



China's People's Armed Police is a heavily armed domestic security force of roughly 1.5 million men and women. Here members drill in a railway station in Chongqing in January 2006. © Liu Chan/Xinhua/AP Photo

# Trickle and Torrent

## STATE STOCKPILES

### INTRODUCTION

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It was a small event. In October 2005, Yemeni officials revealed that two AK-47 rifles used in a major terrorist attack in Jeddah the year before had been traced to the Yemeni Ministry of Defence (*Yemen Observer*, 2005). The underlying problem is not exceptional, for no country is immune to loss of its official weapons. In most countries the process is a trickle, in others a steady stream, and in some it can degenerate into an outright torrent.

The sight of public arsenals undermining public security is a reminder of the fundamental importance of stockpile management and security. The risks are widely acknowledged, as the 2001 *UN Programme of Action* testifies. But policy-making has been retarded, in the first instance by the lack of basic information. How many military and law enforcement small arms are there in the world? Which countries have the largest arsenals? Which are at greatest risk of loss?

This chapter reviews the global distribution of firearms among state-sponsored armed forces. Its findings include the following:

- Official reports confirm the existence of 910,615 million law enforcement firearms. Approximately 25.4 million others are estimated to exist, for a combined global total of at least 26.3 million law enforcement weapons.
- Extrapolation techniques conservatively show there are approximately 200 million modern, official military firearms worldwide.
- Approximately 141 million military firearms are automatic rifles, some 27 million are pistols and revolvers, some 12 million are machine guns, and roughly 20 million are other types. These figures do not include older weapons still in storage.
- Global military firearms inventories are concentrated among relatively few countries, with approximately two-thirds controlled by just ten countries.
- A key measure of international transparency, 16,328,000 military firearms have been publicly declared by their governments, roughly eight per cent of the suspected total.
- Many governments are willing to provide data on official small arms, but there is no international mechanism to facilitate reporting.
- Better security over official stockpiles requires greater *transparency* and *anticipatory action* to counter known and potential dangers.

These estimates of global law enforcement firearms inventories and military stockpiles are the most comprehensive ever. They reveal a substantially higher figure for law enforcement inventories than earlier assumed. Previously estimated at 18 million (Small Arms Survey, 2001, p. 88; 2002, p. 104), more complete research shows there are at least 26.3 million firearms. The actual total is almost certainly higher, since the size of major domestic security agencies (and their weapons stocks) remains unknown in many countries.

Previous military stockpiles estimates advanced by the *Small Arms Survey* totalled 226 million–241 million weapons (Small Arms Survey, 2001, p. 88; 2002, p. 104). This yearbook introduces a system of tailored estimating ratios, based on readily observable military doctrine. The result is greater certainty and accuracy. Global military inventories are estimated conservatively to hold at least 200 million firearms. This approach also permits the first breakdown of military stockpiles by weapons type.

**Government stockpiles are targets for theft, illegal diversion, and questionable sales.** The government-owned small arms identified in this chapter constitute the largest coherent stockpiles in the world. Correspondingly, they also create large-scale risks. The guns in civilian possession, by contrast, are typically dispersed among millions of owners in small individual holdings. Government-owned small arms, concentrated among a few owners, can move in vast quantities. They will always be tempting targets for theft, illegal diversion, and questionable sales. Their very presence also creates a more serious danger of sudden, catastrophic loss of control.

## STATE ARSENALS: BIG AND RISKY

Government-owned firearms are significantly outnumbered by the inventories owned by civilians, but the former represent the largest category stored in coherent stockpiles. Unlike civilian-held weapons, which are distributed among millions of owners, official weapons, especially military weapons, tend to be stockpiled. This makes them tempting targets for theft. Loss of individual small arms appears to be relatively common. Massive haemorrhaging of weapons, including the loss of entire state stockpiles, is not rare.

In the worst scenarios, hundreds of thousands or millions of firearms have been looted from government facilities in single incidents. The collapse of South Vietnam in 1975 allowed more than 2.1 million American-supplied small arms to fall into North Vietnamese control, creating a pool for uncontrolled exports that showed up around the world for more than a decade (E. Ezell, 1988, p. 444). On a smaller scale, it was the looting of Ugandan military arsenals in 1979 that precipitated the collapse of Idi Amin's hold on power and enabled dissident groups to establish their autonomy (Goldsmith, 2005). Better known was the loss in 1991 of several hundred thousand small arms, pillaged as the government of Somalia ceased to exist. Even more infamous was the loss of 640,000 small arms taken from Albanian government arsenals in 1997, and the estimated 4.2 million looted in Iraq in 2003 (UN, 2000; Small Arms Survey, 2004, pp. 42–48).

Less dramatic losses continue unabated. Unauthorized losses, small and great, from state-sponsored armed forces, announced in the previous year include the following:

- The UK government reported in 2005 that the British Army lost ten weapons, including one SA-80 automatic rifle and four pistols (Kirkup, 2005).
- In Uganda, 86 out of 872 newly recruited Local Defence militiamen ran off with their weapons while still in training (Butagira and Yumbe, 2005)
- China reported in April 2005 that since 1996 it has recovered 30,000 stolen military weapons, although it did not reveal the full scale of its losses (Xu, 2005).
- The Russian Federation reported that its Ministry of Defence lost 66,679 'rifled arms' during 2004 alone (*Novosti*, 2004).
- Weapons supplied to the re-created Iraqi army reportedly disappear continuously (Galbraith, 2005).

None of these reports is unprecedented or exceptional. Confirming the cliché that the worst thing most governments can do in the postmodern era is to collapse, the largest catastrophes were the direct result of sudden loss of authority. The smaller incidents illustrate the dangers inherent in stockpiles, even in stable societies. The worst small arms dangers are always a possibility, an inherent consequence of the simple existence of concentrated official stockpiles. This risk reinforces the imperatives of rigorous stockpile management and of the rapid destruction of surplus weapons, a task that can be accomplished only if excess inventories can be identified.

## LAW ENFORCEMENT: LOST IN PLAIN SIGHT

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Law enforcement small arms prominently illustrate the difficulty of evaluating weapons inventories even though they are routinely in public view. In some countries, to be sure, law enforcement agencies maintain large concealed arsenals. More commonly, though, law enforcement weapons are elusive exactly because they are in plain sight. Like Edgar Allen Poe's purloined letter, most law enforcement weapons are readily visible. Police agencies often do not maintain large stockpiles. Most of their weapons equip sworn officers and patrol cars; what you see is what they have (Small Arms Survey, 2001, pp. 68–70). There are incentives not to hide law enforcement weapons; their deterrent impact is facilitated by open display. But the operational display of weapons is not the same thing as institutional transparency. In most countries, total law enforcement small arms inventories are concealed by official reticence.

Even when governments want to contribute to international small arms transparency, law enforcement inventories can confound good intentions. Among the most serious barriers to estimating law enforcement small arms totals:

- Federalism and devolution often create *layered jurisdictions* and legally independent law enforcement agencies, separately armed, without centralized record-keeping.
- Multifaceted law enforcement requirements and *institutional specialization* lead to the establishment of numerous agencies, each with independent small arms requirements, procurement, and inventory control.
- In many countries, jurisdictions, and specific agencies, law enforcement officers must *privately purchase* all or part of their armament.

Because many law enforcement agencies permanently issue most of their weapons instead of maintaining formal stockpiles, their inventories tend to be less vulnerable than the armed forces to catastrophic losses. But, because individual officers routinely carry their weapons, often taking them home, or have access to local storage facilities, small-scale pilferage is more likely. Anecdotal evidence, usually individual crime reports, suggests that there is a steady trickle of law enforcement weapons into civilian hands. Reports about lost or illegally transferred police weapons often include:

- break-ins against police offices for the purpose of stealing weapons;
- assaults against law enforcement officers in which a weapon is lost;
- officers selling their government-issued weapons (most serious in poorer countries);
- officers pilfering weapons from crime scenes and evidentiary storage (anecdotal reports suggest this is a problem everywhere); and
- officers abusing gun-buying privileges by making straw purchases for unauthorized individuals.

