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Weapons Technical Intelligence in UN Peace Operations

Emile LeBrun and David Lochhead

Credits and contributors

Production and communications coordinators:
Olivia Denonville and Katie Lazaro

Fact-checker:
François Fabry

Copy-editor:
Alessandra Allen

Design and layout:
Rick Jones

Proofreader:
Stephanie Huitson

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Front cover photo

UN investigators compare serial numbers on materiel captured by the Sudan People's Liberation Army during cross-border incursions into South Sudan, Mayom, South Sudan, November 2011. Source: David Lochhead

About the author

Emile LeBrun is a senior researcher with the Small Arms Survey. He currently leads the Survey's Afghanistan arms proliferation project (2022–24). Previously, he was project coordinator for the Survey's Making Peace Operations More Effective project from 2016 to 2019, which focused on the management and documentation of weapons recovered in peace operations, including in missions led by regional and subregional organizations. His earlier work includes research on the practical obstacles that UN sanctions panels face in monitoring UN arms embargoes, especially in areas where UN peace operations are present.

David Lochhead is currently a human rights officer with the United Nations Office of the High Commissioner for Human Rights. He was a senior researcher for the Small Arms Survey from 2018 to 2022, where his research focused on improvised explosive device (IED) component trafficking. Prior to that, he was a senior security sector reform (SSR) officer with the United Nations Multinational Stabilization Mission in Mali, responsible for the mission's border security and counter-proliferation programme. He also held positions with the United Nations Development Programme, the United Nations Mission in Sudan, and the United Nations Mission in South Sudan, where his work included efforts to identify and trace weapons and ammunition flowing into conflict zones.

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Overview

This Briefing Paper discusses the current and possible future deployment of weapons technical intelligence (WTI) roles and activities in UN—as well as hybrid and non-UN—peacekeeping operations. It considers WTI in the light of early experiments in so-called 'intelligence-led' peace operations and the development and implementation of the UN Peacekeeping Intelligence Policy (UNDPO, 2017; 2019b) and related guidance. The paper highlights the contributions that WTI could make, if leveraged, for situational awareness, force protection, and mandate implementation, including the protection of civilians and human rights investigations. It also touches on how WTI might feature within the evolving context of peace operations that will affect missions' ability to understand and effectively respond to the threats posed by the proliferation of small arms, ammunition, and improvised explosive devices (IED) components in their areas of operation.

Key findings

- Documenting the proliferation of arms, ammunition, and explosives is crucial to fulfilling UN peacekeeping's civilian protection mandates, yet these activities lack resources and systematic operationalization due, in part, to limited technical peacekeeping intelligence (TPKI) capacity.
- Strengthening missions' weapons technical intelligence (WTI) capabilities would enhance mandate implementation and support mediation, human rights, and civilian protection. It would also help missions to avoid and respond to attacks and prevent hostile actors from accessing illicit weapons. Civilian peacekeeping sections are well placed to contribute to and benefit from WTI.
- Direct peacekeeping interventions and operations to reduce flows of arms, ammunition, and explosives are required to protect civilians, requiring a whole-of-mission approach, cooperation with the host state and cross-border collaboration with neighbouring governments, international partners, and regional bodies.
- As large multilateral peace operations wane, the UN will need to consider how urgently needed WTI capabilities should be deployed in non-traditional peace operation contexts, including hybrid and other emerging models of peace enforcement operations with assessed UN contributions.

Introduction

Particularly over the last decade, UN peacekeepers and their beneficiaries have been beset by threats from hostile actors armed with small arms and light weapons, rockets and mortars, IEDs, and related weapons. From 2014 to 2022, at least 643 peacekeepers and UN staff were killed or injured by IEDs during the course of their duties (Sarfati and Stoddard, 2023). While the direct threat posed by IEDs and small arms to peacekeepers is highly context specific—with peace operations in West and Central Africa being the deadliest—armed violence against civilians in missions' areas of operation occurs across the peacekeeping world. Countering these threats requires focusing on hostile actors' access to and (mis)use of weapons and addressing the destabilizing effects of unchecked arms proliferation.

Previous policy research by the Small Arms Survey and others has assessed the mandates and capabilities of UN peace operations to monitor illicit arms flows, with a particular focus on their ability to generate information of use to UN sanctions monitoring panels investigating arms embargo violations (Anders, 2018; Boucher, 2010; LeBrun, 2020; LeBrun and Rigual, 2016). Those studies found that while missions can generate some illicit arms intelligence, they tended to underperform in this area due to a combination of factors, including weak mandates, a lack of mandate knowledge, low prioritization, information management challenges, and poor internal coordination. And while some missions have established 'embargo monitoring cells' to facilitate this activity, others have not. Illicit arms and IED threats also exist in many mission areas where no UN arms embargo is present.

This Briefing Paper focuses on the more recent approach of missions to illicit arms and IEDs, which has emphasized force protection rather than arms embargo monitoring. Even under this new approach, however, WTI has been implemented in a piecemeal manner that neglects broader and complementary applications, including, most notably, for civilian protection and human rights.

It is perhaps not a coincidence that, in parallel to growing threats against peacekeepers, a dramatic shift has taken place within the UN peacekeeping community to publicly acknowledge the role of intelligence in helping peace operations better execute their mandates and

protect their forces and beneficiaries. While intelligence, surveillance, and reconnaissance (ISR) work has taken place within UN peacekeeping for some time, it was only quite recently that peacekeeping intelligence became an important stream of work for the United Nations Department of Peace Operations (UNDPO). Over the last two years, UNDPO has promulgated guidance on open-source peacekeeping intelligence (OPKI), human peacekeeping intelligence (HPKI), and geospatial peacekeeping intelligence (GPKI). WTI is included under the subcategory TPKI.

Three developments have been particularly relevant in positioning TPKI and WTI in the current UN peacekeeping context: first, the creation of the UN Peacekeeping Intelligence Policy, initially released in 2017 and slightly amended in 2019, and its elaboration in follow-up documents; second, experiments in 'intelligence-led peacekeeping', particularly efforts to make intelligence a guiding priority at the operational and strategic levels; and, third, efforts to assess and respond to the specific threats to peacekeepers posed by IEDs. Looking ahead, the extent to which WTI can be enhanced in peace operations will also be affected by other trends, including the rapid increase in available new technological capabilities and the likely shift of peacekeeping mandates towards regional and subregional organizations, hybrid operations, and ad hoc coalitions. Both of these trends are briefly discussed in this paper.

The paper begins by describing the peacekeeping intelligence situation prior to 2017 and how the UN Peacekeeping Intelligence Policy and its follow-up documents position TPKI and WTI. It goes on to discuss attempts to develop and extend TPKI capabilities in Mali and lessons learned from them. The paper then unpacks the UN's evolving approach to managing the IED threat to peacekeepers. The latter sections consider how specific mission actors might play an expanded set of WTI roles to advance mission priorities and mandates; the opportunities and challenges that new technology capabilities and processes bring to the domain; and the trend towards smaller, regional, and ad hoc peacekeeping missions and the implications for WTI. The final section consolidates the reflections for the UN and broader international stakeholders.

UN peacekeepers and UN human rights investigators examine a destroyed vehicle, weapons-related evidence, and human remains during clashes between Tuareg rebels and pro-government militias, Tabankort, Mali, January 2015. Source: David Lochhead

This Briefing Paper makes use of previous policy and research studies produced by the Small Arms Survey and others, and more than a dozen key informant interviews with former commanders, UN headquarters officials, and academics conducted since 2021, including those carried out for a presentation to the United Nations Security Council (UNSC) in September 2021 (Lochhead, 2021). It also reflects extended discussions during a full-day closed expert workshop on TPKI hosted by the Permanent Mission of the Netherlands to the United Nations in November 2022 (Small Arms Survey, 2022). The analysis presented here is the authors' alone, and should not be attributed to any individuals consulted or to UNDPO.

Evolving intelligence concepts in peacekeeping operations

To understand the position of WTI in peace operations, it is necessary to sketch the recent history of intelligence concepts in UN peacekeeping in general. In this broader context, the peacekeeping community has tried to come to grips with organizational challenges stemming from structures that were designed for a previous era, along with a rapidly changing set of new technological tools and platforms and an operational context in which threats to peacekeepers have constantly evolved.

High-level political and policy developments

These trends first emerged in the report of the Panel on United Nations Peace Operations, also known as the 'Brahimi Report' (UNGA and UNSC, 2000). The Brahimi Report described a number of weaknesses in UN peacekeeping architecture and deployments, including the need for enhanced intelligence sensors (tools) and products (paras. 65–75). In particular, the report called for 'field intelligence and other capabilities' to respond to new violent threats (para. 51). A number of these recommendations were taken up in a subsequent UNSC Resolution 1327 (UNSC, 2000), including the call to increase the flow of information to both missions and UN headquarters. While the Secretary-General and the Special Committee on Peace Operations

(the so-called C-34) disagreed on how this should be achieved organizationally, there was broad agreement that the UN peacekeeping system was not keeping up with the nature of the threats it faced and that changes were necessary, including in the area of information gathering, fusion, analysis, and dissemination for the purposes of threat assessment and response.

