



POST-SHIPMENT ON-SITE INSPECTIONS AND STOCKPILE MANAGEMENT ASSISTANCE: BRIDGING GAPS

MIKE LEWIS AND GIOVANNA MALETTA*

INTRODUCTION

Post-shipment on-site inspections of military materiel are procedures that enable an exporting state to perform checks on exported items after they have been delivered.¹ States that have conducted post-shipment on-site inspections have noted a range of associated benefits.² These include identifying potential post-shipment diversion risks and actual cases of post-shipment diversion, and building trust and confidence with the authorities of the importing state. At the same time, these states have highlighted a range of practical and political challenges associated with on-site inspections.³ These include

¹ German Federal Ministry for Economic Affairs and Energy, 'Key points for the introduction of post-shipment controls for German arms exports', 8 July 2015.

² See e.g. German Federal Ministry for Economic Affairs and Energy (note 1); and Swedish Ministry for Foreign Affairs, 'Efterkontroller i utlandet: Ett komplement till exportkontrollen på krigsmaterielområdet' [Follow-up inspections abroad: A complement to export controls in the field of munitions], Fact sheet, Nov. 2021.

³ See e.g. Bromley, M., Brockmann, K. and Varisco, A. E., 'Post-shipment on-site

ensuring that officials tasked with conducting on-site inspections have the resources and expertise to perform them effectively and that importing states are willing to provide the permission and cooperation required.

On-site inspections are not the only context in which foreign specialists might visit a state's weapons and ammunition storage facilities and gather information that might allow for an assessment of the integrity of the systems used and the identification of diversion risks. A growing number of states (including those that conduct on-site inspections), as well as international and regional organizations, provide assistance for the management and accountability of states' small arms and light weapons (SALW) stockpiles. This support is generally categorized as physical security and stockpile management (PSSM) assistance.

Although both include a focus on preventing the diversion of

inspections of military materiel: Challenges and responses', SIPRI Policy Brief, Dec. 2021.

SUMMARY

● Post-shipment on-site inspections and international assistance in physical security and stockpile management (PSSM) have different scopes and objectives. On-site inspections allow exporting states to check exported military materiel to ensure that the importer is complying with its commitments, while PSSM assistance aims to improve states' weapons and ammunition management systems. However, both instruments allow foreign specialists to visit a state's weapons and ammunition storage facilities and enable information gathering to assess their integrity and identify possible diversion risks.

This SIPRI Policy Brief highlights how building informal linkages between these instruments, especially with regard to states and actors that conduct inspections and are involved in funding or implementing PSSM assistance, could contribute towards establishing more comprehensive forms of post-shipment cooperation. In addition, applying lessons learned from PSSM assistance in terms of gaining access to states' facilities, cooperating with the beneficiary importing states, and identifying limitations and opportunities associated with the use of tracking technologies could help to address some of the challenges encountered when conducting on-site inspections. PSSM assistance programmes could also include modules to raise awareness about on-site inspections and be a source of expertise that could assist states when implementing these controls.

* The authors would like to thank the German Federal Foreign Office, which generously provided funding for this project.



weapons, on-site inspections and PSSM assistance are distinct interventions with different objectives. On-site inspections are a focused, short-term verification measure mainly aimed at ensuring that exported weapons have not been transferred in ways that contravene commitments provided by the importer. PSSM assistance is a longer-term engagement aimed at improving a state's system of weapons management over time. Nonetheless, experiences of success and failure in PSSM assistance, and developed PSSM standards, can help to inform the design of on-site inspections that can better identify and mitigate diversion risks. In addition, the governmental and non-governmental experts that have conducted PSSM assistance constitute a pool of experts that exporting states could consult and employ when implementing on-site inspections. Finally, PSSM assistance and other outreach work in the field of arms transfers and SALW controls could provide opportunities for exporting and importing states to discuss the value of on-site inspections as a means of preventing post-shipment diversion.

This policy brief aims to explore lessons learned from PSSM assistance that may be of relevance to on-site inspections and possible informal connections that could be developed between the two interventions. The brief first draws on information in the SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database (SIPRI assistance database) to provide an overview of the main actors involved in PSSM assistance and the programmes that they have either funded or implemented. It then provides an overview of some of the key lessons learned

from PSSM assistance that may help in planning and conducting on-site inspections. Finally, the brief presents conclusions and recommendations.

PSSM ASSISTANCE: A BRIEF OVERVIEW

This policy brief focuses on connections between on-site inspections and PSSM specifically, rather than on on-site inspections and wider Weapons and Ammunition Management (WAM) standards. WAM is a framework developed and promoted particularly by the United Nations Institute for Disarmament Research (UNIDIR) to analyse the accountability and governance of weapons and ammunition throughout their life cycles, from import to disposal. PSSM is generally seen as an element of WAM.⁴ However, the international standards connected to PSSM have developed over a longer period, stemming mainly from the 2001 UN Programme of Action on the Illicit Trade in SALW in All Its Aspects (UNPOA). Internationally codified PSSM standards include sections of the Modular Small-arms-control Implementation Compendium (MOSAIC) and the International Ammunition Technical Guidelines (IATG). In addition, PSSM is more directly relevant to on-site inspections because it is the element of WAM that deals with the accountability of weapons at their sites of storage and issue.