Table 2.1 Known law enforcement firearms inventories

Country	Organization	Population	Sworn officers	Population /officer	Proportion armed	Total small arms	Ratio firearms per officer	Year	Sources
Belgium	police	10,364,000	17,767	583		23,953	1.3	2000	SAS (2001, p. 69)
Bulgaria	police	7,450,000	27,000	276		59,400	2.2	2004	Rynn, Gounev, and Jackson (2005, p. 13)
	fire fighters		5,000			5,500			Rynn, Gounev, and Jackson (2005, p. 13)
Central African Republic	gendarmerie		2,000			4,400			Rynn, Gounev, and Jackson (2005, p. 13)
	prison administration		5,850			6,435			Rynn, Gounev, and Jackson (2005, p. 13)
Central African Republic	police	3,900,000	1,685	2,315	0.46	1,072	0.6	2003	SAS (2005, pp. 306, 307, 312)
England and Wales	police	54,218,000	180,107	301	0.10	36,000	0.2	2004	Faltas and Chrobok (2004, p. 32)*
Germany-Saarland	Saarland police	1,061,000	2,750	386	1.00	5,344	1.9		Faltas and Chrobok (2004, p. 43)
Jamaica	police	2,735,000	8,500	322	1.00	9,000	1.1	2004	Correspondence with the Small Arms Survey, 4 November 2004
Japan	police	127,400,000	240,000	530		250,000	1.0	2004	Correspondence with the Small Arms Survey, May 2004
Macedonia	police	700,000	7,500	93		23,000	3.1	2003	Grillot (2004, p. 13)
Montenegro	police	2,049,000	4,227	485		5,157	1.2		Florquin and Stoneman (2004, p. 7)
New Zealand	police	4,035,000	7,038	573		2,000	0.3	2005	Alpers and Twyford (2003, p. 15)

Norway	police	4,593,000	7,500	612				9,000	1.2	2000	SAS (2001, p. 70)
Papua New Guinea	police	5,545,000	5,000	1,109				4,800	1.0	2004	Alpers (2005, p. 48)
	prison guards		1,279					3,000		2004	Alpers (2005, pp. 48-49)
Philippines	police	87,857,000	117,376	749	0.70			82,000	0.7	2004	Clepano (2004)
Scotland	police	5,062,000	14,810	342	0.10			3,000	0.1		Faltas and Chrobok (2004, pp. 32-33); interview with Mo Poole, June 2004*
Serbia	police	8,104,000	35,400	229	0.45			53,100	1.5	2004	Taylor, Phillips, and Bogosavljevic (2005, pp. 17-18)
Sierra Leone	police	5,300,000	7,000	757				3,200	0.5		Interview with Mo Poole, June 2004
South Africa	police	45,300,000	101,022	448				262,062	2.6	2004	Gould and Lamb (2004, pp. 150-51, 231; total is after 75,000 police guns destroyed 1999-2003; population from IISS, 2005, p. 397)
United States	FBI	293,000,000	11,523		1.00			49,600		2002	US GAO (2003, pp. 3, 31)
	DEA		4,161					14,921		2002	US GAO (2003, pp. 3, 31)
	Fish & Wildlife		888					5,234		2002	US GAO (2003, pp. 3, 31)
Yugoslavia	police	23,500,000	40,000	588	1.00			290,000	7.3	1989	Firearms from Gorjanc (2000), population from Curtis (1990)
<b>Average</b>									<b>1.5</b>		
<b>Average without outliers</b>									<b>1.3</b>		

Note: population figures from then-year volumes of IISS, *The Military Balance*, unless otherwise stated.

\* Firearms for England and Wales, and Scotland, based on the assumption that two firearms are maintained for each armed officer.

Data on all or part of the law enforcement weapons inventories is publicly known for 19 countries. This information relates mostly to police. Collectively, their disclosures average 1.5 police firearms per sworn officer, or 1.3 per officer if statistical outliers are excluded (see Table 2.1.). For countries where such data is unavailable, national police estimates can be developed either by multiplying the average of 1.3 by the total number of sworn officers, or, where the number of sworn officers is unknown, by estimating both the number of officers and their gun inventories. The number of police officers is known for 71 countries, and varies regionally from an average of one officer for every 901 people in sub-Saharan Africa to one officer for every 356 people in the Americas and the Middle East (see Table 2.2).

When these averages of known police armament and personnel figures are extrapolated across regions to countries for which data is lacking, a global police estimate emerges. In all, authorities have disclosed or confirmed the existence of 910,615 current law enforcement (mostly police) firearms. The total excludes data for the former Yugoslavia, which no longer exists. Extrapolating from average police arming rates and force levels suggests that approximately 25.4 million additional law enforcement weapons can be estimated to exist, for a combined total of at least 26.3 million law enforcement small arms (see Appendix D). This includes the weapons of sworn police officers, as well as all known gendarmeries and paramilitary (domestic security) forces. It does not include other law enforcement agencies, such as secret police, specialized police forces, wildlife management officers, or prison guards.

Although exact data is lacking, police appear to constitute about half of all law enforcement personnel around the world. The next largest category appears to be paramilitary forces, especially gendarmeries. Designed to maintain domestic order, these forces often have major weapons systems such as armoured vehicles unavailable to ordinary police. They can be armed at much higher ratios per person as well. In China, for example, the People's Armed Police (PAP), a gendarmerie of approximately 1.5 million personnel, appears to be armed with roughly the same array of small arms as the People's Liberation Army.<sup>1</sup> Although evidence is very limited, the few examples available suggest that these other law enforcement agencies can be three or four times more heavily armed than ordinary police (see Table 2.3). If true, this would imply that the law enforcement firearms total suggested here of 26.3 million is a significant underestimate of the actual global total.

Another weakness of this estimate is that it fails to measure the differences between specific types of law enforcement weapons. Casual observation reveals that in some countries police carry side arms, while in others they routinely patrol with automatic rifles. There has been a marked tendency for law enforcement agencies to invest in more powerful weapons, especially since the 1980s, when criminals began to use automatic weapons with greater fre-

**Table 2.2 Average number of sworn police officers for known countries, by region (people per officer)**

Region	Known countries	Average	Average without outliers
Americas	18	368	356
Asia-Pacific	18	512	496
Europe	13	401	384
Middle East	9	410	356
Sub-Saharan Africa	13	840	901

Source: Appendix I

Table 2.3 Police firearms vs. other law enforcement agencies

Country	Agency	Personnel	Firearms	Guns/person	Year	Source
Papua New Guinea	police	5,000	4,800	0.96	2004	Alpers (2005, pp. 48–49)
	prison guards	1,279	3,000	2.3	2004	Alpers (2005, pp. 57, 26)
United States	police	641,000	831,000	1.3	2000	SAS (2001, pp. 70–71)
	FBI	11,523	49,600	4.3	2002	US GAO (2003, pp. 3, 31)
	DEA	4,161	14,921	3.6	2002	US GAO (2003, pp. 3, 31)
	Fish & Wildlife	888	5,234	5.9	2002	US GAO (2003, pp. 3, 31)

Source: Appendix I

quency. Matching the firepower in civilian hands has led more law enforcement agencies to invest in automatic rifles and grenade launchers. In 2004, for example, Norwegian police initiated acquisition of automatic rifles (Solholm, 2004). In 2005 police in New Zealand announced their intention to replace older shotguns with AR-15 rifles (Pierard, 2005). Iranian police have been purchasing large numbers of Austrian-made sniper rifles (Jahn, 2005). Even the United Kingdom is debating routine arming of its sworn officers.

## TOWARDS A CUMULATIVE UNDERSTANDING OF MILITARY STOCKPILES

Five years after the first edition of the *Small Arms Survey* was published, accurate data on military small arms possession has accumulated for 23 countries. The most important source of data has been dedicated country research, conducted in cooperation with subject governments. Table 2.4 represents the collective efforts of the community of small arms researchers and supportive governments.

Two entries refer to countries that have since disappeared; they are included exclusively for analytical purposes. Government declarations and similar highly reliable statements account for 16.3 million confirmed military firearms (see Table 2.4). This represents 23 out of the 196 sovereign states in the world today. Combined with two historical cases—East Germany and Yugoslavia—for a total of 25 countries, this is the best available foundation for global extrapolation. Only cases based on *officially provided* data are presented. Several are incomplete. Norway and Switzerland only included handguns and rifles. The figures for Australia and Venezuela cover only one type—albeit the predominant type—of automatic rifle. Most countries provide data only on military firearms, not all small arms or light weapons. For most countries, moreover, there is no information on inventories of older, obsolescent military firearms such as bolt-action rifles. Because of incomplete entries, the model has a tendency to *underestimate* actual global totals.

As official data, all these figures have been accepted at face value. None has been arbitrarily excluded, because of the risk of exposing the results to researcher bias. Personnel figures come from country case studies and the International Institute for Strategic Studies when necessary. Only *formal armed forces* are included. Gendarmerie, paramilitary, interior ministry, intelligence, customs, and border control personnel are treated as law enforcement personnel, discussed above.