Early experiences highlighted a lack of coherence in addressing the challenge of enhancing intelligence for guiding operations. Mission-level intelligence structures, including the military intelligence staff (known as the 'U2', borrowing from NATO military staff structures) and Joint Military Analysis Centre (JMAC), were under pressure to focus on short-term tactical threats rather than strengthening operational and strategic-level information loops.[1] Experimentation with new tools and techniques took place, but largely without structured oversight. Another difficulty was that the most technologically sophisticated intelligence units, those of NATO countries, were not contributing a portion of the intelligence they gathered—at high cost and some physical risk—into the system because of security concerns over who had access to it. In effect, excessive stove-piping of intelligence sharing within organizational pillars prevented it from being acted upon (van Dalen, 2015b, p. 2).[2] Conversely, neighbouring UN troop- and police-contributing countries (TCCs/PCCs) that were excluded from these innovative intelligence structures may have had the most advanced human source intelligence because of their proximity to the conflict system and actors.

While an innovative experiment in 'intelligence-led peacekeeping' was launched in Mali in 2014 (described below), the high-level discussion continued on how the UN as a whole, and missions in particular, should better respond to the evolving threats against them. In 2017, the report 'Improving Security of United Nations Peacekeepers: We Need to Change the Way We Are Doing Business' (known as the 'Cruz Report') reiterated the call for intelligence, particularly low-tech intelligence tools that would, it argued, allow troops to prevent, avoid, and respond to attacks. The Cruz Report consistently emphasized 'tactical' intelligence and human intelligence, including for responding to the IED threat (dos Santos Cruz, 2017). It did not, however, mention technical intelligence or WTI.

Also in 2017, the first iteration of the Peacekeeping Intelligence Policy was finalized under the auspices of UNDPO and the United Nations Department of Field Support (UNDFS). The policy was slightly revised and reissued in 2019 to focus more explicitly on force protection and the protection of civilians, and to avoid concerns raised by the C-34 that intelligence gathering could be used for political purposes.[3]

In general, an important theme at the political and institutional levels from 2019 onwards has been the question of which types of capabilities should be provided by TCCs/PCCs as part of their traditional duties, and which should be developed by peacekeeping operations and UNDPO to ensure a more organic, UN-owned process managed by mission structures themselves. In addition, legal questions soon emerged over the ownership, management, and supervision of data generated by sensors deployed by TCCs/PCCs in the context of UN peace operations, with data control, oversight, and information security as key dimensions.

From policies to new mission intelligence structures

The 2019 Peacekeeping Intelligence Policy indicated that the fundamental purpose of peacekeeping intelligence in UN operations is 'to enable missions to take decisions on appropriate actions to enhance situational awareness and the safety and security of UN personnel, and inform activities and operations related to the protection of civilians' (UNDPO, 2019b, p. 3). Situational awareness, in turn, is defined as 'knowledge, understanding and anticipation of a situation through monitoring and reporting of current events, analysis and predictive assessments' (Druet, 2021, p. 4).

The Peacekeeping Intelligence Policy led to the development of a new Military Peacekeeping-Intelligence (MPKI) Handbook (UNDPO, 2019a) that has been rolled out through a series of UNDPO Office of Military Affairs–led training programmes for key peacekeeping mission staff, with support from New Zealand and Ireland. The UNDPO Peacekeeping-Intelligence Coordination Team has now developed further guidance products, including a Peacekeeping Intelligence (PKI) Policy Framework and guidelines on OPKI, HPKI, GPKI, and the sharing of PKI. Guidance on TPKI is forthcoming.[4]

The policy also contributed to the development of a 'mission peacekeeping intelligence' governance architecture, the absence of which had led to the proliferation of disconnected, overlapping, and sometimes competing intelligence and analysis efforts prior to 2017. The new architecture includes Mission Peacekeeping-Intelligence Coordination Mechanisms (MICMs), whose core members include the JMAC, the Joint Operations Centre (JOC), UN peacekeeping intelligence staff officers (known as the 'U2') and police, and the United Nations Department of Safety and Security (UNDSS) (UNDPO, 2019a, p. 12). But missions may also include civilian substantive sections as either permanent or ad hoc members, as they deem necessary. This paper argues that, while always context-specific, civilian units—including human rights and protection divisions; mediation; security sector reform (SSR); disarmament, demobilization, and reintegration (DDR); and rule of law structures—are well placed to contribute to and benefit from TPKI.

Thus, in the broader MICM structure envisioned, peacekeeping intelligence collection and security analysis are not exclusively a military activity, nor exclusively the purview of specialists, as they would be in a conventional military setting or as used by state intelligence services. The MICM structure acknowledges that high-value information for situational awareness and risk assessment may come from a variety of UN and non-UN sources, including: the host government; other UN member states; community and non-state armed actor sources; NGOs; and other substantive civilian sections of the peacekeeping operation that are engaged with conflict actors, the government, and communities. Weekly joint operational planning meetings, such as the 'Joint Effects Working Group' of the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA), which brought together a wide spectrum of UN force, police, and civilian peacekeeping sections, have been created in some missions to create a space for information sharing and joint analysis that feeds directly into operational planning through the combined U3/5 (operations and plans) components of the UN Force Headquarters.

TCCs and PCCs from states neighbouring the mission area often have a more nuanced and detailed understanding and intelligence picture related to armed and political actors in the mission

area, compared to TCCs/PCCs from outside the region. In addition, neighbouring states may have parallel formal and informal intelligence-sharing and defence cooperation protocols in place with the host nation. At the same time, neighbouring states may have been, or continue to be, involved in mediation efforts; in cross-border, regional, and geostrategic dimensions of a conflict; or in the conflict itself as proxies, or as direct belligerents or arms suppliers. These dynamics should shape how TCCs/PCCs collect, analyse, and share armed actor–related intelligence.

Ideally, TPKI should help missions understand regional and cross-border proliferation trends and identify new lethal material, designs, and tactics entering the conflict theatre. WTI can be used to understand the transfer of knowledge, personnel, training, and materials between armed groups—or state actors and armed groups—and across and between conflict systems. Here, both technical analysis and context-specific analysis should be combined for greater effect.

Refining the TPKI and WTI concepts

It is notable that the Peacekeeping Intelligence Policy makes no mention of TPKI or WTI and thereby missed an opportunity to provide guidance that might have influenced the political discourse. The MPKI Handbook contains a single reference to TECHINT; that passage is focused on IEDs, and is largely considered from a force protection perspective (see Box 1), rather than that of, for example, civilian protection, legal accountability, or human rights.[5]

NATO intelligence doctrine, which was an important reference for the development of UN peacekeeping intelligence guiding principles, takes a somewhat more expansive view, and includes a broader focus on other objectives for TPKI, including in building up a body of evidence to support prosecution cases for violent attacks:

> Creating and developing evidence cases will support the host nation efforts towards capacity building including the judicial process. The joint force must be prepared for the possibility it will need to educate the host nation security forces, legal profession and judiciary on exploitable material procedures. It may be useful to coordinate these education efforts with other non-NATO assistance to host nation legal institutions. For example, this may include the recovery of IED components which can be linked to suspect individuals through forensic and biometric intelligence and allow for processing through the host nation judicial system leading to prosecutions. Successful examples of this process can be further exploited to demonstrate and encourage successful capacity building (NATO, 2018, p. 2-10).

In practice, effective deployment of forensic capabilities is a challenges not only for host nation authorities but also for peace operations themselves, as discussed in the sections below.

Similarly, and roughly in parallel to the general military TPKI doctrine emerging as a result of the Peacekeeping Intelligence Policy, UNDPO and the UNDFS developed the IED Threat Mitigation Guidelines (UNDPO and UNDFS, 2016), which also provide some guidance on WTI in peacekeeping operations, going beyond the limited definitions provided in the MPKI Handbook. The guidelines define weapons intelligence as '[i]ntelligence derived from the process and capabilities that collect and analyse threat weapons systems *to enable material sourcing, support to prosecution, force protection and targeting of threat networks*' (UNDPO and UNDFS, 2016, p. 13; emphasis added). This broader definition is more appropriate

Box 1 TECHINT, WITs, and field exploitation capabilities

'Exploitation'—the collection and forensic analysis of material evidence from sites of violence or weapons caches—is a key concept and capability in TPKI and WTI. In the field, material exploitation ideally occurs at different levels, with varying objectives and capabilities. In general, exploitation is ultimately geared towards understanding attackers' capabilities, networks, roles, and relationships, as well as analysing the likely sources of lethal materiel. Ultimately, the intelligence gathered through exploitation is designed to inform counter-IED (C-IED) (and small arms and light weapons) strategies and operations and to assist host nations' legal accountability mechanisms against perpetrators through regular or specialized counter-terrorism courts.

The MPKI Handbook defines TECHINT as 'peacekeeping-intelligence derived from the acquisition and analysis of threat and foreign military equipment and associated materiel. A subset of TECHINT is WTI, which is a category of peacekeeping-intelligence derived from the forensic acquisition and exploitation of Improvised Explosive Devices (IEDs), associated components, improvised weapons and other weapons systems. WTI can be utilized to support prosecution, identification of material sources and to inform force protection measures. *For the United Nations, WTI is primarily utilized to inform force protection measures'* (UNDPO, 2019a, p. 45; emphasis added).