Gaining a comprehensive picture of PSSM assistance activities is

⁴ For WAM assessments see e.g. Giezendanner, H. and Shiotani, H., *A Reference Methodology for National Weapons and Ammunition Management Baseline Assessments* (United Nations Institute for Disarmament Research, UNIDIR: Geneva, July 2021).



challenging.⁵ A wide range of states, non-governmental organizations (NGOs) and multilateral organizations are involved in the coordination and implementation of PSSM assistance. Moreover, PSSM assistance can be funded through states' arms control budgets and development assistance budgets (including in the field of mine action). Nonetheless, the SIPRI assistance database provides an illustrative overview of the main programmes that have supported states in strengthening or building their systems for managing weapons and ammunition stockpiles and identifies actors involved in their execution as implementers, beneficiaries and donors.

As of August 2022, the database included information on 973 assistance activities in the field of arms transfer and SALW controls that have been implemented since at least 2012 and involve beneficiary states in East Asia and South East Asia, Latin America and the Caribbean, the Middle East and North Africa, and sub-Saharan Africa.⁶ Of these 973 activities, 289 included a focus on 'inventory and stockpile management', which indicates that they have provided the beneficiary states with some form of PSSM assistance. The majority of these activities have involved states in

sub-Saharan Africa (183), followed by Latin America and the Caribbean (72), the Middle East and North Africa (25), and East Asia and South East Asia (13). The United States, the European Union (EU) and Germany are among the main funders of many of these activities. This assessment of the main funders is supported by data reported to the Organisation for Economic Co-operation and Development (OECD), which shows that the USA, the EU and Germany are the lead donors in the field of 'reintegration and SALW controls', the category that they use to report funding for, among other things, PSSM assistance.⁷ The USA and Germany conduct on-site inspections as part of their arms transfer control systems. The EU has indicated that it plans to conduct on-site inspections in connection with the implementation of the European Peace Facility's assistance measures that foresee the transfer of military equipment, including weapon systems.⁸

The Office of Weapons Removal and Abatement in the US State Department's Bureau of Political-Military Affairs (PM/WRA) leads and coordinates USA-funded PSSM assistance efforts that are implemented under the framework of its 'conventional weapons destruction' programme. This programme provides support to reduce excess stockpiles of conventional weapons and ammunition, and to detect and clear landmines and explosive remnants of war.⁹ To fulfil these

⁵ See Maletta, G. and Robin, L., *Supporting Small Arms and Light Weapons Controls through Development Assistance: The Case of sub-Saharan Africa*, SIPRI Report, Feb. 2021.

⁶ SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, accessed 12 Aug. 2022, <<https://att-assistance.org/>>. For details about the scope of the database see SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'About the project', [n.d.].

Note that the numbers presented in this policy brief may not add up to stated totals because some activities involve countries in more than one region.

⁷ Aid Atlas, 'All donors to all recipients for conflict, peace and security during 2002–2019: Interactive flows', accessed 13 June 2022.

⁸ Maletta, G. and Héau, L., *Funding Arms Transfers through the European Peace Facility: Preventing Risks of Diversion and Misuse*, SIPRI Report, June 2022.

⁹ US Department of State, 'About us: Office of Weapons Removal and Abatement', accessed



objectives, the USA cooperates with many organizations working in the field of mine action, especially Mines Advisory Group (MAG) and the Halo Trust.¹⁰

The EU has financially supported PSSM assistance provided by various organizations around the world for more than 20 years.¹¹ This includes, for example, the assistance work that the Organization for Security and Co-operation in Europe (OSCE) carries out on upgrading stockpile storage and developing relevant procedures and training in the OSCE region.¹² In addition, the EU is a long-standing supporter of the activities of the South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC), which include enhancing PSSM capacity through infrastructure security upgrades, reducing weapons and ammunition surpluses, and

providing relevant training.¹³ EU-funded assistance in the field of PSSM has also included technical and legal assistance that the UN Regional Centre for Peace and Disarmament in Africa (UNREC) provided in the Sahel region; and the efforts of the Organization of American States to improve security measures and inventory controls at specific weapons and ammunition storage facilities.¹⁴ Most recently, in 2019, the EU launched a project coordinated by the Small Arms Survey to support SALW controls in the League of Arab States, and which identifies ‘stockpile management and security’ as a priority area.¹⁵

The EU also financially supports PSSM activities in cooperation with other donors. For example, together with Germany, the EU co-funds the ‘Organised Crime: West African Response to Trafficking’ (OCWAR-T) project that, among other things, has a component aimed at strengthening SALW control—including PSSM—in members of the Economic Community of West African States (ECOWAS) and with the support of MAG and the UN Development

6 May 2022.

¹⁰ See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, ‘Armoury rehabilitation and construction in Burkina Faso’, 1 Mar. 2015–30 Sep. 2015; and SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, ‘Physical security and stockpile management in Somalia during FY2012’, 1 Oct. 2011–30 Sep. 2012. For the most recently reported activities see US Department of State, Bureau of Political-Military Affairs, *To Walk the Earth in Safety*, 21st edition, Jan.–Dec. 2021 (US Department of State: Washington, DC, 2022).