**Table 2.4 Military firearms inventories of 25 countries/provinces**

Country	Total military personnel	Total firearms	Year	Ratio	Sources
Albania	21,500	148,742	2005	6.7	Holtom et al. (2005, pp. 36–37)
Australia	96,612	280,000	1987	2.9	E. Ezell (1988, p. 45). Requirement for AUG rifles only
Bosnia-Herzegovina	84,600	450,000	2001	5.3	Zivalj (2001) <sup>a</sup>
Bulgaria	100,000	504,096	2004	5.0	Rynn (2005, pp. 11–13)
Cambodia	204,000	390,000	1991	1.9	Wille (2005) <sup>b</sup>
Canada	102,400	233,949	2000	2.3	Canadian DFAT 2001, in SAS (2001, p. 73)
Central African Republic	4,442	5,552	2003	1.3	SAS (2005, p. 312) <sup>c</sup>
Czech Republic	49,450	500,000	2003	10.0	Macha (2003)
Estonia	15,300	83,550	2005	5.5	Combined statements; rifles only
Finland	462,000	531,000	2003	1.1	Letter from the Finnish MoD to the Small Arms Survey, 21 August 2003
German D.R.	460,700	1,205,725	1990	2.6	Nassauer (1995, p. 57); Faltas and Chrobok (2004, p. 41)
Jamaica	3,783	7,000	2004	1.9	Correspondence from the Permanent Mission of Jamaica to the Office of the United Nations at Geneva with the Small Arms Survey, 4 November 2004
Macedonia	33,000	85,446	2003	2.6	Grillot et al. (2004, p. 16); reserves from IISS (2004)
Malaysia	156,600	255,000	1987	1.6	E. Ezell (1988, p. 257); rifles only
Norway	248,700	295,070	2000	1.2	Norwegian MoD in SAS 2001 p. 73; rifles and pistols only
Papua New Guinea	3,100	7,200	2004	2.3	Alpers (2005, pp. 51, 52) <sup>d</sup>
Serbia	345,300	789,016	2004	2.3	Taylor, Phillips and Bogosavljevic (2005, pp. 18–20); reserves from IISS (2004)
South Africa	115,750	350,636	2004	3.0	Gould and Lamb (2005, p. 155)
Sweden	289,600	920,000	1999	3.2	Justiedepartementet (1999, pp. 27, 36, 74, 112–15)
Switzerland	175,000	324,484	2004	1.9	Personnel from IISS (2004); Swissinfo (2004)
Togo	6,950	12,850	2000	1.8	Togo to the UN Arms Register, 2001
Ukraine	1,187,600	7,000,000	2005	5.9	Polyakov (2005, pp. 9, 49); total may be higher
United States	2,515,300	3,054,553	2002–05	1.2	Stout (private communication, August 2005); other services, SAS (2002, p. 85)
Venezuela <sup>e</sup>	67,300	100,000	2005	1.5	Stratfor.com (2001); rifles only
Yugoslavia	705,000	3,115,000	1989	4.4	Gorjanc (2000)
<b>Average for 25 known cases</b>				<b>3.2</b>	

<sup>a</sup> Wilkinson (2005) reports 761,000 firearms, for a ratio of 4.0.

<sup>b</sup> Figures presented by Wille as ranges have been averaged.

<sup>c</sup> Does not include the Presidential Guard, with 1000 troops and 3000 small arms and light weapons.

<sup>d</sup> Large numbers of weapons lost according Alpers (2005); troop numbers from IISS (2004, p. 185).

<sup>e</sup> Personnel figures do not include the 23,000-member National Guard, a gendarmerie.

**Note:** the combined total is 16,328,144 for 23 existing countries, 20,648,869 including the former German Democratic Republic and Yugoslavia.

An important strength of this approach is the diversity of its foundations. It includes some of the world's largest states and some of the smallest, wealthiest, and poorest, and all regions except central and north-east Asia. Of greatest importance for military stockpile analysis, it includes a diverse range of military strategies and tactical doctrines.

It is one of the characteristic ironies of global small arms policy that much more is known about small arms disarmament and destruction than about actual inventories. We know more about what we get rid of, in other words, than what we have. Prominent examples include Germany and the Russian Federation. Many states that do not respond to requests for small arms data on their own armed forces readily release figures about military destruction programmes they support in other countries. Examples include France, the Netherlands, Norway, and Sweden.<sup>2</sup> Without corresponding data on the stockpiles of state-sponsored armed forces, it is impossible, however, to evaluate the significance of these destruction efforts. Even greater numbers of countries publicize destruction of weapons confiscated from civilian or illegal militias, including China and many African governments, but reveal nothing about their inventories of official weapons.

## FOUR KEYS TO MILITARY SMALL ARMS REQUIREMENTS

In a simpler world, global military small arms possession could be extrapolated by averaging the totals from a few known countries, and applying the resulting ratio to the rest of the world. This average is readily computed for known examples at 3.1 firearms per soldier, sailor, and airman. But this is too crude for meaningful insight into the military inventories of countries as diverse as China and Paraguay, the Netherlands and Seychelles. Similarly, there is no evidence of a persuasive correlation between wealth and state demand, although this remains a valuable starting hypothesis. In practice, some of the poorest countries are among the best armed (North Korea is only the most poignant of many examples), while some of the richest intentionally shrink their armed forces (such as Norway and Switzerland).

Better accuracy can be achieved through a model based on the nuances of official preferences. This element is captured here through an emphasis on military strategy and doctrine. The defining characteristics of state armed forces, these explain why the armed forces exist and how they expect to fight. In practice, state-sponsored armed forces fall into four distinct groups, each with a distinct approach to small arms procurement and inventory management. As the examples collected in Table 2.4 will be used to demonstrate, above all it is military strategy and doctrine that determine military requirements. Small arms are primarily infantry weapons, but not every country plans to mobilize or fight with its infantry in the same way. The differences directly affect the quantity of small arms a country's armed forces require.

To permit accurate extrapolation for 166 countries (those with a population over 400,000) it is necessary to divide the 23 known examples into four major doctrinal schools. These categories constitute four keys to estimating military firearms inventories elsewhere. All four are well known in strategic planning: Trinitarian Warfare, People's War, Constabulary, and Reserve-based forces. Although the categories originated for other purposes, they are developed here *empirically*, explaining differing national approaches to military small arms procurement.

While all state-sponsored armed forces fit into one of these categories, not all countries fit identically. In every category, at least one example has been included which differs in terms of firearms per soldier. In each case, these countries have higher or lower weapons totals than expected, typically because of rapidly changing strategic priorities

**Much more is known about disarmament and destruction than about inventories.**

or unique historical considerations. Their presence reinforces an essential point about national small arms inventories: they can be highly flexible. With a single procurement decision, a surplus destruction decision, or a change in personnel strength, basic small arms ratios can change as well. Consequently no estimating system can be highly accurate across the board. Its role, rather, is to outline *typicality*.

### Trinitarian militaries: small arms as weapons of last resort

The traditional state-sponsored armed force is a military establishment designed for Trinitarian warfare. Although strategic theorists never tire of pointing to its historical uniqueness, created in response to distinctive Westphalian, European experiences, such armed forces have acquired the patina of normality (Metz, 1994–95; Villacres and Bassford, 1995). As explained almost 200 years ago by von Clausewitz, this is an approach to warfare based on a unique system of distinctions between the state, military, and citizenry. Trinitarian warfare emphasizes the armed forces as a defining element of international security, separate from the state they serve and the people they protect (Clausewitz, 1831/1991, pp. 212–13, 962, 964–65).<sup>3</sup> As an instrument of state policy, Trinitarian militaries are designed primarily to serve the interests of the state against its foreign foes (Paret, 1976).

Configured principally for operations against the similarly conceived armed forces of other states, Trinitarian forces tend to be meticulously trained for highly specialized operations. In the contemporary world, their operational tactics are dominated by major weapons systems, deployed in pursuit of a decisive outcome through formal battle, prosecuted with the goal of eliminating an adversary's ability to fight (van Crevald, 1991, pp. 35–42). Trinitarian militaries are distinguished by large active-duty components and primary reliance on major conventional weapon systems. Soldiers with small arms perform an important, albeit residual, role in Trinitarian warfare. This division of labour explains why many major military establishments spend much more money on major hardware than they do on infantry equipment.

Sheer numbers of personnel are useful in Trinitarian armies. And they possess concomitant small arms inventories (see Table 2.5). But firearms are not the principal weapons of Trinitarian conquest and resistance. More so today than

**Table 2.5 Examples of Trinitarian military firearms inventories**

Country	Active personnel	Reserve personnel	Total uniformed personnel	Total firearms	Year	Ratio
Australia	70,456	26,112	96,568	280,000	1987	2.9
Canada	62,000	36,900	103,900	233,949	2000	2.3
German Democratic Republic	137,700	323,000	460,700	1,205,725	1990	2.6
Macedonia	12,000	21,000	33,000	85,446	2003	2.6
Serbia	65,300	280,000	345,000	789,000	2004	2.3
South Africa	55,750	60,000	115,750	350,300	2004	4.2
United States	1,473,960	1,290,988	2,746,948	3,054,553	2002-05	1.1
<b>Average</b>						<b>2.6</b>

Sources: see Table 2.4

ever before, military establishments conceived along such lines tend not to maintain massive small arms surpluses; they no longer plan for massed infantry operations. The United States is an extreme example, with armed forces tailored for network-centric operations and no expectation of large-scale infantry recruitment. Committed never to fight with massed infantry, as Secretary of Defense Donald Rumsfeld repeatedly stresses, the United States has no official military small arms stockpile and an exceptionally low ratio of firearms per soldier.<sup>4</sup>

Although their formal inventories tend to be relatively low, even countries with Trinitarian militaries may have hidden reserves. In 1990 this was suggested by the revelation of the covert Echelon plan for armed guerrilla resistance in western Europe after a Soviet invasion. As part of Echelon, small arms reportedly were cached throughout western Europe (Fitchett, 1990). The number and fate of these weapons have never been revealed. They are not included here.