NATO's C-IED exploitation scheme provides a useful model for the objectives and capabilities of the following exploitation levels:

- **Level 1**: 'Field exploitation' is conducted by explosive ordnance disposal (EOD) and weapons intelligence teams (WITs) to record information on incidents. Team members gather and preserve physical and digital data and forensic material, and witness statements. Outputs are generated over a short time period (in a matter of hours).
- **Level 2**: 'Theatre exploitation' involves deploying a field or mobile laboratory with technical and forensic exploitation capability, leading to 'technical assessments of device capabilities; the examination and comparison of design and construction similarities with other devices; and new technical developments' (NATO, 2018, p. 2-10). Outputs are generated over a medium time period (in a matter of days).

Although the MPKI Handbook indicates that the UN's WTI capabilities end at level 2, there is a third level:

- **Level 3**: 'Out of theatre exploitation' is conducted by national facilities to 'provide in-depth technical and forensic examination and analysis using scientific and counter criminal capabilities' (p. 2-10). Outputs are generated over a longer time period (in a matter of weeks).

Sources: NATO (2018); UNDPO (2019a)

in light of the complex regional trafficking, inflows, and circulation of lethal material into peacekeeping theatres of operation, as well as the dramatic way they shape national conflict dynamics, which these operations are designed to address.

Like the NATO concept, the United Nations Mine Action Service (UNMAS) approach views TPKI as supporting accountability for attacks against civilians and peacekeepers, and degrading the networks that attack peacekeepers—an equally thorny and challenging objective that is explored further below. In practice, TPKI and WTI can involve the exploitation and technical/forensic analysis of the following items, in order to understand their provenance and the relation to conflict actors and suspects: firearms; ammunition and explosives; electronic components such as telephones, radios, and IED components; documents; clothing; and related materials. Laboratory work can include the analysis of biometric evidence such as fingerprints, DNA, and retina scans from suspects and victims.

An assessment commissioned by UNDPO and finalized in 2021 found that most UN missions had 'implemented some aspects of the new PKI [Peacekeeping Intelligence] Policy, such as the establishment of mission PKI coordination mechanisms or the development of mission-wide PKI acquisition plans', but that 'no mission has yet established a dynamic feedback loop that would permit efficient tasking of different sensors across a mission' (Druet, 2021, p. 15). The assessment also found that the relative immaturity of peacekeeping intelligence processes remained an obstacle to the effective uptake of relevant new situational awareness technologies (see 'Small arms, light weapons, and ammunition monitoring' below). Besides the brief mention in the MPKI Handbook noted in Box 1, doctrinal guidance and recommendations for TPKI and WTI have not yet emerged.

Equally notable, the many relevant entities—including parallel UN missions, bilateral military and assistance missions, NGOs, and others—that have critical information about illicit arms and ammunition flows have not established the lines of communication and collaboration necessary to share this information routinely. The current situation not only leaves peace operations and local communities at risk of attack, but also fails to put up sufficient barriers to hostile actors' access to illicit weapons. This information is particularly important for enabling missions to understand where state actors, including the state hosting the mission, may be actively transferring weapons and ammunition to non-state actors within their state or a neighbouring state as a form of proxy conflict.

Lessons from 'intelligence-led peacekeeping' in Mali

Prior to the recent phase of intelligence policy and doctrine development at UN headquarters, a number of NATO countries, informed by their participation in internationally sponsored counter-insurgency operations in Afghanistan and Iraq, stepped forward with efforts to bring their experiences in those environments into UN peacekeeping settings. This made sense given that UN peace operations were becoming more violent and, although UN troops did not necessarily have a mandate to conduct offensive counter-insurgencies, they were increasingly supporting national authorities to conduct such operations themselves. These nations perceived intelligence as an area where forces from NATO countries could make a real contribution—not only at the tactical level, but also at the operational and strategic levels. The concept of 'intelligence-led peacekeeping' emerged in this context.

ASIFU

Perhaps the most notable of these 'intelligence-led peacekeeping' experiments was the All Sources Information Fusion Unit (ASIFU), established in 2014 to improve intelligence support to MINUSMA. The ASIFU was founded by the Netherlands with contributions from Denmark, Estonia, Finland, Germany, Norway, and Sweden (Boutellis and Beary, 2020, p. 9). In its first iterations, the ASIFU was a stand-alone ('attached') operation reporting directly to the force commander. Always led by a Dutch commander, the ASIFU was a prestige initiative for the Netherlands, which had been largely absent from UN peacekeeping since 2001 due to a break in trust and confidence in the UN after a number of negative experiences, including at Srebrenica in 1995 (van Willigen, 2016, pp. 707–08).[6]

The ASIFU was informed by experiences in Iraq and Afghanistan, especially where US and NATO forces were engaged in direct military interventions—that is, active combat operations against irregular forces. In these environments, longer-horizon, predictive intelligence was deemed essential for force protection and mission planning. The concept of 'intelligence-led' operations developed in this context, in which feeding the intelligence cycle became a key determinant of mission success—not just in the identification of targets and specific tactical engagements, as the prevailing view proposed, but also over the longer term. This concept required flexibility in planning and implementing combat and intelligence-gathering activities, and emphasized deploying sensors whose main objective is long-horizon intelligence rather than short-term tactical responses (van Dalen, 2015a; 2015b).

In addition to the Headquarters and Analysis Fusion Cell in Bamako, the ASIFU featured two company-sized ISR units in Timbuktu and Gao (van Dalen, 2015a, p. 311). In its so-called 'attached' phase, the ISR units reported directly to ASIFU headquarters and were not responsive to the MINUSMA sector command, due to concerns that the intelligence cycle would be directed to short-term tactical responses as a result, rather than the longer-horizon intelligence for which the ASIFU was designed.[7] In the event, the sectors were deemed unprepared to use high-quality intelligence (van Dalen, 2015b, p. 5). The Dutch contributed one ISR team in Gao, supplemented by helicopter and special forces assets known as the Special Operations Land Task Group (SOLTG), while the Swedes contributed the other ISR team in Timbuktu, providing a more robust 'task force' with its own enabling capabilities, but without helicopter support (van Dalen, 2015a, pp. 311–12).

As the mission progressed, and IED attacks on peacekeepers, national military forces, and civilians increased, UNDPO and capitals placed strong pressure on the ASIFU to contribute first and foremost to preventing casualties among mission staff and TCCs/PCCs. This was understandable, since fatalities were the highest price to pay for individual soldiers, and the attacks gravely damaged mission morale, increased troop resistance to patrolling dangerous areas,

and created enormous resistance among troop contributors—as evidenced by the 'hidden caveats' imposed by some capitals on the types of missions that their TCCs could undertake. In the end, the ASIFU's independence was also deemed less than ideal for maintaining control of the flow of information in the intelligence cycle. The ASIFU eventually transitioned to an 'integrated' model, where all intelligence fusion took place within the force. The ASIFU Analysis Fusion Cell merged with the U2 and the ISR units were placed under the force commander's command, in practice under the combined control of U2/U3 (Force intelligence/operations) control.[8]

While some capabilities were withdrawn— the SOLTG was replaced by second-tier Special Forces units known as long-range reconnaissance patrols (LRRPs)—additional capabilities were also rolled out in response to the increasing threats of vehicle-borne IED, mine, and indirect fire attacks against MINUSMA air assets, airstrips, helicopter landing pads, and aviation fuel depots. These attacks led to a greater reliance on ground resupply convoys, which travelled vast distances to MINUSMA's remote bases and temporary operating bases in the centre and far north of Mali. New innovations included the creation of convoy combat companies, such as specialized search-and-detect teams, and the Mobile Task Force (MTF), which allowed for rapid deployments to protect civilians owing to its integrated, flexible capacity (Séne and Teunissen, 2022).