¹¹ Although it does not provide a comprehensive list of all EU-funded projects in the field, see e.g. European External Action Service, ‘Non-proliferation, disarmament and arms export control projects’, accessed 13 June 2022.

¹² Council Decision (CFSP) 2017/1424 of 4 Aug. 2017 in support of OSCE activities to reduce the risk of illicit trafficking and excessive accumulation of small arms and light weapons and conventional ammunition in the former Yugoslav Republic of Macedonia and Georgia, *Official Journal of the European Union*, L204, 5 Aug. 2017.

¹³ SEESAC, ‘About’, accessed 19 May 2022.

¹⁴ See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, ‘UNREC regional workshop on physical security and stockpile management (PSSM) in the Sahel region’, 15–17 Nov. 2017; and Council Decision (CFSP) 2018/2010 of 17 Dec. 2018 in support of countering illicit proliferation and trafficking of small arms, light weapons (SALW) and ammunition and their impact in Latin America and the Caribbean in the framework of the EU Strategy against Illicit Firearms, Small Arms and Light Weapons and their Ammunition ‘Securing Arms, Protecting Citizens’, *Official Journal of the European Union*, L322, 18 Dec. 2018.

¹⁵ Small Arms Survey, ‘European Union (EU)–League of Arab States (LAS) Project’, accessed 6 May 2022.



Programme (UNDP).¹⁶ In addition, the EU and Germany, among others, fund the work of Conflict Armament Research, whose activities include PSSM assistance. Examples of these efforts are the implementation of PSSM-related training, visits to stockpile facilities and needs assessments in Iraq, and activities aimed at improving the accountability and management of weapons and other types of military equipment by Somalia's security forces.¹⁷ A focus on PSSM assistance has also been included in activities funded by the EU and others that are aimed at supporting the implementation of the 2013 Arms Trade Treaty (ATT) or, more broadly, improving states' capacities in the field of arms transfers.¹⁸ The same applies to activities implemented by the UN Office on Drugs and Crime (UNODC) that are directed towards promoting the implementation of the Firearms Protocol.¹⁹

¹⁶ Regional Authorising Officer Support Unit, ISE (Institutional Support to ECOWAS) for ECOWAS Office of the President Directorate of External Relations, 'Organised Crime: West African Response to Trafficking (OCWAR-T)', accessed 29 June 2022.

¹⁷ See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'CAR PSSM project in Mosul', 1 Aug. 2017–31 July 2018; and SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'CAR project on improvement of accountability and management of assets by the Somali police', 1 Oct. 2017–31 July 2020.

¹⁸ See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'BAFA organizes initial visit and elaboration of the roadmap of the European Union Partner-2-Partner Export Control Programme for Arms-ATT (EUP2P ATT) in Peru', 14–15 May 2015; and SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'COARM second regional workshop on arms transfer controls and arms diversion in West Africa', 25–26 Oct. 2017.

¹⁹ See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'UNODC legislative workshop in Central African Republic to develop a comprehensive law on arms', 26–28 July 2019;

As well as the examples noted above, Germany funds other regionally targeted PSSM assistance efforts conducted by several European NGOs. These include, but are not limited to, the work that the Bonn International Centre for Conflict Studies conducts in different sub-Saharan African countries in cooperation with regional and subregional organizations, such as the African Union (AU), ECOWAS and the Regional Centre on Small Arms (RECSA).²⁰ These activities include PSSM-focused training courses at the regional and subregional levels, awareness raising about relevant regional and international standards and, more broadly, the promotion of coordination among various agencies and donors conducting SALW control-related assistance work in Africa.²¹ In addition, the AU, RECSA and UNREC—as well as other actors operating in sub-Saharan Africa such as the International Peace Support Training Centre—have received funding from other sources

and SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'UNODC regional meeting to strengthen cooperation in South America to prevent and combat illicit trafficking in firearms and related crimes II', 13–15 Nov. 2019.

²⁰ See e.g. Bonn International Centre for Conflict Studies (BICC), 'Armament and arms control: Controlling arms and supporting disarmament', accessed 6 May 2022; and BICC, *Annual Report: 2015* (BICC: Bonn, 2015), p. 22.