### People's War and legacy arsenals: small arms above all

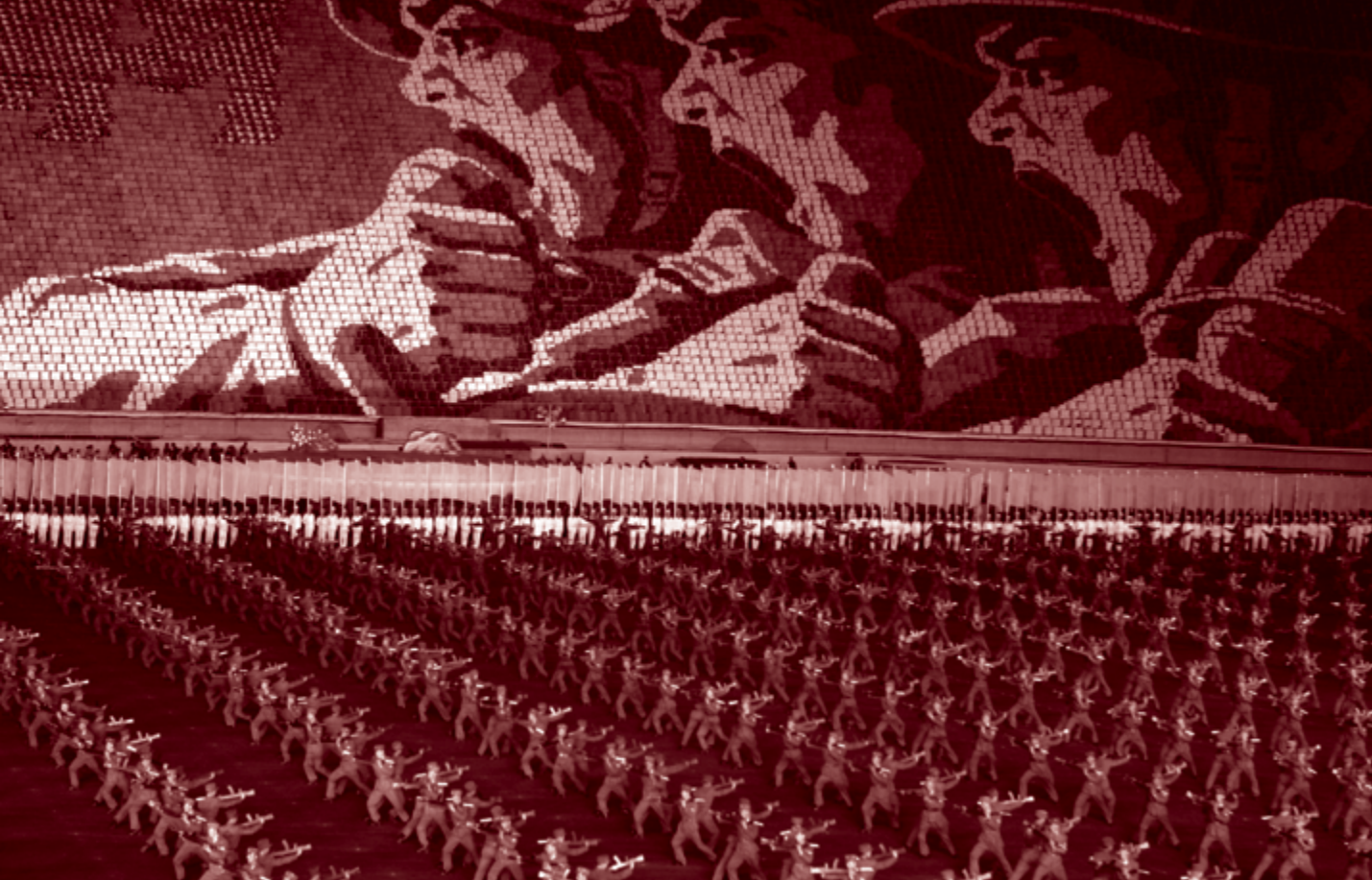
A very different approach to war leads to an emphasis on small arms combat as the very foundation of national security. Starting with the guerrilla traditions of revolutionary warfare, and adapting them to defence of the state, People's War stresses mobilization of massive numbers of lightly armed infantry. Inspired—directly or indirectly—by Maoist notions of resistance and conquest, this strategy relies on infantry and partisans armed primarily with small arms. In the classic formulation, 'Without question, the fountainhead of guerrilla warfare is in the masses of the people, who organize guerrilla units directly from themselves' (Mao, 1965, ch. 5). The most relevant implication for present purposes is the greater size of their military small arms inventories. Arsenals expand over time to arm not only uniformed military personnel but also potentially all politically loyal or patriotic sectors of society.<sup>5</sup> The result is a national military stockpile far larger than the number of active and even reserve military personnel (see Table 2.6). In a country where anyone is a potential combatant, there must be arms for virtually everyone.

One distinctive trait of many People's War countries is huge military reserve organizations (see Box 2.1). Most—but not all—reached their peak in the mid-1980s and declined as accelerating technological change deprived

**Table 2.6 Examples of firearms inventories of People's War and legacy militaries**

Country	Active personnel	Reserve personnel	Total uniformed personnel	Total firearms	Year	Ratio
Albania	21,500	0	21,500	145,000	2005	6.7
Bosnia-Herzegovina	24,672	60,000	84,600	450,000	2001	5.3
Bulgaria			100,000	504,000	2004	5.0
Czech Republic			49,450	500,000	2003	10.0
Estonia	6,600	8,700	15,300	83,550	2005	5.5
Yugoslavia			705,000	3,115,000	1989	4.4
Ukraine	187,600	1,000,000	1,187,000	7,000,000	2005	5.8
<b>Average</b>						<b>6.1</b>

Sources: see Table 2.4



North Korea's annual military propaganda spectacle in 2005. The country hosts an extreme example of a People's War military based on massive infantry forces. © Ng Han Guan/AP Photo

People's War of much its credibility. Since the weapons associated with these reserve structures are assumed to remain, even after reorganization, older personnel totals have been used to compute likely firearms inventories.<sup>6</sup>

The exceptional scale of this mobilization planning has profound implications for the estimation of global military small arms; these are the countries with many of the largest national stockpiles. With the large numbers involved, special precautions have been taken to reduce the risk of error. The *legacy arsenals* of eastern Europe are especially problematic as a basis for extrapolation. Instead of the empirical average of 6.1 firearms per person typical of known legacy militaries, this analysis relies instead on a lower ratio of 4.8 firearms for every active-duty personnel. This is about 20 per cent lower, insuring that estimates remain consistently conservative. For countries where reserve organizations surpass the scale of active-duty personnel by a factor of three or more, total military firearms have been calculated using the formula:

$$T = A(4.8) + R(1.2)$$

where *A* refers to the highest number of active-duty personnel since 1970 and *R* designates the highest number of reservists for the same year. This approach has been used with core People's War militaries like China, Cuba, North Korea, and Vietnam, as well as countries that long maintained comparable mobilization plans such as Brazil, Iran, and Spain. This compensates for reports that some reserve organizations have purely logistic roles and may not be routinely armed. The procedure also tends to err on the side of caution, arbitrarily assuming a relatively modest limit for mobilization plans. Use of a smaller ratio for reserve elements lowers the estimated scale of People's War

## Box 2.1 Reserve forces and small arms inventories

The world's greatest reserve forces directly contribute to the largest state-controlled small arms arsenals, a major element in global stockpiles. China and North Korea illustrate how doctrinal emphasis on massed infantry and infantry reserves creates exceptional demand for small arms. Because of their great scale, these stockpiles are a major source of international concern, raising grave risks of future resale or catastrophic loss.

**North Korea:** Mass mobilization remains the foundation of North Korean security strategy (Kwo'n). More so than for most major militaries, the Korean People's Army (KPA) is heavily concentrated into ground troops, with over one million active-duty ground personnel, organized into 153 divisions and brigades. For comparison, the United States Army has ten divisions. The heavy concentration on army operations is a direct manifestation of *Songun Chongch'i* [Army First] political doctrine, an approach adopted by North Korea's leader Kim Jong Il, in 1995. This aims to solve '... all problems arising in the revolution and construction on the principle of giving priority to the military affair and advances the overall cause of socialism relying on the army as the pillar of the revolution'.<sup>7</sup>

*Songun Chongch'i* reinforced North Korea's older *Chu'che* ideology of extreme self-sufficiency, which already led to the stockpiling of ammunition, food, and petroleum in underground facilities to sustain several months of fighting without foreign help. According to Seoul, by 1989 Pyongyang had stockpiled some 990,000 tons of ammunition (roughly 1.8 times what was found in Iraq, a country of similar population, in 2003).<sup>8</sup> The expansion of the KPA to some 1.2 million full-time personnel in the 1990s is another result of this outlook (*North Korea Country Handbook*, 1997, p. 33).

The creation of a massive reserve organization is a further result of ideological predispositions. According to the most authoritative source, '... About 30% of all North Koreans between the ages fifteen to sixty are mobilized for reserve units'. They are divided into:

'... Reserve Military Training Unit consist(s) of approximately 1.7 million persons (men 17–45 and unmarried women 17–30). ... mobilized. ... for a total of forty days' training out of the year.