Despite the multiplicity of units that might have contributed to the development of a sophisticated assessment of arms procurement dynamics and supply chains, the mission never integrated WTI into a coherent operational concept to disrupt armed actors' access to and use of lethal materials against the mission and Malian Defence and Security Forces (MDSF). The failure of the mission to work together with the MDSF to reduce these threats was a significant source of tension and likely contributed to the Malian military's growing dissatisfaction with MINUSMA.[9]

UNPOL

United Nations Police (UNPOL) has had a key role in the collection and processing of criminal intelligence, covering weapons intelligence, in Mali, including as part of Joint Investigation Teams (JITs) alongside Malian law enforcement. UNPOL had the only 'level 2' forensics laboratory in MINUSMA. Under French command until 2017, the laboratory then developed into a fully UN facility and became more closely coordinated with other parties in the mission, with clear procedures and responsibilities for each component and with UNPOL in the lead given a focus on accountability and liaison and support roles with local authorities. While in theory the UNPOL laboratory was responsible for processing all WTI selected by the mission for analysis in country, in practice, material evidence was processed in multiple ways and with multiple partners. Evidence was, for example, shared with the French Operation Barkhane Counter-IED Exploitation Laboratory facility in Gao;

Weapons-related evidence documented by UN investigators in fighting positions while undertaking casualty recording following a battle, Kidal, Mali, May 2014.
Source: David Lochhead

processed by WITs in northern Mali; and sent to TCC home capitals. A small percentage (less than 5 per cent of evidence for explosive events, for example) was exploited and processed by the UNPOL laboratory in Bamako.[10]

Beyond the security, logistical, and transport difficulties associated with the exploitation of weapons-related evidence, one of the main challenges faced by the laboratory was coordination with mission actors and with the Malian government—whose judicial system was envisioned as a core beneficiary of the laboratory—in the prosecution of crimes against both civilians and peacekeepers, which occurred to a large extent with impunity (Sarfati and Stoddard, 2023). Coordination was functionally limited because of a lack of agreement between the UN and Malian approaches to criminal justice procedures, concepts of evidentiary chain of custody and forensic proof, and criminal prosecution frameworks and processes. Given that the Malian judicial system was perceived to be not necessarily independent of the executive, executive prerogative was seen to frequently supersede the needs of criminal investigations.[11] As a result, forensic data provided by the UNPOL laboratory was rarely, if ever, used in actual prosecutions.

The UNPOL unit did manage to create databases—which were eventually digitized—for captured weapons, as well as for persons, fingerprints, IED components, and vehicles. According to the Status of Forces Agreement and discussions with knowledgeable experts in November 2022, the Malians could use these systems, but largely did not. An intelligence fusion unit with the Ministry of Interior allowed information to reach key stakeholders, but it often did not reach decision-makers, which made it more difficult for the mission to align with national authorities on risks and mitigation strategies. While UNPOL worked well with UNMAS at the tactical level, for example in creating the mission's first post-blast investigation teams and a joint forum to share information, efforts to develop a joint C-IED approach with Malian authorities were never fully realized. UNMAS was also instrumental in establishing the mission's, at first informal, C-IED architecture and routine meetings, which provided a link between the UNPOL laboratory, UNMAS, UN Force Headquarters, and other concerned civilian sections of the mission. This led eventually to the establishment of a C-IED Steering Committee, a C-IED Taskforce, and working groups.[12]

The mission's JMAC and the ASIFU had access to some of the data generated by the 'level 2' laboratory (some data was held back for reasons of 'ongoing investigations' despite being shared with US and French law enforcement entities for enhanced analysis beyond the technical capabilities of the level 2 laboratory). These actors were, however, not necessarily willing to share their own data in return, and their data sets remained largely separate and inaccessible. The ASIFU worked closely with the top leadership of the force much more than it engaged in formal or informal information sharing with UNPOL.[13]

Achievements and limitations

The ASIFU and later units such as the Swedish ISR Task Force and WITs produced high-quality technical intelligence products. Nevertheless, reflection exercises and interviews with former unit commanders suggest that the leadership considered the mission's ability to absorb and use those products to be weak, and the military side of the operation unable to effectively integrate the products into proactive operations that could have degraded weapons procurement and IED emplacement capabilities and networks. On the ground, the mission's military assets were mainly used for the defence of installations and convoys, while 'offensive capabilities' were almost non-existent. Confusion and disagreement about the division of duties related to intelligence production and management between the ASIFU and U2 became a source of internal friction within the UN Force Headquarters.[14]

Data management was also a thorny issue, with MINUSMA sections employing a wide variety of different data storage and management tools with differing security features and protocols. Security protocols were such that, according to one respondent, the 'ASIFU could speak to [French Special Forces] Operation Barkhane better than the mission could speak to Barkhane.'[15]

The work of the ASIFU and ISR units was also weakened by their comparative lack of Arabic, Bambara, French, and Tamashek language capabilities, which limited their ability to develop local human sources and make optimal use of other signals intelligence and open-source information. As with most military and police personnel deployed in peacekeeping missions, ASIFU personnel were frequently deployed to Mali on short rotations of six or twelve months, leading to constant changes in personnel and therefore the mission's ISR and ASIFU capability. This inability to develop subject matter expertise by intelligence collectors and analysts contrasted with the expertise developed over several years by civilian subject matter experts within the JMAC and JOC, who stayed in the mission long enough to develop reliable human sources and contacts.

From the perspective of WTI, the ASIFU operated alongside units, including the SOLTG and the LRRPs, that were constructed as intervention-ready forces that could be used for power-projection operations and act upon the intelligence it generated. But these forces were rarely used this way in the early years of the mission. One reason is that the Dutch parliament insisted that the ASIFU was an intelligence rather than an intervention force, which restrained its actions on the ground. The SOLTG did, however, locate ammunition dumps, and confiscate and recover explosive ordnance that could have been used to build IEDs.[16] Later British LRRPs, deployed towards the end of MINUSMA's mandate, seem to have been more proactive and were also involved in recovering illegal weapons, ammunition, and communications equipment during patrols (British Army, 2021).

One lesson learned from this experience is that the UN should recommend a doctrine and position to establish the purpose of such units and the contribution they should make, including for WTI work. As it happened, the MTF, created by the subsequent Force Commander Lt. Gen. Gyllensporre (Sweden), presented an effective model, which could move flexibly and engage in tactical operations to protect civilians, and was better equipped with Chinook helicopters and other air mobile forces—a necessity for covering an enormous territory.[17] An MTF with an integrated WTI capability would have been a significant asset. At the time of MINUSMA's dissolution in December 2023, however, the conundrum of how best to act upon the technical intelligence that might be generated in order to pre-emptively disrupt (either unilaterally or alongside the host state) groups carrying out illegal acts, or targeting

UN officials review forces belonging to the Tuareg armed group Haut Conseil pour l'Unité de l'Azawad (High Council for the Unity of Azawad), according to the provisions of the Ouagadougou Ceasefire, Kidal, Mali, August 2013. Source: David Lochhead

peacekeepers, remained unresolved. UNDPO may wish to consider the elaboration of specific WTI-related tools (such as a WTI unit manual) and operational concepts for specific threat types and proliferation risks, including integrated unit concepts and tactical strategies that will enable future missions to act decisively on the basis of WTI, while integrating WTI more generally into future operational concepts for peacekeeping and peace enforcement.

Sequencing was also a problem. By the time the MTF was created, the ASIFU had ended its robust 'attached' phase, the Swedes were also drawing down, while the German WITs were limited to Gao with caveats to limit their exposure. By the time the mission developed the doctrine and capability for proactive operations, the WTI capabilities were diminished because of the enormous pre-existing footprint, logistical challenges, and the mission's reorientation to prioritize force protection.

In the event, as attacks on the mission increased, the ASIFU was tasked with contributing to shorter-term defensive operations, and required to fuse with the U2, switching from its 'attached' model to an 'integrated' one. This meant that ISR units, while still directed by the mission headquarters, were increasingly guided by the priorities of Sector Headquarters. Fundamentally, weapons intelligence was never successfully fed into the intelligence and operational planning cycle at different levels of the mission.

Small arms, light weapons, and ammunition monitoring

While these efforts were ongoing, and consistent with the UNSC's mandate to assist sanctions monitoring teams on certain non-state armed groups, two initiatives suggested a way forward. The mission's SSR-DDR unit began collecting arms- and ammunition-related information based on access to non-state armed groups in the mission area, both during ceasefire violation assessments and fact-finding missions and through the routine integration of an arms expert from the SSR-DDR unit into casualty recording and human rights investigation missions of the Human Rights and Protection Division (HRDP). This generated a significant quantity of arms- and ammunition-related information from a variety of incidents and sources. A mission-wide 'small arms working group' involving SSR-DDR units, the JMAC, the HRDP, the UN Force, UNPOL, and UNMAS had also been established early in the mission to try to create a mission-wide approach to documenting lethal material circulating within and entering the mission area. A beta arms and ammunition documentation database was also created, building on the mission's Situational Awareness Geospatial Enterprise Incident and Events Database (SAGE). These efforts faded over time given rotations within the force and a lack of political support and cooperation between the participating units. Clearer mandate language related to preventing and countering the proliferation of lethal material into the mission's area of operations would clearly have helped to strengthen coordinated action across the mission early on.

In parallel, a terrorism and trafficking information analyst in the JMAC of MINUSMA began acting as a hub for the collection of data on arms and ammunition documented by different elements of the mission. Data previously collected by the SSR-DDR unit was integrated into this new database. The initiative aimed to 'document and centralize information on arms and ammunition used in terrorist attacks against MINUSMA or other targets' (Anders, 2018, p. 8), and to identify to what extent arms used in such attacks were likely trafficked from outside Mali or diverted from national stocks.

According to one report produced as a result of the data generated under this initiative, in four years, at least 600 small arms and light weapons and more than 12,000 rounds of associated ammunition were documented. Even more remarkably, working in cooperation with Malian authorities, the initiative 'identified various materiel that was likely trafficked illegally into Mali' (Anders, 2018, p. 8). Data from this monitoring effort was able to assist the Malian authorities and their investigators in connecting specific weapons to specific armed groups in 2016 and 2017 (p. 6). According to a subsequent report, a data set was created that links arms and ammunition intelligence data to some 2,300 extremist attacks from 2014 to 2023 (Anders, 2023, p. 9).