²¹ See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'BICC capacity-building seminar on weapons management in Nigeria', 28 Nov. 2016–2 Dec. 2016; SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'ECOWAS–BICC convention implementation meeting in The Gambia', 24 Oct. 2018; and SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'African Union–BICC: National policy dialogue workshop on arms control in Ethiopia', 28–31 Mar. 2021.



for assistance work that has had either a full or a partial focus on PSSM.²²

There are many other examples across the globe of assistance activities (funded by various donors) that include elements of PSSM. For instance, through the work of the Ad Hoc Working Group on SALW and Mine Action and the Partnership Trust Fund mechanism, the North Atlantic Treaty Organization (NATO), with funding from several states, provides assistance to partner countries in PSSM and in the destruction of ammunition, mines and SALW.²³ Partnership Trust Fund projects that included a PSSM component involved, for example, Jordan and Mauritania.²⁴ Supporting stockpile safety and security is also part of the core work of the UN Regional Centre for Peace, Disarmament and Development in Latin America and the Caribbean (UNLIREC). Through training and

delivery of equipment, UNLIREC has assisted countries in the region with securing their stockpiles and complying with international standards and best practices in the field of weapons and ammunition inventory management.²⁵ PSSM-related assistance work appears to be more limited in East Asia and South East Asia, although the Regional Centre for Peace and Disarmament in Asia and the Pacific has provided outreach and training to countries in the region on matters related to conventional ammunition stockpile management systems.²⁶

PSSM ASSISTANCE: LESSONS LEARNED FOR ON-SITE INSPECTIONS

Although the full scope of activities conducted is hard to map comprehensively, the routines and processes of PSSM assistance have been increasingly subject to processes of international codification and standardization over the past two decades. These standards, and the experience that experts have gained from conducting PSSM assistance, provide some potential lessons learned for on-site inspections and some indication of how connections could be built between these two interventions.

²² See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'African Union launches ammunition safety and security management initiative in Malawi', 9 Apr. 2019–31 Dec. 2019; SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'IPSTC-RECSA 2021 physical security and stockpile management training of trainers course in Kenya', 6–20 May 2021; SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'RECSA training seminar on physical security and stockpile management of weapons and ammunition in Cameroon', 15–17 Oct. 2020; and SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'UNREC and UNDP support Madagascar with training activities in physical security and stockpile management, weapons marking and data recording', 6–18 May 2019.

²³ North Atlantic Treaty Organization, 'Small arms and light weapons (SALW) and mine action (MA)', accessed 6 May 2022.

²⁴ See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'NATO assistance to physical security and stockpile management, destruction, demilitarisation and disposal and defence reform in Mauritania II (Mauritania II phase 1+)', 1 Feb. 2016.

²⁵ See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'UNLIREC promotes awareness and implementation of international standards on firearms and ammunition stockpile management in Peru', 23–24 July 2018; and SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'UNLIREC destroys firearms and small arms ammunition in Saint Kitts and Nevis', 28–31 May 2013.

²⁶ See e.g. SIPRI Mapping ATT-relevant Cooperation and Assistance Activities Database, 'UNRCPD Southeast Asia regional outreach seminar on illicit trade and trafficking of conventional ammunition', 20–22 Mar. 2019.



Institutional arrangements

Obtaining authorization to physically access either weapons or their storage locations, a key concern for on-site inspections, is a major practical challenge for PSSM assistance.²⁷ Access can be impeded (a) by national laws or military regulations that forbid access to military facilities, or to weapons and other types of military equipment, by non-nationals or foreign military personnel, thereby restricting the types of expert that can be deployed in on-site inspection missions; or (b) by prohibitions on activities like sketching, note-taking or photography within military facilities, which are often essential for preliminary PSSM assessments and on-site inspections alike.²⁸ Negotiating exemptions has in some cases delayed PSSM assistance programming for years.²⁹ Access may also be blocked by officers lower down the chain of command, even where a formal agreement has been negotiated with the highest levels of military leadership. Local commanders may invoke security or operational reasons to prevent access without directly countermanning orders given at higher levels.³⁰ However, such obstacles can sometimes be

²⁷ King, B. (ed.), *Safer Stockpiles: Practitioners' Experiences with Physical Security and Stockpile Management (PSSM) Assistance Programmes*, Small Arms Survey Occasional Paper no. 27 (Small Arms Survey: Geneva, Apr. 2011).

²⁸ King, ed. (note 27). In a post-import inspection context see also United Nations, Security Council, Letter dated 2 October 2018 from the Monitoring Group on Somalia and Eritrea addressed to the Chair of the Security Council Committee pursuant to resolutions 751 (1992) and 1907 (2009) concerning Somalia and Eritrea, S/2018/1002, 2 Oct. 2018, para. 1.

²⁹ King, ed. (note 27), pp. 13–14.

³⁰ Author experience of documentation of seized weapons stocks in South Sudan

overcome through the intervention of more senior officials. Thus, while the process of gaining approvals from military hierarchies creates delays, military chains of command can also serve as guarantors of access.

These experiences highlight the importance of developing trust as well as personal and institutional relationships between foreign and host counterparts in negotiating political and practical difficulties. Personal relations, particularly between operational-level counterparts, may be hard to develop when planning and conducting stand-alone on-site inspections, which may not provide the same kinds of opportunity for building trust as longer-term assistance. Locally based staff, such as embassy officials from the arms-exporting state, may have the relationships required to facilitate access to weapons storage facilities, but may lack the necessary expert knowledge to conduct inspections. Conversely, external specialists may have the relevant expertise, but may lack the necessary in-country relationships to facilitate access.