'The Worker–Peasant Militia is a combination of older men aged 45–60, along with men ages 17–45 and unmarried women ages 17–30 who. ... train for a total of thirty days out of the year. Their current numbers stand at 4.1 million.

'The Young Red Guards consist of 1.2 million male and female Higher Middle (High) School students aged 14–16. ... subject to a mandatory four-hour drill session every Saturday...' (Republic of Korea, 1999).<sup>9</sup>

This suggests a total reserve of seven million. While most reserve organizations have pre-assigned arsenals to facilitate mass mobilization, the Youth Red Guards appears to be primarily a training organization, capable of mobilizing only three-quarters of its members (Bermudez, 2001, p. 169).

Unlike standing forces, which peaked in the 1990s and declined somewhat thereafter, reserves continued to grow. Another major source maintains that reserve elements reached 7.45 million in 1999 (Bermudez, 2001, ch. 6). According to the 2004 South Korean *Defense White Paper*, North Korean reserve organizations now number 7.7 million (Fifield, 2005). To enhance certainty, a figure of six million is used here. With 1.2 million active-duty personnel and at least six million armed reservists, North Korea would have approximately 13 million military firearms [1.2 mn (4.8) + 6 mn (1.2)], or a probability range of 10 million–16 million military firearms.

**China:** The armament for the People's Liberation Army (PLA) is another source of ambiguity. Maoist orthodoxy encouraged enormous small arms procurement, although actual inventories may never have matched requirements. In the early 1960s, for example, 'the Chinese peasantry was organized through the commune system into a vast people's militia. In all, about a quarter of the population was involved. The militia was given simple training, *often with wooden rifles*'.<sup>10</sup>

As the inheritors of Maoist tradition, Chinese commanders honour the concept of People's War, even today as they try to become more Trinitarian (Ji, 1999, ch. 1). Active forces peaked in the late-1970s at 6.1 million and gradually declined, with the most dramatic reductions beginning in 1992 (Ji, 1999, p. 33). One result of this process has been formalization of the military reserve. Previously dominated by the Chinese Communist Party, this increasingly is controlled by the armed forces themselves. While the transformation retains the outlines of previous commitments to People's War, it increasingly resembles traditional Trinitarian operations. As expressed in the 2000 *Defense White Paper*, 'Combining the armed forces with the people and practicing self-defense by the whole people. China adheres to the concept of people's war under modern conditions, and exercises the combination of a streamlined standing army with a powerful reserve force for national defense' (People's Republic of China, 2000, ch. II). As a result, reserves were formalized and reduced.

Today's PLA includes three reserve elements. Each armed service maintains its own reserve force, currently estimated by the International Institute for Strategic Studies at a total of 800,000 personnel (IISS, 2005, p. 270). In addition there are two national militias. The *primary militia* is a traditional reserve force; it 'comprises rapid reaction detachments, infantry detachments, specialized technical detachments and detachments with corresponding specialties. There are now 10 million primary militia members throughout the country' (People's Republic of China, 2004, ch. VI). This is supported by the six-million-strong ordinary militia. According to one prominent source, the latter does not routinely train with weapons.<sup>11</sup>

Based on an active-duty PLA of the mid-1980s, with six million personnel, and reserve units totalling 16 million, of which at least ten million can be armed, China is believed here to have approximately 41 million military firearms [6 mn (4.8) + 10 mn (1.2)], or a distributed probability of 31 million–52 million military firearms.

militaries by over 40 per cent. Use of a lower estimating ratio (4.8 instead of 6.1) reduces estimates of People's War militaries by another 20 per cent. The new result may be misleadingly low. In lieu of better evidence, however, such caution seems warranted.

Often, these vast stockpiles are nothing more than a *strategic remnant* of discarded war plans. Many—perhaps most—of today's largest military small arms stockpiles are left from past governments, sometimes from past countries. Inherited from the ashes of the Soviet Union, Yugoslavia, or communist rule elsewhere, these enormous inventories reveal nothing about the intentions of the governments that own them today. Long after countries abandon People's War, most of these legacy arsenals sit in storage. Even as a metaphor for the perversities of providence, though, the weapons are real enough.

In the case of Ukraine, incredible munitions dumps—estimated by NATO and the Ukraine armed forces to include 2.5 million tons of ammunition and equipment—remain from the military preparations of a country that no longer exists (Chivers, 2005). Ukraine did not deliberately choose after independence in 1991 to be responsible for at least seven million military small arms. With a military establishment authorized at 272,000 personnel (and a nominal reserve component of one million, according to the IISS), it has no use for so much equipment. Its current military doctrine stresses border security, peacekeeping, and collective security by professional soldiers, not desperate arming of the countryside to repel non-existent invaders. Its vast small arms collection was an unsought burden, much like the Soviet ballistic missile industry and the rest of its largely uncounted military stockpiles.

Even more extreme is the Czech Republic, with a military inventory of approximately 500,000 small arms and light weapons for a military that numbers fewer than 50,000 (Macha, 2003). The Czech Republic joined NATO in 1999, as did Bulgaria and Romania in 2004. All abandoned mass mobilization strategy years before. Most of the old guns still sit there, ready for export, pilferage, or perhaps catastrophic loss.

### **Constabulary militaries: on patrol at home**

Although Hollywood inspires entertaining visions of countries littered with vast warehouses of military equipment, in reality this is the exception rather than the rule. For the armed forces of many countries, large-scale capabilities are a distant fantasy. Many countries, especially in poor parts of the planet or in regions isolated from threat of foreign attack, maintain relatively small military establishments. In other cases the armed forces are intentionally deprived of men and material as a form of 'coup proofing', insuring that they stay inferior to politically favoured internal security organizations (Quinlivan, 1999). The net result is many armed forces that are small and minimally armed compared to Trinitarian or People's War counterparts.

These are *Constabulary militaries*, organized not to fight the armed forces of other states but to preserve domestic order (Field, 2002–03). Here the term is used specifically to mean any state-sponsored armed service configured not to defeat foreign enemies but to maintain domestic stability and prevent rebellion. In practice such forces resemble gendarmeries or heavily armed police. They are distinguished not only by low ratios of weapons per soldier but also by small inventories of major weapons systems. The latter are essentially irrelevant to operational responsibilities, in which battle plays little or no part. A typical constabulary military is poor in ships, tanks, planes, missiles, and the other accoutrements of Trinitarian warfare. They have little need for weapons designed to defeat the armed forces of other states. Nor do they have the generous small arms inventories for sudden expansion, as needed by practitioners of People's War. Instead, as the examples in Table 2.6 show, they tend to be equipped at levels more suited to their distinctive missions of maintaining domestic order and suppressing rebellion.

**Vast stockpiles  
often are nothing  
more than a remnant  
of discarded war  
plans.**

**Table 2.7 Examples of firearms inventories in Constabulary militaries**

Country	Active personnel	Reserve personnel	Total uniformed personnel	Total firearms	Year	Ratio
Cambodia	166,000	38,000	204,000	390,000	1991	1.9
Central African Republic	4,442	0	4,442	5,552	2003	1.3
Jamaica	2,830	953	3,753	7,000	2004	1.9
Malaysia	110,000	46,600	156,100	290,000	1991	1.6
Papua New Guinea	3,100	0	3,100	7,200	2004	2.3
Togo	6,950	0	6,950	12,850	2000	1.8
Venezuela	59,000	8,000	67,300	100,000	2004	1.5
<b>Average</b>						<b>1.9</b>

Sources: see Table 2.4

### Reserve militaries: defence through monthly drill

The reserve-based armed forces of Europe are a special case. While most countries maintain a reserve component, mostly to save money, these countries base their military security almost entirely on reservists (Roberts, 1976). Their force planning is essentially Trinitarian, designed to defend national territory against foreign invasion, usually through network-centric operations. But for historical and constitutional reasons they approach the tailored efficiency of one soldier—one rifle. The most extreme case—Switzerland—has no standing military except for administration. Most other reserve-based forces maintain an active-duty element, mostly for training and international peacekeeping operations. But the backbone of national defence is the much larger force of reservists, who train routinely to maintain skills and receive current orders.

They can be technically sophisticated, heavily invested in major weaponry, and meticulously systematized for integration with NATO reinforcements. But, due to their emphasis on rapid mobilization of reservists, exclusively for territorial defence, these countries typically have little or no additional mobilization capability. Nor do most of them

**Table 2.8 Examples of firearms inventories in Reserve militaries**

Country	Active personnel	Reserve personnel	Total uniformed personnel	Total firearms	Year	Ratio
Finland	27,000	435,000	462,000	531,000	2003	1.1
Norway	26,700	222,000	248,700	295,070	2000	1.2
Sweden	27,600	262,000	289,600	920,000	1999	3.2
Switzerland	4,400	170,600	175,000	324,484	2004	1.9
<b>Average</b>						<b>1.8</b>

Sources: see Table 2.4



have surplus weapons for reinforcement (see Table 2.8). Unlike Constabulary militaries, Reserve militaries are configured primarily to defeat foreign invasion, with well-developed doctrine stressing network-centric operations and major weapon systems. Unlike armies configured for People's War, they do not plan for mass mobilization except for formally designated reservists; the limits on their mobilization potential are clear.