These achievements indicate how much can be accomplished without an

explicit mandate, budget, or dedicated operational support to develop a monitoring role. Because it was not connected to the intelligence and operational planning cycle of the mission, however, there is no indication that the information generated contributed to force or civilian protection, or improved the mission's ability to understand, assess, and respond to armed actors and their arms and ammunition supply networks. In this light, it was a missed opportunity to potentially address the inflow and circulation of lethal material as part of a UNSC-mandated stabilization mission, in an area characterized by the proliferation of armed actors.

Focusing on the IED threat

As highlighted above, the pressing nature of the IED threat against some missions generated momentum for TPKI and WTI, leading to a WTI concept focused almost exclusively on IEDs over other weapons systems, as well as the prioritization of tactical over strategic and operational intelligence. These developments warrant further unpacking.

Concerned with the noticeable increase in IED attacks on civilians, military, and peacekeepers in Mali, especially, the UN Secretary-General issued his first report on addressing the IED threat in 2016 (UNGA, 2016). Its recommendations included 'prevention, preparedness, and response and recovery' modalities, all of which called for actions by a range of government and international partners working in tandem.

Recommendations 9 and 10 of that report focused on assessing the situational context in which the UNSC considers peace operation mandates and, if relevant, the inclusion of comprehensive IED threat mitigation measures.[18] Missions should also fully implement the UN Guidelines on Threat Mitigation in Mission Settings that codify the best practices of UNMAS (UNGA, 2016, pp. 15–17). Those guidelines were supplemented in 2017 by the UN *IED Threat Mitigation Military and Police Handbook* (UN, 2017). The handbook describes the range of key operational activities required to assess and respond to IED threats and focuses on predicting, preventing, detecting, disposing, minimizing, and exploiting such threats. In the meantime, UNMAS provided capacity-building training to TCCs deploying to IED-affected missions (UNGA, 2018, pp. 12, 21–22) and to the MDSF. UNMAS also heavily supported the mission in its efforts to understand and respond to the IED threat in Mali from 2013 onwards—the UN Force Headquarters C-IED Cell was only operationalized in the country in 2017.

The Secretary-General's 2018 report saw evidence of the positive impact of the normative guidance and training in this area, noting that 'the combination of training and mentoring for troop-contributing countries by the Mine Action Service and several other threat mitigation measures contributed to an overall reduction in casualties among peacekeepers of 50 per cent from 2016 to 2017, despite an increase in the overall number of incidents targeting MINUSMA' (UNGA, 2018, pp. 12–13). The report added that '[t]he measures have enhanced the safety, resilience and freedom of movement of MINUSMA' (p. 13).

Nevertheless, the UN recognized that threat mitigation was primarily defensive in orientation, and that efforts to reduce the likelihood of future attacks on peacekeepers and their beneficiaries would require a more robust preventative approach—one that sought to disrupt the networks procuring components and precursors, and assembling and deploying IEDs, and that collaborated on a more operational level with initiatives outside the mission to interrupt those networks. In mid-2021, the UNSC requested the Secretary-General to rapidly provide the Council with 'an independent strategic review of United Nations peacekeeping operations' responses to improvised explosive devices, assessing capabilities and measures necessary to better mitigate the threat'. The review was conducted by a former deputy military advisor of the UN Headquarters and supported by Denmark, France, Germany, the United Kingdom, and the UN Peace and Development Trust Fund. The resulting report, 'The United Nations Response to Explosive Ordnance: A More Coherent Approach Is Needed' (also known as the 'Independent Strategic Review Report'), was delivered less than six months later (UNSC, 2021b).

The report detailed the specific risks to MINUSMA, the UN Multidimensional Integrated Stabilization Mission in the Central African Republic (MINUSCA), and the UN Organization Stabilization Mission in the Democratic Republic of the Congo. It found that the nature and scope of the threats were different in each mission and that much work had already been done to develop explosive ordnance (EO) mitigation strategies by missions and national authorities. One of the most important recommendations was the need for a regional approach, and for the integration of PKI and ISR capability into counter-EO planning and operations. In addition, the review found the need for enhanced EO forensics exploitation capacity in MINUSMA and additional PKI and exploitation capabilities in MINUSCA (UNSC, 2021b, p. 8), as well as the need to strengthen PKI and develop the use of ISR assets (pp. 52–54).

ISR stakeholders prioritized improved forensic and technological exploitation for further investment, over, for example, airborne ISR capabilities such as unmanned aerial vehicles (UNSC, 2021b, p. 30). What this approach continued to lack throughout the decade of the UN's mission in Mali (from 2013 through 2023) were proactive efforts to interrupt and degrade IED-related networks through intelligence-led operations—through MINUSMA and in collaboration with Malian intelligence, defence, and security forces, as well as with neighbouring states, parallel international operations, international organizations, and regional bodies.

Other promising contributors to WTI

Illicit weapons proliferation and misuse touch on many dimensions of a mission's operations; a much wider range of mission actors could similarly share weapons monitoring functions. Historically, information gathering and analysis in peace operations is not limited to military and police actors alone. For example, the mixed civilian, military, police, and UNDSS JOC collects, collates, and assesses data based on real-time reporting from forward-deployed duty stations and on other open-source information. The JOC briefs the mission leadership on a daily basis, issues 'flash reports', and can be used to convene a crisis management team to deal with and coordinate a response to particular incidents. The mostly civilian-led JMAC produces analysis products for the mission leadership based on a longer-term outlook and examines political and security trends.

The UNDSS manages the mission's Security Information Operations Centre (SIOC), receiving reports from UNDSS

security officers deployed in most duty stations within the mission area of operations. The SIOC is responsible for tracking security incidents, developing analysis based on security trends, maintaining communications and coordination with host nation security entities, conducting security assessments, ensuring the safety and security of civilian UN staff in the field, setting and managing security alert levels, and briefing senior leadership on security dynamics.

Other actors not generally involved in WTI at present are nevertheless well positioned to contribute. A mission's HRDP is often overlooked as an important source of security analysis, information on local conflict dynamics, casualty recording (Salama, 2020) and analysis, early warning mechanisms, and documentation of weapons-related evidence. Indeed, the HRDP, and in particular the investigation teams at headquarters level and field locations, often have some of the best-developed human intelligence sources within the security and defence forces, with non-state armed groups and with the population in general. This information is typically based on the HRDP's mandate to investigate alleged interna-

Box 2 Weapons analysis in human rights investigations and accountability mechanisms

Armed violence is endemic in many of the zones where peacekeepers operate, and frequently features widespread and systematic organized violence, whether committed by armed forces, paramilitaries, rebel and insurgent groups, or ethnic community forces. Chronic intercommunal armed violence has led to catastrophic loss of life and challenged the legitimacy of peacekeeping operations in the Central African Republic, the Democratic Republic of the Congo, and South Sudan.

In such contexts, holding perpetrators legally accountable for crimes under national law and possible human rights or IHL violations is a significant challenge, exacerbated by the difficulty of collecting, storing, and protecting relevant evidence. In particular, evidence attribution, chain of custody, command responsibility, admissibility, and evidentiary standards of physical and digital evidence related to arms, ammunition, and explosives all present barriers to effective human rights and IHL investigations for eventual prosecution, whether domestically or internationally.

Because the majority of systematic armed violence incidents in conflict zones are carried out with small arms and light weapons, these facts are of direct relevance for the gathering and sharing of information on illicit arms and ammunition. In particular, the accurate recovery and cataloguing of firearms, ammunition shell casings, and packaging that may be present at sites of violence is critical. Connecting evidence and data to other field investigations; cross-referencing ammunition data with broader data sets; and managing trace requests submitted to national authorities and manufacturers also require that accurate and systematic field-level documentation occurs in the first place.

Within many UN missions, the human rights sections frequently serve as first responders and enjoy priority access to air and other transport assets, as well as force protection to visit and document sites of mass violence. These visits are critical opportunities—in some cases the only opportunities—to collect and document arms- and ammunition-related evidence in situ before sites are contaminated or 'sanitized' of evidence by perpetrators (whether non-state or state actors). Such physical and digital evidence is frequently not collected or documented by the UN—even in contexts where the state has no presence or access, but the UN mission does. Additionally, where the state does or could have a presence, it may also fail to collect this evidence, either because of disinterest or lack of capacity, or because it is contrary to the state's interest for the incident to be investigated, owing to its possible involvement or that of allied groups or proxies.

Currently there is no clear or systematic mandate for this aspect of UN human rights investigation teams' work in mission settings, and much available physical evidence goes uncollected or subsequently becomes contaminated or otherwise legally compromised. This limitation is observed equally within UN peacekeeping operations, UN Commissions of Inquiry, UN Fact Finding Missions, and Independent and Impartial Investigations Missions mandated by the UN General Assembly, as well as within bilateral and national investigations carried out with the support of entities such as the International Humanitarian Fact-Finding Commission. Some recent investigation mechanisms, however, such as the United Nations Investigative Team to Promote Accountability for Crimes Committed by Da'esh/ISIL (UNITAD), have begun to set a high new technical standard for UN evidence-related investigations (UNITAD, n.d.), while its forthcoming closure also presents new archival and data management challenges for the UN and concerned parties.