One way to bridge this gap may be to involve officials with experience of PSSM assistance activities as advisors in planning and conducting on-site inspections. Spain has already applied this approach and has recently adopted a system of on-site inspections that foresees the possibility of involving officials that have helped to implement OSCE-funded PSSM assistance in advising on the planning process and on conducting inspection visits.³¹ This type of approach

and Somalia, 2014–18; and United Nations, S/2018/1002 (note 28), para. 13.

³¹ Author communication with Spanish government official, 8 June 2022.



could also help to build connections between PSSM assistance and on-site inspections. Additionally, it may promote harmonization and avoid duplication in key areas, such as the systems and standards used for record-keeping. This was a significant weakness of US end-use monitoring in Afghanistan, for instance. End-use monitoring officials of the USA-led Combined Security Transition Command–Afghanistan (CSTC–A) used a centralized, worldwide US Government system, the Security Cooperation Information Portal (SCIP), to record weapons distributed to Afghan security forces and subsequent end-use checks. However, CSTC–A colleagues simultaneously rolled out a separate database, CoreIMS, to Afghan security forces to register and manage these weapons themselves. This led to dilution of registration and data entry efforts in both systems (see below).³² More broadly, coordination between on-site inspection and PSSM actors may help to avoid overloading importing states with cooperation requests, and help to overcome political obstacles or sensitivities relevant to both types of programming.

Another model that is potentially pertinent to on-site inspections is

³² Special Inspector General for Afghanistan Reconstruction (SIGAR), *Military Equipment Transferred to the Afghan Government: DOD Did Not Conduct Required Monitoring to Account for Sensitive Articles*, SIGAR 21-11 Audit Report (SIGAR: Arlington, VA, Dec. 2020); and US Department of Defense (USDOD), Inspector General, *Audit of Combined Security Transition Command–Afghanistan’s Implementation of the Core Inventory Management System Within the Afghan National Defense and Security Force*, Report no. DODIG-2020-104 (USDOD, Office of Inspector General: Alexandria, VA, 10 July 2020).

the creation of joint teams of experts that include officials from importing states to monitor and spot-check the disposition of weapons and other equipment. While giving officials from importing states a formal role in conducting on-site inspections themselves may not be possible in all cases, involving these officials in the planning stage of inspections is a necessary part of any successful visit. The Joint Verification Team (JVT) established in Somalia to monitor the federal government’s weapons imports under UN Security Council Resolution 2142 (2014) is a notable example of what might be possible. The JVT draws personnel and experts from both the Office of the National Security Adviser of the Federal Government of Somalia and the independent private actor Conflict Armament Research.³³ This approach may be hard to replicate outside the particular context of Somalia, where the Security Council has agreed a common mechanism to monitor arms imports from all countries. Nonetheless, the example of the Somali JVT highlights the benefits that can arise when governments of host importing states take part-ownership of inspections, and the potential to create an institutional infrastructure to allow that to happen even in challenging political and security conditions.

A comparable nationally owned institutional arrangement in the field of PSSM assistance might be the involvement of national SALW commissions in the planning and implementation of PSSM activities,

³³ Leff, J. and Mohammed, E., *An Innovative Approach to United Nations Arms Embargoes: Strengthening National Capacity to Manage and Verify Weapons and Ammunition in Somalia* (United Nations Institute for Disarmament Research, UNIDIR: Geneva, 2020), p. 12.



which could be extended to involvement in on-site inspections.³⁴ For example, Sierra Leone established an SALW commission by an act of parliament in 2010. It has explicit legal authority for functions ranging from weapons marking, under the provisions of the 2006 ECOWAS Convention on Small Arms and Light Weapons, their Ammunition and Other Related Materials, to maintaining the national register of state and private weapons.³⁵ PSSM assistance providers estimate that around 96 per cent of all Sierra Leonean state-owned weapons have been marked and registered since 2013.³⁶ By contrast, until 2021 Nigeria was the only ECOWAS member state without a permanent, legally established SALW commission. As a result, PSSM assistance providers have had to negotiate activities bilaterally with individual security forces and federal state governments. This has made more sensitive interventions—including marking or record-keeping as well as any PSSM assessment of the weapons of the Nigerian Army, the country's largest armed security force—impossible to achieve.³⁷

³⁴ An SALW commission is a 'national inter-agency body that is responsible for policy development, coordination, implementation, and monitoring of efforts to address all SALW-related issues within a national territory'. United Nations Development Programme (UNDP), Bureau for Crisis Prevention and Recovery, *How to Guide: The Establishment and Functioning of National Small Arms and Light Weapons Commissions* (UNDP: Geneva, Apr. 2018), p. 2.

³⁵ Sierra Leone National Commission on Small Arms Act, 2010 (LS no. 6), Article 9.

³⁶ Mines Advisory Group (MAG), *Partnership and Progress: Lessons in Effective Arms Control from Sierra Leone* (MAG: Manchester, 1 Sep. 2021).