## GLOBAL MILITARY FIREARMS TOTALS

Applying the doctrinal distinctions outlined above to 166 countries (all countries with a population over 400,000 that have a military) permits global estimation of the number of firearms controlled by the state-sponsored armed forces of the world (see Table 2.9). Combined with formally declared military inventories, this analysis concludes that the world harbours at least 200 million official military firearms. When distributed to compensate for a statistical margin of error (plus or minus 25 per cent), the range of global military firearms appears to be between 150 million and 250 million. The estimating procedures used here for People's War militaries are conservative, which suggests that actual global totals are more likely to be closer to the upper parameter.

Detailed estimates for all 166 countries are included in Appendix I. Although they have been overlooked here, due to practical research difficulties, state-owned small arms can be extremely important in the very smallest countries as well (Muggah, 2005). Smaller countries have been left out in recognition of their highly idiosyncratic nature; with declining size, rules of thumb like those explicated here cease to be reliable. As illustrated by a methodical examination of the microstates of the Pacific Ocean, the scale of their armed forces and armament is extremely hard to predict. Similarly, the relationship between military and law enforcement institutions tends to become increasingly obscure (Alpers and Twyford, 2003).

The regional distribution of military firearms corresponds closely to the global distribution of population; military small arms tend to be most numerous where most of the world's people live. The dominance of Asia, home to roughly 47 per cent of the world's suspected military firearms, is a direct reflection of the presence of the world's two most populous and many other large countries. It also is a consequence of the historic importance of People's War doctrine in the armed forces of several east Asian powers, most notably China, North Korea, and Vietnam. Above all, however, security planning in east Asia is dominated by the overwhelming importance of the sovereign state and

**Table 2.9 Estimated regional military firearms totals**

	Declared	Estimated	Combined	% of global total
Americas	3,295,502	10,286,328	13,581,830	7
Asia-Pacific	967,200	93,777,734	94,174,534	47
Europe	11,627,550	62,302,738	73,930,288	37
Middle East	0	13,887,304	13,887,304	7
Sub-Saharan Africa	369,038	3,506,118	3,870,000	2
<b>Global total</b>	<b>16,360,000</b>	<b>184,000,000</b>	<b>200,000,000</b>	<b>100</b>

the remaining possibility of state-to-state conflict. This strategic priority leads directly to a doctrinal emphasis on numerically large standing forces, on a scale unmatched elsewhere in the world.

Europe is home to the world's second largest regional arsenal, roughly 37 per cent of the global total for all state armed forces. The high standing of European small arms arsenals is more surprising. It is a reality that weakens claims that European security emphasizes peaceful conflict resolution and non-military means associated with human security (Kagan, 2002). While European governments have been at the forefront of international campaigns to destroy surplus small arms elsewhere, they appear to have been slower to eliminate their own surpluses.

Other regions play much smaller roles in the distribution of global military stockpiles, with approximately 15 per cent of the world total among them. The Middle East stands out for the realist approach of its armed forces, designed to serve Trinitarian or People's War ends. The Middle Eastern total would be approximately four million higher were it not for the collapse of Iraq in 2003 and the diffusion of former President Saddam Hussein's military arsenal among civilians (Small Arms Survey, 2004, pp. 44–48). The Americas are home to smaller military organizations, either because they are on the cutting edge of Trinitarian operations (in the case of the United States) or structured for Constabulary roles (in much of the Caribbean and Central and South America). The small scale of African state military inventories is especially striking in view of the continent's severe security difficulties. Both phenomena testify to the chronic weakness of African states.

**Table 2.10 Proportions of military firearms types (in selected countries)**

Country	Year	Total firearms	% rifles	% pistols	% machine guns	% other
Canada	2000	233,949	72	11	6	11
East Germany	1990	1,182,000	74	23	4	
Macedonia	2003	85,446	88		12	
Finland	2003	531,000	97	2	1	
Norway	2000	295,070	90	10		
Switzerland	2001	695,000	90	10		
Togo	2001	12,850	74	9	3	13
US Army	2005	1,357,616	68	14	11	7
<b>Averages</b>						
All countries			82	11	6	
Complete countries			72	14	6	10
<b>Global equivalent</b>			<b>110–18 m</b>	<b>20–33 m</b>	<b>8–13 m</b>	<b>14–25 m</b>

**Notes:** US Army data refers only to 'Army In Use' weapons category only. Macedonian data does not include pistols. Norwegian and Swiss data do not include machine guns or other firearms. Swiss figure is from 2001, different from the 2004 data used in Table 2.1 and used here because of its greater detail. 'Other' firearms column refers mostly to military sniper rifles, shotguns, sub-machine guns, and grenade launchers.

**Sources:** see Table 2.1

## THE TYPES OF FIREARMS IN MILITARY INVENTORIES

One of the shortcomings of macro-analyses of total firearms is that it creates the impression that all the world's 200 million or so military firearms are the same. Reality is very different. Global, regional, and country totals conceal major differences of type and lethality. Most seriously, there is no way to systematically separate the proportion of heavy machine guns from light machine guns, fully automatic rifles from single-shot rifles, pistols from revolvers and sub-machine guns. Reports from the destruction of some eastern European military surpluses reveal substantial quantities of obsolescent armaments (Faltas and Chrobok, 2004, p. 89). The latter are not useless; they can be resold for use elsewhere and are readily usable in crime, terror, or intra-state warfare. But they do not represent the same dangers of illicit resale or use as a Kalashnikov rifle or a Markov pistol.

**Authorities agree that total AK-47 production amounts to 70 to 100 million.**

More can be said about the breakdowns between basic types of military firearms. The approach used to estimate the size of official military stockpiles can be used to divide the proportion of rifles, side arms, and machine guns. Data from seven states provides a basis for extrapolation (see Table 2.10). The inventory breakdowns are complete for only five cases (Canada, East Germany, Finland, Togo, and the US Army) but these also are fortunately diverse. They offer a useful, albeit imprecise, foundation for generalization. Their example suggests that rifles make up roughly three-quarters of military firearms inventories. Assuming this rule of thumb holds globally, we can begin to understand the rough division of weapon types among the global military arsenal. Of the total of 150 million–250 million military firearms in existence today, approximately 112 million–183 million can be expected to be automatic rifles and older, bolt-action types. Some 22 million–34 million are pistols and revolvers, 9 million–14 million are machine guns, and 16 million–25 million are other varieties of firearms such as shotguns, grenade launchers, and sub-machine guns.

## ESTIMATING FIREARMS INVENTORIES THROUGH PRODUCTION ESTIMATES

Alternative confirmation of the stockpile estimation method outlined above comes from comparison with automatic rifle production. Independently developed production numbers provide a second window on global stockpiles. Production data often relies on analysis of serial numbers, a technique developed for estimating production of all kinds of military equipment (Ruggles and Brodie, 1947). Even so, they are complete and reliable only for military automatic rifles (see Table 2.11). Production data for pistols is available but harder to interpret since military-style pistols also have major civilian and law enforcement markets.

Production and inventory data is not identical, reflecting unresolved ambiguities. Cumulatively, the production data shows that approximately 122 million–156 million automatic rifles have been manufactured, starting with the AK47 in 1947, with a mean total of 141 million. This compares with a the broader range of 112 million–180 million rifles whose existence can be shown through inventory analyses (above), an estimated 72 per cent of all military firearms. The largest portion of the global military rifle inventory is the AK47 and its versions. Although there is no accurate database, authorities appear to agree that total AK47 production by the Soviet Union, China, and their allies and clients amounts to 70 million–100 million since 1947 (see Table 2.11). This production perspective is highly consistent with the conclusion that there are at least 200 million military small arms, and probably considerably more.

If the proportions for modern firearms types in military inventories, as developed above, are applied to production, total modern military firearms production can be estimated (Table 2.12). Adding proportionate quantities of other

Table 2.11 Production of major modern military automatic rifles

Type and variants	Country of origin	Other producers	Quantity produced	Basis of estimate	Sources
AK-47	USSR	Many	70,000,000–100,000,000	Serial numbers	McNab (2001, pp. 7, 49), Novosti (2005), Small Arms Survey (2001, pp. 62–63), Tretiakov (2005)
SKS	USSR	China	15,000,000	Serial numbers	Genovese (2002)
M16	United States	S. Korea	12,000,000	Manufacturer	Colt (2004), Tretiakov (2005)
G3	Germany	Iran, Pak., Turkey	7,000,000	Serial numbers	UN (1997)
Type 63	China		6,000,000	Serial numbers	E. Ezell (1988, p. 104).
FAL	Belgium	Aust., Mex., UK, etc.	5,000,000–7,000,000	Serial numbers	UN (1997)
M14	United States		1,380,346	Procurement	Jane's Information Group (2004, p. 73)
Stgw 90	Switzerland		600,000	Gov. reports	Correspondence of the General Staff of the Swiss Armed Forces with the Small Arms Survey, 5 December 2001, 21 December 2001, and 1 February 2002
Stgw 57	Switzerland		600,000	Serial numbers	SAS 2002 (pp. 78, 79), E. Ezell (1988, p. 347)
INSAS	India		528,000	Requirement	Jane's Information Group (2004, p. 32)
F1	France		400,000	Procurement	Jane's Information Group (2004, p. 26)
L85	United Kingdom		400,000	Procurement	
AK5	Sweden		250,000	Requirement	Jane's Information Group (2004, p. 63)
Others*			5,000,000	Estimate	Small Arms Survey (2001, pp. 62–63)
<b>Total</b>			<b>124,000,000–156,000,000</b>		

\* Examples include automatic rifles such as AUG, CETME, Galil, R4/5, and SIG 540.

kinds of military side arms and machine guns supports overall production of 200 million military firearms. This is identical to the inventory-based estimate, but likewise incomplete. To this total also must be added the large numbers of single-shot (bolt-action) rifles, revolvers, and older sub-machine guns preserved in many national arsenals. In this way, the production-based assessment supports the conclusion that the inventory-based approach developed above tends to underestimate actual stockpiles.