Mainstreaming arms and ammunition analysis within Peacekeeping Human Rights Divisions' mandates and developing related methodologies, tools, and protocols within the UN's Office of the High Commissioner for Human Rights (OHCHR) would help remedy these limitations. It would also contribute to reporting on Sustainable Development Goal (SDG) 16 targets on global violent deaths and illicit arms flows, by providing disaggregated data on the tools of violence. Given the OHCHR's prioritized access to sites of mass violence where rich data on illicit arms and ammunition can be captured, providing in-house arms and ammunition tracing capabilities would help document important but currently missing evidence for IHL and human rights accountability mechanisms.

Enhancing in-house arms analysis and evidence management capabilities, as well as sharing information on arms-, ammunition-, and explosives-related evidence between human rights investigations, UN Commissions of Inquiry and other investigative mechanisms, international criminal tribunals and courts, and member states' law enforcement agencies and prosecutors, would also significantly improve mission intelligence. For these capabilities to be effective, new standards would be required for digital evidence collection and storage that meet admissibility criteria for use in domestic and international criminal prosecutions, such as those proposed by the Berkeley Protocol, to which the OHCHR has contributed expert guidance (HRC and OHCHR, 2022). Ideally, the UN systems' investigative mechanisms would standardize, adopt, and promote such standards with partner organizations.

Similarly, accountability for attacks against, and the killing of, peacekeepers requires robust evidence collection that conforms to the highest evidentiary standards. Since such crimes often occur in areas where the host state has no presence, the government cannot be relied upon to investigate them, and it will often be incumbent on the UN or other parties to do so. To date, attacks against, and the killing of, UN peacekeepers have only been subject to UN Boards of Inquiry, which are administrative, not criminal, investigations. Recent efforts led by a group of like-minded TCCs to boost accountability are a slow step in the right direction (UN, 2022). Arms, ammunition, and explosives constitute important evidence that should contribute to justice for such crimes in line with UNSC Resolution 2589—'promoting accountability for the killing of, and all acts of violence against UN peacekeeping personnel' (UNSC, 2021a).

UN officials register weapons recovered after clashes between the Malian armed forces and Tuareg and Arab armed groups, Kidal, Mali, May 2014. Source: David Lochhead

tional human rights law (IHRL) and international humanitarian law (IHL) violations in a balanced way, regardless of the perpetrator and victims (see Box 2). The HRDP also provides routine capacity-building support by training host nation security and defence forces on human rights, use of force, and IHL in situations of armed conflict, providing opportunities to build trust and develop working relationships with host nation partners; however, as the HRDPs hold their information in human rights case databases that may contain sensitive and possibly identifying information related to victims and witnesses, it is often difficult in practice to share this data with other mission elements.[19]

Other elements of the mission may also interact with local actors to build positive relationships, which can lead to information about security or security threats being shared with the peacekeeping operation. These include, among others, the Civil Affairs Division and Protection of Civilian, Child Protection, Women's Protection, Rule of Law, SSR, and DDR units at the field level. Officers of the Civil Affairs Division are often involved in local stakeholder engagement with communities and civil society organizations, and therefore able to generate a nuanced analysis of conflict dynamics that can help the mission to develop an overall security picture, which can include early warning of the emergence of new armed actors.

DDR units may be involved in supporting the cantonment or integration of non-state armed groups into interim security arrangements and confidence-building measures between former belligerents such as joint patrols or mixed units. DDR staff are often responsible for the registration of non-state armed group combatants, including with biometric databases, in order to avoid fraud and 'double dipping' by beneficiaries or participants. When working with biometric data (such as fingerprints and photos)—particularly where caseloads may include elements formerly or currently connected to terrorist groups—data collected can have significant value in C-IED network analysis if compared against forensic data collected from IED-related exploitation. While this synthesis of intelligence has not been undertaken systematically, it has led to the development of mission-specific standard operating procedures (SOPs), such as MINUSMA's 2017 SOP on 'Identification and Screening Processes in the Context of DDR, SSR and Integration', to assess the risks associated with supporting such caseloads in accordance with the UN's Human Rights Due Diligence Policy and to ensure that UN resources are not ending up in the hands of entities and individuals involved in attacking the UN.

UNPOL, in different mission contexts, is often mandated to provide capacity-building support to host nations' internal security services, including police and gendarmes, customs, and wildlife forces. UNPOL may also carry out joint patrols and other forms of 'in-operation mentoring', capacity building, and accompaniment. UNPOL and the rule of law section of the mission may assist special prosecutors or investigations units within the national security or judicial apparatus. At the field level, UNPOL is often deployed to carry out investigations into incidents involving UN personnel, as part of joint national and UN investigations (as a JIT) and through capacity-building support to national counterparts such as Special Investigations Brigades. UNPOL has also, in some mission contexts, participated in post-blast investigations and developed a forensic capability, such as through the establishment of an 'Anti-Terrorist Forensic Level 2 Lab' able to analyse mobile phones, fingerprints, and IED-related material. Some of the UN peacekeeping intelligence, surveillance, and reconnaissance (PKISR) companies also have a weapons forensic capability —often through WITs, as well as EOD and C-IED teams. The management and

sharing of material evidence and other forensic material collected during routine operations, however, remains a developing area. This is particularly true when data is shared outside of the mission with member states' forensic facilities in order to carry out deeper analysis (because of the limited 'in-house' capabilities), but where such evidence and analysis is entered into member states' internal and international intelligence databases and sharing arrangements and could hypothetically be used for targeting or other activities.

UNMAS, as part of UNDPO's Office of the Rule of Law and Security Institutions, has in some mission contexts also shifted towards the development of C-IED capabilities to support both the missions and host nation security forces. UNMAS has played a key role in carrying out IED analysis, establishing C-IED SOPs, developing the mission's C-IED governance architecture, and providing secretariat support to the mission's C-IED Steering Committee, chaired by the Deputy Special Representative of the Secretary-General/Humanitarian Coordinator and the UN Force Commander. But UNMAS falls outside the UN force structure, command, and control. As a result, the UN Force Headquarters may create its own C-IED analysis cells to develop C-IED guidance for force training, equipment, and C-IED-related field operations or network disruption interventions, within the scope of the mandate.

UNDPO is required to carry out a Board of Inquiry (BoI) whenever a peacekeeper is killed while deployed in the mission area or an incident causes significant material damage to UN equipment. The BoI is a systematic administrative investigation of the incident authorized by and reporting to the Special Representative of the Secretary-General; all mission elements are obliged to cooperate and share any relevant information requested by the BoI chair. The purpose of the BoI is to establish whether the UN actors involved complied with UN rules and regulations, including various UNDPO SOPs and the Rules of Engagement (RoE), during the incident in question.

While BoIs are neither criminal investigations nor intelligence collection mechanisms, they provide an opportunity to collect all relevant evidence documented by other mission investigations, including those conducted by UNPOL in collaboration with national counterparts, by the UN Force Provost Marshall (Chief of the Force's Military Police), and by national authorities. The BoI report is a chance to highlight any weaknesses identified in UN peacekeeping practices and to recommend remedial action in order to prevent loss of life and material in the future. In practice, BoIs have sometimes made use of WTI reports produced by the JMAC and specialized units within the TCC, such as WIT and PKISR units, in order to understand the linkages between attacks that led to fatalities within the mission and possible future threats to the mission.

External developments

Advanced (but unleveraged) technologies

In late May 2021, in the context of high-level UNSC discussions on the protection of peacekeepers, Norway and Kenya, among others, signalled that they no longer considered traditional intelligence mechanisms to be adequate, and called for the optimal use of technology and

UN investigator document packaging for the booster charge of a rocket-propelled grenade employed by the Malian pro-government militia Groupe d'Autodéfense Tuareg Imghad et Alliés (Imghad and Allied Tuareg Self-defence Movement), Tabankort, Mali, January 2015. Source: David Lochhead

equipment, including to enhance situational awareness. Of course, the speed of technological advancement in the public and private sectors over the last 20 years has been unprecedented. Outside the UN system, tools have advanced enormously to collect and analyse information from multiple sources more effectively. Within the broader UN system, the work of UNITAD has set the highest bar in terms of physical and digital evidence collection.

To explore these questions in a systematic way, the Under-Secretary-Generals from UNDPO and the UNDFS appointed a five-member Expert Panel on Technology and Innovation in UN Peacekeeping, whose report was issued in 2015 (UNDPO and UNDFS, 2015). The single passage of the report mentioning WTI recommended that 'peacekeepers should work with relevant partners to synchronize [C-IED] activities and prioritize resources across the organisation', and that '[c]ounter-IED capabilities must be included in initial contingency planning and be a standard line in peacekeeping budgets' (p. 47). Six years later, the UN released a 36-page *Strategy for the Digital Transformation of UN Peacekeeping* with a range of priorities. Goal 3 of the strategy is focused on '[c]omprehensive, timely and accurate picture of the situation for better informed planning and decision-making', with the key recommendation to '[s]trengthen mission capacity for data-driven analysis and reporting, including on the evolving role of digital technologies in the conflict environment and their impact on a peacekeeping mission' (UNDPO, UNDOS, and UNDMSPC, 2021, p. 20).

