

**METHODOLOGY  
FOR ESTIMATING LOSSES OF ARMS AND AMMUNITION  
IN PEACE OPERATIONS**

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### About the Making Peace Operations More Effective (MPOME) project

The Small Arms Survey's Making Peace Operations More Effective (MPOME) project contributes to the reduction of violence and insecurity due to illicit arms proliferation in conflict zones. Towards that end, the project is working to build a collaborative agenda—with the United Nations, regional organizations, and troop- and police-contributing countries (TCCs/PCCs)—to reduce the diversion of arms and ammunition from peace operations. The focus is to improve practices to manage both contingent-owned equipment and recovered materiel.

The MPOME project is supported by the Governments of Australia, Canada, Germany, Indonesia, the Netherlands, New Zealand, Senegal, Sweden, Switzerland, the United Kingdom, the United States, and Uruguay, as well as the African Union, the Economic Community of West African States Commission, the Economic Community of Central African States, and the North Atlantic Treaty Organization.

For more information, please visit [www.smallarmssurvey.org/mpome](http://www.smallarmssurvey.org/mpome)

<b>Methodology for Estimating Losses of Arms and Ammunition in Peace Operations</b>			
<b>Unit</b>	<b>Arms</b>	<b>Ammunition (average estimates)</b>	<b>Assumptions and notes</b>
Individual	<ul style="list-style-type: none"> <li>• 1 x service rifle (SR)</li> <li>• 3 x hand grenades</li> </ul>	SR (AK): 150 rounds (5 x 30) SR (NATO): 100 rounds (5 x 20) SR (average): 125 rounds (5 x 25)	<ul style="list-style-type: none"> <li>• Assumes Kalashnikov-pattern (AK) rifles have 30-round magazines while many NATO-rifles (G3, FN, M16) have 20-round magazines.</li> </ul>
Squad (4)	<ul style="list-style-type: none"> <li>• 4 x SRs</li> <li>• 1 x machine gun (MG)</li> </ul> or <ul style="list-style-type: none"> <li>• 1 x anti-tank (AT) weapon</li> <li>• 12 x hand grenades</li> </ul>	SR: 400–600 rounds, depending on the type of rifle MG: 800 rounds or AT: 12 AT rounds	<ul style="list-style-type: none"> <li>• Assumes 200 rounds of machine gun ammunition per soldier no matter the calibre of the gun (5.56mm or 7.62mm)</li> <li>• Assumes that a machine gun is lost (and not an AT weapon) when no additional information is available.</li> <li>• The term ‘anti-tank (AT) weapon’ is used here to refer to portable rocket launchers and recoilless weapons that are now multi-purpose but, historically, were primarily intended for use against tanks and other armoured vehicles. Examples include RPG-7 pattern launchers, M72 Light Antitank Weapons (LAWs), and Carl Gustaf multirole weapons. ‘AT rounds’ is used to refer to all types of ammunition for these weapons, (e.g. HEAT, AP, thermobaric, etc)</li> </ul>
Section (12)	<ul style="list-style-type: none"> <li>• 12 x SRs</li> <li>• 3 x Pistols</li> <li>• 2 x MGs</li> <li>• 1 x AT weapons*</li> <li>• 36 x hand grenades</li> </ul>	SR: 1,200–1,800 rounds, depending on the type of rifle Pistol: 60 rounds (20x3) MG: 2,400 rounds AT: 12 AT rounds	<ul style="list-style-type: none"> <li>• Assumes 20 rounds of ammunition per pistol (10 rounds x 2 magazines).</li> <li>• Assumes the average pistol used will include magazines holding ten rounds (even though many models can accommodate larger magazines).</li> <li>• Assumes a section will have two squads equipped with machine guns and one squad equipped with an AT weapon</li> <li>• The figure for AT weapons applies to reloadable launchers. The quantity of disposable AT weapons is 3–6 times larger (but would not include ‘ammunition’).</li> </ul>