Several provisos are in order. An unknown proportion of these weapons no longer exists. Many have been destroyed or irreparably damaged over the years through wear and breakage, poor storage, and battlefield wastage.

**Table 2.12 Production-based estimate of global military firearms inventories (all figures in millions)**

Type	Production proportion (%)	Estimated total production	Low parameter	High parameter
Automatic rifles	72	141	105	175
Pistols	13	27	21	34
Machine guns	6	12	9	16
Other firearms	9	20	15	25
Total	100	200 m	150 m	250 m

Sources: based on production proportions from Table 2.10

Several million have been destroyed through official surplus destruction programmes. A significant proportion of automatic rifles—at least several hundred thousand—belong not to armed forces, but to domestic law enforcement agencies, including police and gendarmeries. In some countries, especially in the Middle East and the United States, civilian ownership of automatic rifles is legal; American civilian ownership of military-style automatic rifles is estimated at some three million.<sup>12</sup> In addition, a major category of military firearms still cannot be accurately estimated. These are the large number of obsolescent, non-automatic firearms still preserved in many military stockpiles, as revealed by recent destruction programmes in Bulgaria and Romania. A complete estimate would subtract all the automatic weapons that do not (or no longer) belong to armed forces for all the reasons listed above, and add obsolescent non-automatics.

**The number of obsolescent firearms in many stockpiles cannot be estimated.**

## THE LARGEST MILITARY INVENTORIES

The list of the largest military firearms inventories reveals the concentration of global stockpiles among a handful of countries (see Table 2.13). With a total of 128 million estimated military firearms between them, the top ten countries control approximately two-thirds (63 per cent) of the global total. The top 20 countries are home to roughly three-quarters (approximately 155 million) of all state-owned military firearms.

The list of the largest military small arms arsenals does not correspond closely to any orthodox ranking of national power; the United States does not rank among the top ten, France qualifies only for the top 20, while the United Kingdom does not figure at all. Instead, it is fighting doctrine that appears to dominate global hierarchies; countries relying on large ground forces or mass mobilization strategies crowd the ranks of military small arms powers. These strategies favour countries with large populations. Although there is no exact correspondence between population and military firearms stockpiles, it is no accident that three of world's five most populous countries are present in the top ten military stockpiles (China, India, and the Russian Federation). The lower position of the United States is another illustration of its distinctive military doctrine, emphasizing network-centric warfare through advanced munitions instead of massed infantry operations.

Top 20 rankings notwithstanding, inventory estimates are not reliable enough for direct comparison of countries with roughly comparable stockpiles. Rather, they permit only a sense of relative scale. Whether it is Iran or India, for example, that actually has the larger stockpile of the two cannot be determined using this methodology. But the

Table 2.13 The 20 largest estimated military firearms arsenals\*

Country	Rank	Estimated or confirmed firearms	Low parameter	High parameter
China	1	41,000,000	31,000,000	52,000,000
Russian Federation	2	30,000,000	22,000,000	37,000,000
Korea, North	3	14,000,000	9,000,000	16,000,000
Vietnam	4	9,800,000	7,400,000	12,000,000
Korea, South	5	7,100,000	5,300,000	8,900,000
Ukraine	6	7,000,000	7,000,000	7,000,000
India	7	6,300,000	4,700,000	7,800,000
Taiwan	8	5,000,000	3,800,000	6,300,000
Turkey	9	4,400,000	3,300,000	5,500,000
Iran	10	3,700,000	2,800,000	4,600,000
<b>Top ten combined total</b>		<b>128,000,000</b>	<b>96,000,000</b>	<b>157,000,000</b>
Germany, F.R.	11	3,100,000	2,400,000	3,900,000
United States	12	3,054,553	3,054,553	3,054,553
Italy	13	3,000,000	2,200,000	3,700,000
Pakistan	14	2,900,000	2,200,000	3,600,000
Egypt	15	2,700,000	2,000,000	3,400,000
Cuba	16	2,600,000	2,000,000	3,300,000
France	17	2,400,000	1,800,000	3,000,000
Poland	18	2,300,000	1,700,000	2,800,000
Indonesia	19	2,200,000	1,600,000	2,700,000
Brazil	20	2,100,000	1,600,000	2,600,000
<b>Top 20 combined total</b>		<b>155,000,000</b>	<b>117,000,000</b>	<b>189,000,000</b>

\* In descending order, rounded to two significant digits.

Source: Appendix II

approach is sufficiently accurate to conclude that the size of their small arms arsenals is similar in scale. Although it cannot be said which has the bigger stockpile, both clearly belong among the world's top ten largest military firearms stockpiles.

Quantity, of course, is not quality. It is not easy to generalize about the kinds of weapons predominating in each country's armed forces. Reserve inventories, in particular, can be heavy in older or obsolescent equipment, much of it cast-offs discarded by active-duty units after modernization. The largest inventories appear to include substantial proportions of older sub-machine guns and manually operated (bolt-action) rifles. Although the evidence is incon-

clusive, it appears that the stockpiles of countries with large reserve structures, associated with People's War strategies, often hold substantial quantities of older weapons. The best evidence comes from foreign-sponsored disarmament programmes that typically receive mostly aging weapons for destruction.

## TRANSPARENCY: OVERCOMING BUREAUCRATIC INERTIA

The different kinds of law enforcement and military inventory data used in this chapter—declared and estimated—help illustrate the status of global firearms transparency. One of the most important data points to emerge from this review is the relatively thin proportion of military small arms whose existence has been formally declared by their governments (see Table 2.14). These declarations are a unique tool for evaluating transparency. Out of a conservative estimate of 200 million military firearms, only 16,360,000 have been formally acknowledged, roughly eight per cent of all military firearms. This is another way of expressing the most troubling barrier to insight and policy-making, namely, the remarkable lack of transparency on official inventories.

Before 2000, virtually no country made data on its total military small arms inventories publicly available. Today more than 20 countries have revealed this kind of information. The greatest hurdle to official transparency undoubtedly remains national security classification. Many countries turn research inquiries down or fail to respond. But many show no such preoccupation. A group as diverse as Bulgaria, Canada, Central African Republic, Jamaica, Macedonia, Papua New Guinea, Serbia, and the United States has volunteered official data (see Tables 2.1 and 2.4). They have typically done so in response to a research query. Their willingness shows that small arms data is often not highly classified. The greatest barrier to making it available, rather, appears to be lack of communication with custodial authorities, those with legal responsibility for military firearms.

For these countries the biggest problem appears to be bureaucratic barriers to reporting (see Box 2.2). Since no one is specifically responsible for making such data available, typically nothing happens. The officials with the most relevant role, the National Points of Contact, designated under the 2001 *UN Programme of Action* (UNGA, 2001), tend

**Table 2.14 Regional military firearms transparency\***

Region	Estimated total	Low parameter	High parameter	Confirmed	Combined total	Approximate percentage confirmed
Americas	10,286,328	7,714,746	12,857,910	3,295,502	13,600,000	24
Europe	62,302,738	46,727,054	77,878,423	11,627,550	73,900,000	16
Sub-Saharan Africa	3,506,118	2,629,589	4,382,648	369,038	3,870,000	10
Asia-Pacific	93,777,734	70,333,300	117,222,167	967,200	95,000,000	1
Middle East	13,887,304	10,415,478	17,359,130	0	14,000,000	0
<b>Global total</b>	<b>184,000,000</b>	<b>138,000,000</b>	<b>23,000,000</b>	<b>16,360,000</b>	<b>200,000,000</b>	<b>8</b>

\* Ranked by proportion of military firearms publicly declared.

## Box 2.2 Bureaucratic barriers to transparency: National Points of Contact

'Where you sit', as every public policy student quickly learns, 'is where you stand'. Agency perspectives and priorities affect the implementation of all policy issues. Small arms reporting is no different.

