Swami, 2009).

An important facilitator of change came in 2000–01, when the Ministry of Home Affairs expanded its programme for Modernisation of Police Forces (MPF) to include subsidies for procuring new state-level police firearms, such as INSAS rifles (Ernst & Young, 2010, p. 84). This has been especially important for poorer states in the country, including those most afflicted by Maoist and separatist violence. There has been criticism, however, of the scale and implementation of the programme, which has left much police infrastructure primitive and unimproved (Ernst & Young, 2010, p. 29).

A notable flaw of the MPF programme is the inability of many states to spend their allocated budgets, suggesting deeper bureaucratic problems (Sinha, 2012). Other reviews of MPF are more positive, emphasizing the connection between better weaponry and improved police morale (BPRD, 2010). A less debatable result of MPF is greater diversification of police arsenals, by facilitating imports such as Kalashnikovs, MP5 sub-machine guns, 9 mm carbines, Glock pistols,

and grenade launchers, as well as domestically produced SLR and INSAS rifles (Rajya Sabha, 2010). Small arms in military service are becoming common among Indian police too.

The condition of Indian police arsenals was revealed in a report by India's Comptroller and Auditor General (*Indian Express*, 2009). It showed that the state of Gujarat had 74,577 firearms in 2009 (see Table 5), equipping a state force of 71,670 police constables and officers, equal to 1.05 firearms per person (NCRB, 2012 p. 587). Similar ratios are found elsewhere. The Comptroller and Auditor General reported that police in the state of Chhattisgarh had 49,143 'units of weapons' in 2009, including 'obsolete' firearms, still in use (*Mumbai Mirror*, 2012). With a force of 44,107 police in 2011, this equalled little over 1.1 weapons per person (NCRB, 2012, p. 587).

While country-wide totals are not known with equal certainty, selected state examples can be used for extrapolation. As of 31 December 2011, India as a whole had 1,660,151 police, including civil and armed police (NCRB, 2012, p. 167). At the Gujarati state rate of 1.05 firearms per police constable and officer, there would be approximately 1.7 million firearms in all Indian police inventories. The same method of calculation can be applied to estimate the numbers of types of police small arms, as shown in Table 6.

Table 6 may under-represent the proportion of modern firearms owned by Indian police. The state of Gujarat, on which it is based, has modernized somewhat by investing in INSAS rifles (*Desh Gujarat*, 2008); some other states appear to have modernized their arsenals faster and enlarged their proportion of modern weaponry. In the state of Chhattisgarh, for example, police rely on older .303 rifles, .410 muskets, and .38 revolvers for just 23 per cent of their total weapons inventory (*Mumbai Mirror*, 2012). If Chhattisgarh is representative—increasing its inventory by acquiring newer weapons without discarding old equipment—national totals could be significantly larger and more modern than the Gujarat example suggests.

State and municipal police forces previously relied on military weapons, apparently cascaded from the military as they were replaced. In recent years, however, police also have begun to buy newly made INSAS rifles and SLRs directly from the IOF. Since the military began phasing out the SLR in favour of the INSAS rifle in 1998, the SLR appears to have been produced exclusively for police, other domestic security agencies, and export (CAG, 2010, pp. 4–5; Gangan, 2011; MoD, 2012).

Table 5. **Police firearms in the state of Gujarat, 2009**

Type	Quantity	Per cent
.303 rifles	46,357	62
.410 muskets	8,805	12
Handguns and other firearms	19,415	26
Total	**74,577**	**100**

Source: *Indian Express* (2009)

Table 6. **Estimated national Indian police firearms, 2011**

Designation	Description	Estimated quantity
.303 Lee-Enfield	Rifle	1,000,000
.410 musket	Shotgun	250,000
.38, .45, and 9 mm	Handguns	300,000
9 mm carbine	Sub-machine gun	100,000
INSAS, SLR, etc.	Modern rifles	50,000
Total		**1,700,000**

Sources: Totals for each type are best-fit estimates, rounded up according to ratios derived from *Indian Express* (2009). Data is multiplied using national police personnel from NCRB (2012, pp. 167, 587).