Around the same time, an informal 2021 survey looked at new acquisition systems—such as unmanned, unarmed aerial systems; police criminal intelligence tools; and camp security and static surveillance tools. It identified a number of ongoing trends in terms of the evolution of external threats, the availability of much more powerful tools, and the centralization of information within peacekeeping as a whole, all leading to 'unprecedented complexity into how peacekeeping operations acquire, deploy and manage digital technologies for peacekeeping-intelligence and situational awareness' (Druet, 2021, p. 3).

A more recent survey focusing on the application of new technologies that UN peace operations could deploy to improve civilian protection highlighted 'attack helicopters, night vision devices and non-lethal weapons' (Dorn, 2023, p. 245). No specific recommendations have been made so far for technologies that could improve the detection, identification, and mapping of small arms and light weapons, ammunition, or IEDs, including their components or precursors, despite research suggesting that all of the IEDs used to kill UN peacekeepers in Mali contained diverted commercial explosives (Lochhead, 2023). Implementing new technologies and harnessing them to improve situational awareness within a sprawling architecture and ageing UN infrastructure remains an ongoing challenge. The UN Office of Information and Communication Technology, which has dual reporting lines to the Department of Operational Support and the Department of Management Strategy, Policy and Compliance, is now the lead agency in this space.

Many units within a peacekeeping operation use databases and geographic information system (GIS) tools in their work. While many of these systems contain data that is relevant to intelligence in peacekeeping contexts, including assessments of potential threats against UN personnel and facilities, information sharing within a mission is not straightforward or systematic—though it has likely improved since the adoption of MICMs within missions. The ASIFU in MINUSMA, for example, employed an encrypted, NATO-standard system brought to the mission by participating states (Druet, 2021, p. 13). This system did not allow for data to be exported into a common database proposed by the mission's JMAC, as part of a broader roll-out of more sophisticated information management and network mapping tools, based on IBM's i2 platform of products.

'Unite Aware' is the most recent platform designed to enable access to all the different data sets throughout the missions and allow the production of reports and analytics based on them. In 2021, Unite Aware underwent a 'red team' review and was piloted in MINUSCA. At its early stages, it did not appear to be fully equipped to serve as a peacekeeping intelligence analysis tool (Druet, 2021, pp. 11–12).

Recent experiences and discussions on the technology front suggest that while there is widespread recognition that the UN's data collection and management structures are in serious need of improvement, including in deployed peacekeeping environments, much work remains to be done to even partially leverage and bring into the UN system the significant enhancements and capabilities that have been developed in the private sector over the last two decades.

The changing landscape of UN peacekeeping operations

UN peacekeeping operations are undeniably in a state of transition. One of the most visible markers of this transition is the closure or radical downsizing and reconfiguration of several large multinational, multidimensional peace missions with military components and protection mandates. These include the African Union (AU)–UN Hybrid Mission in Darfur (UNAMID), which was replaced by the United Nations Assistance Mission in Sudan (which in turn closed in 2024) (UN, 2021). In an enormous blow to the international community's engagement in West Africa, MINUSMA was terminated in mid-2023, at the request of the de facto Malian authorities, and will not be replaced by a follow-on mission of any type. The closure of the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo is also imminent (slated for 2024 at the latest) (UN, 2023a). In addition, the African Union Mission in Somalia has been replaced with the African Union Transition Mission in Somalia.

The potential transformation of peacekeeping is also evidenced by the UNSC's unanimous decision in December 2023 to consider AU requests for UN financing of future AU peace operations (UN, 2023b). This decision leaves the door open for a variety of possible hybrid UN–AU, ad hoc, or UN support arrangements for future peace enforcement missions, where WTI is even more likely to be necessary given the enhanced threat levels in such contexts.

Though the factors that led to the closure or transformation of these missions are diverse, the violence and insecurity that gave rise to them frequently remain. The configurations that are being left in their place—if there are any—are also primarily political, with no military components and far lower capacities.

There are strong arguments for focusing on political processes, especially in places where there has been no peace to keep for some time. A number of these missions have, however, had stabilization

as their objective, and this has not been achieved in most instances—in fact, the security situation is sometimes worse at the mission's closure than on its arrival, or deteriorates significantly soon after, as in the case of UNAMID. The vacuum that is left behind when actors with a Chapter VII mandate to protect civilians leave also means the political missions or UN country team have no capabilities to understand and address illicit arms proliferation and the IED threat within the conflict theatre.

These closures, the complexity and political sensitivities of current violent conflicts, and mounting UN peacekeeping budget and contribution shortfalls all suggest that the era of large UN-led operations may be over for the foreseeable future. In their place, new types of arrangements are likely that involve regional and subregional organizations and ad hoc coalitions. African continental and subregional standby forces, which have long prepared for such assignments, are one possible active actor.

Another possibility is ad hoc non-UN mandated configurations supported by voluntary troop and financial contributions. West and Central Africa has been home to a number of such arrangements, including the G5 Sahel Joint Force since 2014, the Takuba Task Force (2020–22), and other joint and bilateral special force initiatives arranged under a variety of deployment arrangements with national authorities.

More recently, in October 2023 the UNSC authorized, under Chapter VII of the UN Charter, a non-UN Multinational Security Support (MSS) Mission for Haiti in order to respond to the collapse of governance, law, and order resulting from the widespread proliferation and misuse of illegal arms by gangs. Kenya proposed to deploy a detachment of some 1,000 police security forces—to be funded largely with the promise of US funding with additional contributions from a UN trust fund (Dahir and Walsh, 2024)—in order to combat the street gangs that control Haiti in the absence of functioning democratic state institutions, as a prerequisite for free and transparent elections. The Bahamas, Bangladesh, Barbados, Benin, and Chad, among others, have pledged contingents. If it survives a Kenyan High Court challenge, the MSS Mission would provide offensive tactical and operational support to the Haitian National Police, and would presumably have to deal with weapons and ammunition interdiction in a focused way.

Should this mission and others like it proceed, clarity will be needed on the kinds of mandates, guidance, and tools such intervention forces bring with them to conduct the collection and analysis of weapons-related peacekeeping intelligence, or, for that matter, for the management of weapons and ammunition recovered as part of their operations, such as those laid out in the Policy and Standard Operating Procedures issued by the UN in 2019 (UNDOS et al. 2019a; 2019b). Of course, states financing these operations are well positioned to set the standards and requirements in these and other domains.

Rethinking mandates

Whatever the nature of the arrangement and financing, missions placed in hostile zones should be mandated to monitor, identify, and disrupt inflows of illicit arms and ammunition into the areas in which they operate. They must also be supported politically in their efforts to do this work. This requires more focused WTI capabilities—and contributions from a broader range of mission actors—than has been present to date. Building these capabilities will not only allow missions to better prevent the escalation of armed violence, and the emergence of new armed actors, but will also create space for the stabilization of fragile and conflict-affected states. Preventing dangerous inflows of lethal material should be at the heart of every mission mandate.

If such a mandate is taken seriously, direct interventions and operations will be required, in states and regions where the illegal use of small arms has reached chronic and destabilizing proportions, to reduce flows in order to protect civilians, along with a whole-of-mission approach and cross-border collaboration with neighbouring governments. Mandates would need to empower missions to directly intervene to disrupt inflows and access to small arms, ammunition, and IED components in contexts where the UN is itself attacked with these weapons. Where possible, and where the state or security forces themselves are not implicated in the transfer of arms to non-state actors in the mission's area of operations, missions should find ways to collaborate with the host state to prevent illicit inflows of lethal materials, based on sound WTI.

Mandates would also need to identify more clearly those responsible within the mission for identifying and disrupting such inflows. A whole-of-mission effort depends on a clear mandate and leadership-driven benchmarks and reporting requirements, in which a variety of mission actors may carry out arms- and ammunition-related work through a coordinated and collective effort to prevent infiltration and the escalation of conflict that it invariably fuels.

Charting a new path for WTI

Preventing illicit arms trafficking in conflict zones, including to terrorists, as called for in UNSC Resolution 2370 (UNSC, 2017), requires specific WTI-related mandates, support from mission leadership, a whole-of-mission approach, dedicated capabilities, sensors, analytical tools, and human resources, particularly in areas where the host state has no presence. Taking this mandate seriously, and prioritizing it, has implications for what types of intelligence activities are needed, which weapons should be the focus, what capabilities are called for, and which actors should be involved.

As UNDPO develops guidance and tools for different kinds of intelligence, guidance on TPKI will reportedly be addressed. That guidance is needed soon, as the whole concept of technical intelligence and WTI has been left unelaborated for some time, and requires definite form and shape. Mission staff, as well as military and police components, need to understand their obligations and potential contributions in this domain, including the relevant mandates and objectives and how to fulfil these and measure success.