³⁷ Despite extensive efforts by the Presidential Committee and the PSSM providers, to date no marking or registration of

Technological solutions

The inadequacies of the above-mentioned centralized, global SCIP system for end-use monitoring in Afghanistan highlight the fact that the continuous, decentralized data capture required by host importing states' routine weapons accounting systems may, in some settings, be better suited to end-use monitoring than stand-alone on-site inspection interventions. Technology can facilitate such data capture. In Afghanistan, due to the pace of supply and distribution under combat conditions, only about 40 per cent of items distributed by the US Government were ever actually recorded in the SCIP, according to a 2019–20 audit.³⁸ JVT monitoring of donor weapon supplies to Somali federal security forces faced similar challenges, albeit on a smaller scale: once weapons had left the central delivery point (the Halane central armoury at Mogadishu airport), it was difficult to access them again for subsequent spot checks. The JVT has begun to achieve greater success through rolling out a smartphone app, downloadable to weapon users' phones, which creates a geotagged photographic record. This enables 'self-verification' without the need for inspectors to travel to the location of the weapon. As a condition of receiving their stipends, members of the security forces must periodically

any except a small number of police weapons in one city have taken place. Author observation of Nigerian PSSM programming, 2015–18; Lewis, M. and Shiotani, H., *Nigeria Weapons and Ammunition Management*, UNIDIR Country Insights Series (United Nations Institute for Disarmament Research, UNIDIR: Geneva, 2020), p. 6; and Author communication with Abuja-based arms specialist, 20 Apr. 2022.

³⁸ Special Inspector General for Afghanistan Reconstruction (note 32).



photograph and record their issued weapon via the app. Although the roll-out is only in its pilot phase, as of mid 2021, 100 per cent of some units' issued weapons remained verified almost two years after they received them.³⁹

Other weapons accounting technologies that have been widely used in PSSM assistance may also help with on-site inspections. The US Army, among others, has since 2005 used radio frequency identification (RFID) devices embedded in ammunition packaging, and even in individual weapon systems in some cases, to automatically record when items enter and leave armouries and magazines, and when they arrive in or depart from the possession of different units.⁴⁰ Dynamit Nobel Defence, which manufactures anti-tank missiles that have been included in the scope of German post-shipment on-site inspections, is able to embed RFID tags in its systems.⁴¹ Conflict Armament Research and TTE-Europe GmbH, funded by the EU, have begun trialling RFID devices suitable for placement in individual small arms themselves.⁴² Such automatized accounting may compensate for manual record-keeping deficits and may be engineered to make falsification more difficult. Officials

conducting on-site inspections could thus use these technologically verified issue or receipt records to compensate for the frequent problem of weapons being deployed with forces in inaccessible operational locations at the moment of inspection at a central armoury or magazine.⁴³

However, experience from PSSM assistance also highlights the fact that weapons tracking technologies, like RFID detection and smartphone app registration, are only as effective as the record-keeping systems behind them. Marking weapons as state-owned weapons, for instance, has often been promoted as an anti-diversion technology in PSSM assistance programmes. In Somalia, UN-mentored marking teams have marked thousands of federal government small arms with the code for their intended security force users and their year of arrival, as they passed through the centralized point of entry at Halane armoury in Mogadishu airport. Yet the federal government, in collaboration with the UN Assistance Mission in Somalia and international donors, did not begin to introduce standardized logbooks to record the individual serial numbers of weapons in security forces' armouries or with particular security force units until 2015 in many cases, and the government was still introducing logbooks to some locations as late as 2019.⁴⁴

³⁹ Leff and Mohammed (note 33), p. 12; and Author communication with individuals involved with weapon monitoring in Somalia, July 2021.

⁴⁰ US Under Secretary of Defense, 'Business rules for active RFID technology in the DOD supply chain', Memorandum, 30 July 2004.

⁴¹ Böttger, W., 'Better controls of arms exports! The German Government decides to introduce post-shipment controls', *Security Times*, Feb. 2016, p. 22.

⁴² Conflict Armament Research (CAR), *Field Forensic Firearm Exploitation: Developing RFID Solutions in Support of Stockpile Management and Post-diversion Tracing*, Technical Report (CAR: Brussels/Ghent, Apr. 2021).

⁴³ Author communication with individuals involved with weapon monitoring in Somalia, July 2021; and Author experience of documentation of seized weapons stocks in South Sudan and Somalia, 2014–18.

⁴⁴ Leff, J. et al., *Somalia: Weapons and Ammunition Management*, Country Insights Series (United Nations Institute for Disarmament Research, UNIDIR: Geneva, 2020), p. 7; Leff and Mohammed (note 33), p. 12;



Government-marked weapons have appeared frequently on illicit black markets or have been captured from al-Shabab forces.⁴⁵ Although these weapons could be easily identified as government weapons, they could not be traced back to their original users, units or locations to identify the mechanisms and circumstances of their diversion. On-site inspections will similarly fail if the deployment location of previously supplied weapons cannot be identified in the recipient forces' stockpile management records, or if issue or receipt records do not exist for weapons identified as missing during inspections. More broadly, on-site inspections cannot replace the need for accountability throughout the life cycle of a weapon, which begins with effective and verifiable record-keeping.

CONCLUSIONS AND RECOMMENDATIONS

There are both limitations and opportunities when it comes to building connections between PSSM assistance and on-site inspections. Creating formal connections between these two interventions risks overburdening the officials tasked with conducting on-site inspections, and making PSSM assistance a more politically sensitive process. That said, the overview of PSSM assistance and the review of key lessons learned that it provides points to several ways in which more informal con-

nections could be developed that could benefit the effectiveness of both interventions.