Total paramilitary small arms

India's paramilitary organizations are the second largest in the world, after North Korea's. These are armed domestic security agencies (see Table 7) that patrol the country's borders, fight domestic secessionism and insurgencies and provide military-style support to local police (Sharma, 2008, p. 3). Most of them are under the national government and allotted to state governments in cases of emergencies. After the first terrorist attacks on Mumbai in 1993 and the near-simultaneous escalation of separatist violence in Kashmir, India's paramilitary organizations were under pressure to adapt. Bearing the brunt of unprecedented fire from pistols and Kalashnikov rifles, as evidenced by the firearms seized from insurgents, paramilitaries and police were grossly outgunned (Kartha, 1993).

Prior to the third wave of re-equipment, paramilitaries received the country's first large purchase of Kalashnikov rifles in 1995. Other purchases included imported sniper rifles and sub-machine guns, and domestically made sub-machine guns and automatic rifles (ToI, 2012).The total scale of these acquisitions has not been made public. The armament of different organizations appears to vary greatly, from the relatively well equipped Rashtriya Rifles and Border Security Force, to the less armed Central Reserve Police Force.[4] If India's 12 largest national paramilitary organizations have small arms inventories ranging from 1.2 to 1.8 small arms per person, the total force would have an arsenal of 1.3 million firearms (see Table 7).

It is difficult to estimate the number of older bolt-action rifles, as opposed to automatic weapons, in Indian paramilitary arsenals. Assuming the breakdown is roughly equal in numbers of main types, plus roughly ten per cent pistols (Small Arms Survey, 2006, p. 56), the total estimated paramilitary inventory of some 1.3 million small arms would include approximately 600,000 bolt-action rifles, 550,000 automatic weapons—including rifles, sub-machine guns, and machine guns—and roughly 100,000 handguns.

Table 7. **Estimated Indian paramilitary small arms, 2012**

Organization	Personnel	Estimated firearms per person	Estimated total firearms (rounded)
Assam Rifles	63,883	1.8	115,000
Border Security Force	208,422	1.8	375,000
Central Industrial Security Force	94,347	1.2	113,000
Central Reserve Police Force	229,699	1.2	276,000
Defence Security Corps	31,000	1.8	56,000
Indo-Tibetan Border Police	36,324	1.8	65,000
National Security Guards	7,357	1.8	13,000
Railway Protection Forces	70,000	1.2	84,000
Rashtriya Rifles	65,000	1.8	117,000
Sashastra Seema Bal	31,554	1.5	47,000
Special Frontier Force	10,000	1.2	12,000
Special Protection Group	3,000	1.5	4,500
Total	**850,586**		**1,300,000**

Note: The total has been rounded up. Paramilitary organizations listed exclude Civil Defence and Home Guard reserves, which are included in Indian paramilitary organizations as listed by the IISS. The size of these two organizations is greatly disputed. According to the NCRB, the Home Guard has a membership of 174,958 (NCRB, 2012, p. 173). The combined strength of the two is reported in IISS to be 987,821 (IISS, 2012, p. 247). They are thought to be unarmed or lightly armed. Table 7 also excludes state-level armed police organizations, counted here instead among police.

Sources: Personnel data sourced from IISS (2012, p. 247). Firearms ratios are authors' estimates, based on interviews with security service personnel, and Sharma (2008, pp. 73, 109, 131, 151, 258).

Small arms of the Indian state

The estimates of types of military, paramilitary, and police small arms appear in Table 8. The total of 5.6 million officially owned firearms corresponds to procurement estimates and estimated military, paramilitary, and police inventories noted above. It also corresponds to reports that the Indian Army needs 2 million new automatic rifles and reports of combined military, paramilitary, and police requirements for as many as 4 million modern firearms (Bedi, 2012a). While every effort has been made to establish that the total and subtotals shown here are accurate, they remain estimates awaiting further research and official data.

Conclusion: an uncertain outlook

Because small arms can last indefinitely, and generally are not discarded, the future of Indian official small arms is dominated by the past; current weapons will continue to arm India's soldiers, paramilitaries, and police for years to come. The introduction of new weapons will affect Indian security agencies, but only gradually, as many personnel continue to carry older equipment. While this Issue Brief tries to piece together a coherent picture, a full account of official Indian government small arms production, procurement, and holding remains to be told.