In a way, the lack of focus to date can be turned to an advantage in that it allows for the development of a more forward-looking concept for TPKI-WTI—one that goes beyond IEDs and mission threat mitigation, and involves a wider range of actors than just military and police personnel. While weapons intelligence work is currently not a high priority across the UN system, the development and promotion of guidance materials can create a space in which to at least acknowledge the potential roles and contributions of other actors.

The IED threat is currently a grave concern for some missions, but it is not

the only weapons-related challenge in mission areas of operation—nor perhaps even the most damaging to the implementation of mandates in the long term. The proliferation of other weapons systems, especially small arms, light weapons, and their ammunition, has been a major challenge for peace operations and their beneficiaries for decades, and will likely continue to be for some time. The emerging use of weaponized commercial drones by non-state actors is another. The exploitation of weapons-related evidence for the purposes of addressing proliferation and misuse should therefore also be a priority. As has repeatedly been documented, missions consistently underperform in their mandates to collect and share information on illicit arms flows, to say nothing of efforts to document the roles of arms in human rights violations that take place in mission areas of operation.

In fact, one of the key weaknesses of the current generation of peacekeeping efforts has been the lack of mandates and capabilities to prevent inflows of lethal material into the theatres of conflict that the UN peace operations have been mandated to stabilize. An understandable emphasis on the pursuit of political solutions has unfortunately allowed the enablers of violent conflict to grow and expand. With the move to concentrate on force protection alone—or to downsize and reconfigure missions—vulnerable populations are left to their fate and to their wars.

Getting to grips with weapons proliferation and misuse in mission areas requires a range of mission actors to contribute intelligence. The exclusive focus on military and police contributions is understandable given that weapons-related training can be easily subsumed under their technical roles and made a focus of pre-deployment, inception, and in-mission training; however, with sufficient safety and technical training, mission human rights investigators could also play an important role in documenting scenes of violence and collecting digital evidence or physical material for forensic analysis before the scenes are contaminated. As first responders to sites of violence, these actors sometimes have priority access to air assets and the force protection necessary to access such sites. In insecure contexts, this may well be the only opportunity for a qualified external actor to visit such a site for investigative purposes—and often only once and for a few hours—due to the prevailing security environment and requirements placed on the mission.

Researchers, civil society, international and regional organizations, and neighbouring governments outside the main conflict theatres also have roles to play in understanding illicit flows and contributing or comparing their evidence or findings as part of a common conversation on regional approaches to security and insecurity. Industry and commercial actors engaged in dual-use sales, and whose products are diverted into illicit terrorist and armed group provisioning systems, have a key role as well.

In this way, UNDPO can actively promote regional efforts on C-IED and counter-trafficking at all levels, working hand in hand with emerging initiatives involving the AU as well as Regional Economic Communities (RECs) and other regional bodies to create a space for the exchange of non-classified information on threats and solutions. Ideally, the goals would advance beyond short-term tactical responses to longer-term operational and strategic objectives, focusing on not only threat mitigation but also mapping and intelligence. Collectively, there should be ways to operate in the technical intelligence sphere while supporting and promoting strategic-level, multi-state responses. This can be done with the support of independent researchers by transferring some of this information and thinking from the restricted world of technical intelligence analysis to the public policy domains.

A number of the roadblocks preventing the adoption of good practices for illicit arms monitoring are institutional in nature and result from the structure of multilateral peace operations; within this structure, TCCs/PCCs are responsible for documenting and managing—or destroying—illicit weapons in their areas of operations, but may lack the resources, expertise, or capacity to accurately identify and document or carry out forensic assessments. Mission-wide structures and sections frequently fail to provide effective, coordinated support to the military components for investigations and data collection related to incidents in which illicit arms have been used, observed, or captured. These long-standing issues, which predate the recent weapons and ammunition policy and SOP, have been documented by the Small Arms Survey and others (Boucher, 2010; Boucher and Holt, 2009; LeBrun and Rigual, 2016).

The institutional and technical nature of these challenges, and the many competing priorities and demands on missions and TCCs/PCCs, calls for a dedicated process to redress the current deficiencies by convening the relevant bodies; identifying and discussing the relevant institutional, technical, and technological issues; and developing a set of tools, procedures, and support mechanisms.

The UN will need to consider how the required capabilities will be deployed in non-traditional peace operation contexts. New, flexible, 'light footprint' arrangements, including possible new models for AU–UN hybrid peace enforcement operations with assessed UN contributions, would bring significant advantages. Operations of this kind, along with others such as AU-endorsed multinational joint task forces in the Lake Chad Basin, East Africa, and the Southern Africa region, the Accra Initiative, and the MSS Mission in Haiti, can serve as platforms for WTI-based counter-trafficking initiatives that also connect with REC processes and efforts by key international actors such as INTERPOL, the World Customs Organization, the United Nations Office on Drugs and Crime, and the United Nations Development Programme. There is much activity on arms proliferation and control happening outside the sphere of the UN's peacekeeping missions but within its areas of operations. Better connecting the dots with these efforts will be vital for enhancing collective efforts to understand and respond to the threats to both peacekeepers and their beneficiaries. ●

Abbreviations and acronyms

ASIFU All Sources Information Fusion Unit

AU African Union

BoI Board of Inquiry

C-IED Counter-improvised explosive device

DDR Disarmament, demobilization, and reintegration

EO Explosive ordnance

EOD Explosive ordnance disposal

GPKI Geospatial peacekeeping intelligence

HPKI Human peacekeeping intelligence

HRDP Human Rights and Protection Division

IED Improvised explosive device

IHL International humanitarian law

ISR Intelligence, surveillance, and reconnaissance

JIT Joint Investigation Team

JMAC Joint Military Analysis Centre

JOC Joint Operations Centre

LRRP Long-range reconnaissance patrol

MDSF Malian Defence and Security Forces

MICM Mission Peacekeeping-Intelligence Coordination Mechanism

MINUSCA United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

MINUSMA United Nations Multidimensional Integrated Stabilization Mission in Mali

MPKI Military peacekeeping intelligence

MSS Multinational Security Support

MTF Mobile Task Force

NATO North Atlantic Treaty Organization

OHCHR Office of the High Commissioner for Human Rights

OPKI Open-source peacekeeping intelligence

PCC Police-contributing country

PKI Peacekeeping intelligence

PKISR Peacekeeping intelligence, surveillance, and reconnaissance

REC Regional Economic Community

SIOC Security Information Operations Centre

SOLTG Special Operations Land Task Group

SOP Standard operating procedure

SSR Security sector reform

TCC Troop-contributing country

TECHINT Technical Intelligence

TPKI Technical peacekeeping intelligence

UN United Nations

UNAMID African Union–United Nations Hybrid Operation in Darfur

UNDFS United Nations Department of Field Support

UNDPO United Nations Department of Peace Operations

UNDSS United Nations Department of Safety and Security

UNITAD United Nations Investigative Team to Promote Accountability for Crimes Committed by Da'esh/ISIL

UNMAS United Nations Mine Action Service

UNPOL United Nations Police

UNSC United Nations Security Council

WIT Weapons intelligence team

WTI Weapons technical intelligence

Notes

1 Interviews with former UN officials with direct knowledge, February 2022; discussions during a closed expert workshop on TPKI, New York, November 2022.

2 Discussions during a closed expert workshop on TPKI, New York, November 2022.

3 Interview with a UN consultant involved in the UN Peacekeeping Intelligence Policy, October 2022.

4 Communication with the UNDPO Peacekeeping-Intelligence Coordination Team, January 2024.

5 As of early 2024, an updated version of the handbook is in development that will make a more nuanced reference to TECHINT (communications with the UNDPO Peacekeeping-Intelligence Coordination Team, January 2024).

6 See also Matthijssen (2022) for a thorough account of Srebrenica from the Dutch perspective.

7 In practice, the ASIFU's information security parameters would likely have precluded Sector Headquarters involvement in the intelligence cycle (communication with a UN intelligence expert, January 2024).

8 Communication with a UN official, December 2023.

9 Interview with Malian Armed Forces, June 2019.

10 Interview with an UNPOL officer in charge of the UNPOL laboratory, May 2018.

11 Interviews with former UN officials with direct knowledge, February 2022; discussions during a closed expert workshop on TPKI, New York, November 2022.

12 Discussions during a closed expert workshop on TPKI, New York, November 2022.

13 Interviews with former UN officials with direct knowledge, February 2022; discussions during a closed expert workshop on TPKI, New York, November 2022.

14 Discussions during a closed expert workshop on TPKI, New York, November 2022.

15 Interviews with a former UN official with direct knowledge, February 2022.

16 Interview with a former MINUSMA staff member, April 2024.

17 Interview with a former ASIFU commander, March 2022.

18 IED 'threat mitigation' approaches contrast with 'C-IED' strategies that include a more active attack-the-network component.

19 Interview with a former MINUSMA human rights officer, January 2022.

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Contact details

Small Arms Survey
Maison de la Paix, Chemin Eugène-Rigot 2E
1202 Geneva, Switzerland

t +41 22 908 5777
e info@smallarmssurvey.org

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