Under the 2001 UN *Programme of Action*, governments have undertaken to establish a National Point of Contact (NPC), to 'act as liaison between States on matters relating to [its] implementation' (UNGA, 2001, para. II.5). There has been a tendency to designate NPCs from foreign ministries, where 61 are based, including virtually all the most active ones (Kytömäki, 2004, p. 27). This makes efficient use of expertise developed through UN processes and facilitates routine national reporting with the UN. But the tendency influences the reporting process.

Instead of addressing all small arms issues comprehensively, the reliance on foreign ministries promotes emphasis on the foreign policy aspects of these issues. National reporting, in other words, often stresses only activities going on outside a country. Domestic matters—outside the competence of a foreign ministry—receive much less attention. Only 23 out of 122 countries with an NPC give this responsibility to a ministry with *custodial responsibility* or actual control over major small arms inventories (Kytömäki, 2004, p. 27). Since the officials that constitute the NPC typically lack responsibility for domestic small arms policy and do not automatically receive stockpile information, most countries report only the outlines of their domestic firearms situations, and sometimes not even that.

The foreign affairs orientation in reporting inadvertently draws attention away from many of the most important aspects of small arms. Foreign ministries typically lack ready access to detailed information on possession of small arms by the military or law enforcement agencies. Research queries about such matters addressed to NPCs often receive an honest 'we don't know'. To report on them, NPCs must request cooperation from other government agencies, especially ministries of defense, armed services, ministries of the interior, and law enforcement agencies. Anticipating this difficulty, the *Programme of Action* encourages inter-agency cooperation (para II.4).

Bureaucratic segmentation explains the tendency for national reporting to emphasize international disarmament activities.<sup>13</sup> The latter is one area where foreign ministries have operational responsibilities. Domestic small arms data tends to be reported much less systematically, reflecting the mandate of the NPC and the practical limits of inter-agency coordination.

## Box 2.3 Unknown unknowns: the international reporting deficit

Despite the importance of stockpile and inventory data for effective domestic management, there is no standardized international reporting mechanism for small arms and light weapons statistics. The lack of a systematic reporting system inhibits transparency, conceals surplus stockpiles, creates barriers to the prioritization of international stockpiles management, and may even discourage reporting.

Stockpile management is a major theme of the 2001 UN *Programme of Action*. Although it does not explicitly address systematic record-keeping, this appears to be an *implicit requirement* to satisfy its mandate for stockpile management, including the need 'to ensure . . . that the armed forces, police or any other body authorized to hold small arms and light weapons establish adequate and detailed standards and procedures relating to the management and security of their stocks of these weapons. These standards and procedures should, inter alia, relate to: . . . inventory management and accounting control' (UNGA, 2001, para. II.17).

Somewhat more detailed guidance can be found in some regional agreements. One of the most systematic stockpile reporting requirements can be found in the 2000 *OSCE Document on Small Arms and Light Weapons*. It calls upon participating states to share information on their *surplus small arms*, emphasizing 'the category, sub-category and quantity of small arms that have been identified as surplus and/or seized and destroyed on their territory during the previous calendar year' (OSCE, 2000, para. IV.E.1). These reports are, however, circulated only among OSCE participating states.

The lack of an international structure to encourage transparency is a significant weakness of the small arms regime. Neither the *Programme of Action* nor any regional instrument requires systematic reporting of inventory data. Nor is there a mechanism to facilitate voluntary data sharing. Even when governments want to make such data available, it is not obvious where they can submit it. In the past governments have occasionally presented small arms data under the miscellaneous category of the UN Arms Trade Register or shared it with non-governmental research organizations for publication. Destruction figures appear intermittently in national reports on *Programme of Action* implementation, but not other stockpile details. While individual governments can do more by themselves, systematic reporting probably is not possible without clearer international commitment.



to be in foreign ministries. This explains the tendency for national reporting to stress *external* aspects of small arms policy, the area of their writ. Lacking authority over *domestic* matters, such as national military stockpiles, National Points of Contact give them less attention.

No current international agreement establishes a mandate for comprehensive stockpile reporting (see Box 2.3). The key to better transparency in military small arms, then, is establishment of an international mechanism for *systematic reporting*. Without demand, motives will be weak. A reporting mechanism, even if entirely voluntary, would catalyse transparency, encouraging cooperation by creating a venue for it. Reporting is most likely to occur when structured through *custodial authorities*, the government agencies with physical control over the weapons. While this small arms problem, like many others, may be too complicated for panaceas, a systematic reporting mechanism involving custodial authorities offers the best promise of a transparency breakthrough.

## CONCLUSION: SEEING AND ANTICIPATING

Whether the danger is the trickle of small-scale theft, pilferage, and individual loss, or the torrent of catastrophic loss, control over state-owned small arms inventories remains a fundamental challenge. The guns in civilian possession, dispersed among millions of owners, are usually lost in small numbers at any one time. Government-owned small arms, concentrated among a few owners, can move in vast quantities. They always will be tempting targets for theft, illegal diversion, and questionable sales. Worse, control of state arsenals can disintegrate completely, flooding society with hundreds of thousands or millions of weapons.

These dangers heighten the need for greater *transparency* in order to identify surpluses and for *anticipatory action*—especially surplus destruction and security enhancement—to eliminate the most obvious risks.

Codified in the United Nations Charter, the principle of self-defence justifies state acquisition of the tools of self-defence. This chapter has illustrated the scale of the responsibilities that come with that right. In light of the extent of their inventories, with at least 200 million military firearms and at least 26 million law enforcement guns in official hands, management and control are essential for domestic and international security.

**The key to transparency is an international mechanism for stockpile reporting.**

Better stockpile management is a major theme of the 2001 *Programme of Action* and a foreign-policy goal for many countries. Catastrophic losses of vast inventories almost always occur unexpectedly. As the examples reviewed in the introduction reveal, formerly socialist and authoritarian societies are especially vulnerable to catastrophic losses. Although the *Programme of Action* applies to all UN member states, attention naturally focuses on the worst affected. Yet established democracies are not immune from smaller-scale inventory loss and diversion. This chapter illustrates the importance of devoting greater attention to the official small arms of *every* state.

Transparency and anticipatory action are complementary tools with the potential to greatly reduce stockpile dangers. Although they are valuable separately, used together they are particularly effective in minimizing stockpile dangers. Such efforts may not be sufficient to protect individuals against arbitrary or unlawful use of state arsenals. But they can help ensure that people do not suffer from their unintended effects.

The techniques in this chapter reveal the scale and approximate distribution of government small arms inventories, but this only a first step. By providing a glimpse of the lie of the land, of the peaks and valleys in the small arms global map, it can help promote better-informed debate. Such a debate can be sustained, however, only by greater official cooperation and disclosure. Concrete measures require concrete information. ■

## LIST OF ABBREVIATIONS

KPA	Korean People's Army	PAP	People's Armed Police (China)
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## ENDNOTES

- 1 Unlike ordinary police, the PAP operates under the joint authority of the Central Military Commission and Ministry of Public Security. Its personnel routinely carry weapons, often seen to include sub-machine guns or assault rifles. The role of heavy armament appears to have been reinforced by expansion in the 1990s. Much of this growth came through the wholesale transfer of units struck from the shrinking PLA and reassigned to the PAP. While ordinary Chinese police are assumed to be armed at the ordinary police rate of 1.4 weapons per officer, the People's Armed Police almost certainly carry the equivalent of many armed forces, approximately 2.3 firearms per person (Tanner, 2002, p. 600).
- 2 Destructions data is detailed in their respective national reports to the 2003 and 2005 United Nations Biennial Meetings of States.
- 3 I would like to thank Col. Antulio J. Echevarria II (US Army) for bringing these citations from von Clausewitz to my attention.
- 4 Private communication with Bruce Stout, August 2005.
- 5 'There are those who say: "I am a farmer", or, "I am a student", "I can discuss literature but not military arts." This is incorrect. There is no profound difference between the farmer and the soldier. You must have courage. You simply leave your farms and become soldiers. That you are farmers is of no difference, and if you have education, that is so much the better. When you take your arms in hand, you become soldiers; when you are organized, you become military units' (Mao Zedong, 1965, ch. 5).
- 6 The use of *biggest contemporary personnel* levels explains the difference between the estimates in this chapter and lower estimates based on *current* troop levels. An example of the later is Fernandes et al. (2005, pp. 113–16).
- 7 'Songun Chongch'i [Army First].' <<http://www.globalsecurity.org/military/world/dprk/songun-chongchi.htm>>
- 8 'The offense.' <<http://www.globalsecurity.org/military/world/dprk/doctrine-offense.htm>>
- 9 Slightly different figures are reported by Minnich (2001, p. 8).
- 10 'PLA Reserve Forces.' <<http://www.globalsecurity.org/military/world/china/pla-reserve.htm>> (emphasis added).
- 11 'PLA Reserve Forces.' <<http://www.globalsecurity.org/military/world/china/pla-reserve.htm>>, citing Mulvenon and Yang (2002).
- 12 Extrapolated from data for California and New Jersey (Jacobs, 2002, pp. 150, 162).
- 13 The general problem of bureaucratic segmentation of information and responsibility is a major theme of Allison and Zelikow (1999). See also Halperin (1985).

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