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<p>Platoon (37)</p>	<ul style="list-style-type: none"> <li>• 37 x SRs</li> <li>• 10 x Pistol</li> <li>• 6 x MGs</li> <li>• 4 x AT weapons</li> <li>• 2 x Light mortars (LM)</li> <li>• 111 x hand grenades</li> </ul>	<p>SR: 3,700–5,550 rounds, depending on the type of rifle</p> <p>Pistol: 200 rounds (20 x 10)</p> <p>MG: 7,400 rounds (200 x 37)</p> <p>AT: 48 AT rounds</p> <p>LM: 36 LM rounds (18x2)</p>	<ul style="list-style-type: none"> <li>• Assumes 18 rounds of light mortar ammunition per system at the platoon level</li> </ul>
<p>Company (175)</p> <ul style="list-style-type: none"> <li>• 3 platoons (111)</li> <li>• 1 mortar unit (12)</li> <li>• 1 logistics unit (22)</li> <li>• 1 reconnaissance and surveillance unit (12)</li> <li>• 1 HQ unit (18)</li> </ul>	<ul style="list-style-type: none"> <li>• 175 x SRs (+18 excess)</li> <li>• 59 x Pistols (+6)</li> <li>• 18 x MGs (+2)</li> <li>• 12 x AT weapons (+1)</li> <li>• 1 x AGL</li> <li>• 6 x LM systems (+1)</li> <li>• 2 x medium mortar systems (MM)</li> <li>• 333 x hand grenades</li> <li>• 17 x vehicle-mounted Machine guns (VMG)</li>   <li>• SR &amp; Pistol training ammunition</li> <li>• MG training ammunition</li>   <li>• Operational stores of small arms ammunition</li> <li>• Operational stores of AT rounds</li> </ul>	<p>SR: 17,500–26,250 rounds, depending on the type of rifle</p> <p>Pistol: 1,180 rounds (59x20)</p> <p>MG: 22,200 rounds (200x111)</p> <p>AT: 144 AT rounds</p> <p>LM: 336 LM rounds (56x6)</p> <p>MM: 52 MM rounds</p> <p>VMG: 34,000 rounds</p> <p>SR/P training ammunition: 21,000 rounds</p> <p>MG training ammunition: 6,480 rounds</p> <p>Operational store ammunition: 75K–84K rounds</p> <p>Operational stores AT rounds: 144 rounds</p>	<ul style="list-style-type: none"> <li>• For simplicity's sake, the total number of personnel in a company includes the staff of medical and engineering units.</li> <li>• Assumes that spare weapons (for replacement + cannibalization) comprise an additional 10% of company-level stocks.</li> <li>• Assumes stores of training ammunition for personal weapons of 10 rounds per soldier per month with 12 months' stores.</li> <li>• Assumes that all personnel in the 3 platoons carry machine gun ammunition but not the personnel in the other units (i.e. 111 x 200 rounds + 6,480 training rounds)</li> <li>• Assumes stores of training ammunition for machine guns of 30 rounds per weapon per month with 12 months' stores.</li> <li>• Assumes operational stores of ammunition for personal and crew-served weapons that are comparable in quantity to what soldiers are issued.</li> <li>• Estimates for mortar rounds at the company level include operational stores.</li> </ul>

**Notes:**

- This table summarizes the Small Arms Survey's estimates regarding the arms and ammunition typically carried by troops during peace operations. The estimates were developed for use with the Survey's Peace Operations Data Set (PODS), which documents attacks on peacekeepers and other incidents resulting in the loss of arms and ammunition.
- The estimates are applied to incidents in which the Survey is reasonably confident that arms or ammunition were lost but data on the type and quantity of lost items is not available.
- The actual number of weapons and rounds of ammunition carried by a particular unit at any given time will vary significantly depending on a number of issues, including (but not limited to) the authorizing body, the threat environment, the military doctrine(s) of troop/police-contributing countries (TCCs/PCCs), and the mandate of the unit. The events preceding losses of arms or ammunition also affect the quantity of arms and ammunition lost during peace operations. For example, the quantity of ammunition seized from a unit that engages in a purported three-hour firefight before their position is overrun is likely to be lower than if the same unit is immediately disarmed.
- The estimates are based on publicly available documentation and interviews with current and former participants in peace operations, and are periodically revised in response to the acquisition of new and better data.
- The Survey would like to thank those who have provided inputs to developing and refining this methodology, including participants in the Making Peace Operations More Effective (MPOME) regional workshops. The following individuals deserve special mention for their feedback: Brig. Gen. Irvine Nii-Ayitey Aryeetey; Lt. Gen. (Ret.) Jasbir Lidder; Col. (Ret.) Gonzalo Mila; and Col. (Ret.) Cyrus Oguna.
- More information about losses of arms and ammunition during peace operations and MPOME is available on the project's website: [www.smallarmssurvey.org/mpome](http://www.smallarmssurvey.org/mpome)