First, although making an assessment of PSSM standards is not a formal part of most states' on-site inspections, planning and conducting these visits may indicate areas where there is room for improvement. States that are conducting on-site inspections should be aware of available PSSM assistance measures and mechanisms that the host importing state could potentially use to make necessary improvements to national systems and practices highlighted by on-site inspections. Second, states that are conducting on-site inspections should look for ways in which the body of practical and technical expertise developed by states, international organizations and research institutes that implement PSSM assistance can be employed when planning and conducting inspections. This can include developing guidelines that can be used to identify risks of diversion during on-site inspections, finding ways to involve the importing state in planning and (potentially) conducting inspections, and integrating officials that have worked in PSSM assistance into the inspection teams. More broadly, creating informal connections between these two interventions at both the planning and operational levels could help to achieve the goal of implementing on-site inspections in a way that shifts the focus of attention away from export control enforcement and towards 'post-delivery cooperation'.⁴⁶

and United Nations, Security Council, Letter dated 2 November 2017 from the Monitoring Group on Somalia and Eritrea addressed to the Chair of the Security Council Committee pursuant to resolutions 751 (1992) and 1907 (2009) concerning Somalia and Eritrea, S/2017/924, 2 Nov. 2017, annex 8.2.

⁴⁵ United Nations, S/2017/924 (note 44), annex 8.5, pp. 134–35.

⁴⁶ In a working paper on diversion presented at the Seventh Conference of States Parties to the ATT in Aug. 2021, the expression 'carry out on-site verifications' was replaced by 'engage in



The following recommendations are aimed both at states that have adopted on-site inspections and at providers of PSSM assistance. These recommendations are intended to promote sharing of good practices and cooperation between exporting and importing states, with a view to preventing diversion:

- States and regional organizations that both conduct on-site inspections and fund PSSM assistance should map the regional and thematic focus of the two sets of interventions, with a view to building formal and informal links.
- States that have adopted on-site inspections could consider identifying a roster of national officials that have conducted PSSM assistance activities, and including them in the planning and conducting of inspection visits.
- PSSM assistance providers should consider including modules and presentations with a focus on on-site inspections that could be delivered by officials from states that have adopted and implemented these controls.
- States that have adopted on-site inspections should explore the benefits of integrating officials from the importing state into joint teams of experts engaged in planning and (potentially) conducting inspections.
- States that are conducting on-site inspections should explore requiring either manufacturers or importers to adopt and use RFID chips or other detectable tracking technologies both as a means of enabling the conduct of inspection visits and as a means through which the importing state can improve its PSSM standards.
- States that are conducting on-site inspections should ensure that the inspections and assessments also focus on the record-keeping and accountability mechanisms that are central to post-delivery verification in general and on-site inspections in particular.

post-delivery cooperation'. Arms Trade Treaty, Sixth Conference of States Parties, 'Working paper presented by the President of the Sixth Conference of States Parties to the ATT: Transparency and exchange of information: Its role in the prevention of diversion', ATT/CSP6/2020/PRES/611/Conf.TranspInfExch. Rev1, 28 July 2020, para. 6; and Arms Trade Treaty, Seventh Conference of States Parties, 'Final report', ATT/CSP7/2021/SEC/681/Conf. FinRep.Rev1, 2 Sep. 2021, para. 28.



ABBREVIATIONS

ATT	Arms Trade Treaty
AU	African Union
CSTC-A	Combined Security Transition Command-Afghanistan
ECOWAS	Economic Community of West African States
EU	European Union
IATG	International Ammunition Technical Guidelines
JVT	Joint Verification Team
MAG	Mines Advisory Group
MOSAIC	Modular Small-arms-control Implementation Compendium
NATO	North Atlantic Treaty Organization
NGO	Non-governmental organization
OCWAR-T	Organised Crime: West African Response to Trafficking
OECD	Organisation for Economic Co-operation and Development
OSCE	Organization for Security and Co-operation in Europe
PM/WRA	Bureau of Political-Military Affairs/Office of Weapons Removal and Abatement (US State Department)
PSSM	Physical security and stockpile management
RECSA	Regional Centre on Small Arms
RFID	Radio frequency identification
SALW	Small arms and light weapons
SCIP	Security Cooperation Information Portal
SEESAC	South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons
UN	United Nations
UNDP	UN Development Programme
UNIDIR	UN Institute for Disarmament Research
UNLIREC	UN Regional Centre for Peace, Disarmament and Development in Latin America and the Caribbean
UNODC	UN Office on Drugs and Crime
UNPOA	UN Programme of Action on the Illicit Trade in SALW in All Its Aspects
UNREC	UN Regional Centre for Peace and Disarmament in Africa
WAM	Weapons and Ammunition Management



SELECTED RECENT SIPRI PUBLICATIONS ON DUAL-USE AND ARMS TRADE CONTROL

Good Practice Guide on Post-shipment On-site Inspections of Military Materiel

Andrea Edoardo Varisco and Mark Bromley
SIPRI Good Practice Guide
August 2022

Funding Arms Transfers through the European Peace Facility: Preventing Risks of Diversion and Misuse