Vast quantities of older weapons—often considered obsolete elsewhere—will remain in India's arsenals for years to come. This research uncovered no records of surplus small arms destruction by the Indian military or other government agencies. Older equipment is replaced and cascaded to other agencies or stored, not destroyed. It appears that Indian security services have no official concept of surplus armaments.

Planning is under way to replace older equipment, especially Lee-Enfield rifles. The most ambitious is the F-INSAS programme to re-equip the Indian Army. This covers not only new automatic rifles, but also sensors, communications equipment, clothing, and many other Army requirements (*The Hindu*, 2006). Since it was announced in 2006, however, F-INSAS progress has been slow. Bids for a new automatic rifle to replace the INSAS were received from 43 foreign suppliers. If extended to include all security services, the replacement could lead to procurement of up to 6 million small arms (Bedi, 2012b, p. 42). This would make it one of the world's largest contemporary military small arms programmes.

The outlook for F-INSAS is uncertain. The IOF has submitted proposals, but their role is to be determined; foreign designs and production are feasible alternatives. The decentralized authority of Indian security services, moreover, threatens the coherence of this initiative, making it likely that the small arms of the Indian government will become increasingly diverse.

Similarly, the salience of the IOF is far from assured. In other Indian military–industrial sectors, privatization is increasingly accepted (Mohanty,

Table 8. **Estimated Indian official small arms, by organization and type, 2012**

Organization	.303 rifles	.410 muskets	Modern rifles*	Machine guns	Sub-machine guns	Handguns	Unidentified types	All small arms
Army	305,000	?	1,200,000	?	?	250,000	750,000	2,500,000
Other military	?	?	?	?	?	?	100,000	100,000
Police	1,000,000	250,000	50,000	?	100,000	300,000	?	1,700,000
Paramilitary	600,000	?	300,000	50,000	200,000	100,000	?	1,300,000
Total	**1,905,000**	**250,000**	**1,550,000**	**50,000**	**300,000**	**650,000**	**850,000**	**5,600,000**

* Modern rifles include SLR, INSAS rifles, and other semi- and fully automatic rifles.
? indicates no basis for estimating is available.

Note: In this table, Army and other military totals include corresponding reserve organizations. Unidentified types are small arms in official inventories, but for which types and quantities cannot be readily distinguished. In this table, the Rashtriya Rifles are included among paramilitaries, not Army. 'Other military' refers to the Air Force, Coast Guard, and Navy. Totals may not agree due to rounding.

Sources: Totals for each type are best-fit estimates, based on Tables 4, 6, and 7, and corresponding text.

2004, p. 34). With a monopoly in domestic production, the Indian small arms industry is economically secure and assured of financing to continue making small arms regardless of whether official clients want them. But with official customers increasingly free to buy foreign designs, the industry seems destined to become a supplier of last resort. ■

Notes

1 Designations of Indian-made small arms can be confusing. *Ishapore Rifle* can refer to any rifle made in Ishapore: usually the .303 Lee-Enfield, 7.62 Lee-Enfield, or the SLR. In Indian use, *carbine* usually means a sub-machine gun, rather than a short-barrel rifle (which is its meaning in most other contexts). *Musket*, in Indian use, usually means shotgun.

2 The Sterling is often referred to as a Sten Gun, although the Sten actually is an earlier British sub-machine gun that the Sterling was intended to replace.

3 Author interviews with Indian security service personnel, New Delhi, September 2011.

4 Author interviews with Indian security service personnel, New Delhi, September 2011.

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About the India Armed Violence Assessment

The India Armed Violence Assessment (IAVA) promotes research and supports India's social science communities dedicated to studying the causes and consequences of armed violence. Developed in coordination with Indian partners, the IAVA explores wide-ranging issues related to the instruments, actors, and enabling institutions that shape security. It intends to catalyse evidence-based debate in India and facilitate Indian contributions to global policy and programming on related issues. The project is supported by the Small Arms Survey.

IAVA Issue Briefs review the state of knowledge on key themes associated with armed violence. Commissioned by the Small Arms Survey, Issue Briefs summarize major findings and insight into issues related to conflict and crime-related violence, perpetrators and victims, prevention and reduction, and strategies to contain violence. They stress data-based research findings on the scale, forms, and severity of armed conflict, contributing forces, and the impact of policy responses.

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India Armed Violence Assessment
A project of the Small Arms Survey

small arms survey