Giovanna Maletta and Lauriane Héau
SIPRI Report
June 2022

Hypersonic Boost-glide Systems and Hypersonic Cruise Missiles: Challenges for the Missile Technology Control Regime

Kolja Brockmann and Dmitry Stefanovich
SIPRI Report
April 2022

Post-shipment On-site Inspections of Military Materiel: Challenges and Responses

Mark Bromley, Kolja Brockmann and Andrea Edoardo Varisco
SIPRI Policy Brief
December 2021

Taking Stock of the Arms Trade Treaty: A Summary of Policy Options

Andrea Edoardo Varisco, Giovanna Maletta and Lucile Robin
SIPRI Policy Brief
December 2021

Taking Stock of the Arms Trade Treaty: Achievements, Challenges and Ways Forward

Andrea Edoardo Varisco, Giovanna Maletta and Lucile Robin
SIPRI Report
December 2021

Additive Manufacturing for Missiles and Other Uncrewed Delivery Systems: Challenges for the Missile Technology Control Regime

Kolja Brockmann
SIPRI Report
October 2021

Implementing the 2021 Recast of the EU Dual-use Regulation: Challenges and Opportunities

Mark Bromley and Kolja Brockmann
EU Non-proliferation and Disarmament Consortium
Non-proliferation and Disarmament Paper no. 77
September 2021

**Taking Stock of the Arms Trade Treaty: Application of the Risk-assessment Criteria**

Paul Beijer
SIPRI Report
August 2021

Taking Stock of the Arms Trade Treaty: International Assistance to Support Implementation

Giovanna Maletta and Sibylle Bauer
SIPRI Report
August 2021

Taking Stock of the Arms Trade Treaty: Processes and Forums

Roberto Dondisch
SIPRI Report
August 2021

Taking Stock of the Arms Trade Treaty: Scope

Paul Holtom
SIPRI Report
August 2021

Taking Stock of the Arms Trade Treaty: Universalization

Rachel Stohl
SIPRI Report
August 2021

Supporting Small Arms and Light Weapons Controls through Development Assistance: The Case of sub-Saharan Africa

Giovanna Maletta and Lucile Robin
SIPRI Report
February 2021

Post-shipment Control Measures: European Approaches to On-site Inspections of Exported Military Materiel

Andrea Edoardo Varisco, Kolja Brockmann and Lucile Robin
SIPRI Background Paper
December 2020

SIPRI publications are available to download at www.sipri.org/publications

SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament. Established in 1966, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.

GOVERNING BOARD

Stefan Löfven, Chair (Sweden)
Dr Mohamed Ibn Chambas (Ghana)
Ambassador Chan Heng Chee (Singapore)
Jean-Marie Guéhenno (France)
Dr Radha Kumar (India)
Dr Patricia Lewis (Ireland/United Kingdom)
Dr Jessica Tuchman Mathews (United States)
Dr Feodor Voitlovsky (Russia)

DIRECTOR

Dan Smith (United Kingdom)



STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

Signalistgatan 9
SE-169 72 Solna, Sweden
Telephone: +46 8 655 97 00
Email: sipri@sipri.org
Internet: www.sipri.org

SELECTED RECENT SIPRI PUBLICATIONS

Revisiting 'Minimal Nuclear Deterrence': Laying the Ground for Multilateral Nuclear Disarmament

Tytti Erästö
SIPRI Insights on Peace and Security no. 2022/6
June 2022

China's Evolving Approach to Foreign Aid

Jingdong Yuan, Fei Su and Xuwan Ouyang
SIPRI Policy Paper
May 2022

Environment of Peace: Security in a New Era of Risk

Richard Black et al.
SIPRI Report
May 2022

The Human Security Case for Rebalancing Military Expenditure

Michael Brzoska, Wuyi Omitoogun and Elisabeth Sköns
SIPRI Report
May 2022

The Impact of the Covid-19 Pandemic on Multilateral Peace Operations

Jaïr van der Lijn
SIPRI Report
May 2022

Trends in World Military Expenditure, 2021

Diego Lopes da Silva, Nan Tian, Lucie Béraud-Sudreau, Alexandra Marksteiner and Xiao Liang
SIPRI Fact Sheet
April 2022

SIPRI publications are available to download at www.sipri.org/publications

ABOUT THE AUTHORS

Mike Lewis (United Kingdom) is a researcher and policy consultant on weapons documentation and management. He was previously Head of Enhanced Investigations for Conflict Armament Research, an independent organization undertaking weapons examination and on-site inspections in African, Asian and Middle Eastern states; and served as an arms embargo monitor for the United Nations Security Council.

Giovanna Maletta (Italy) is a Researcher in SIPRI's Dual-Use and Arms Trade Controls Programme. Her research covers issues related to the implementation of arms export controls, with a particular focus on the European Union's engagement with arms export policies, and mapping cooperation and assistance activities related to the control of arms transfers and small arms and light weapons.