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Organisational capabilities

Warning

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Foreword

Ageing, unstable and excess conventional ammunition stockpiles pose the dual risks of **accidental explosions at munition sites** and **diversion to illicit markets**.

The humanitarian impact of ammunition-storage-area explosions, particularly in populated areas, has resulted in death, injury, environmental damage, displacement and disruption of livelihoods in over 100 countries. Accidental ammunition warehouse detonations count among the heaviest explosions ever recorded.

Diversion from ammunition stockpiles has fuelled armed conflict, terrorism, organized crime and violence, and contributes to the manufacture of improvised explosive devices. Much of the ammunition circulating among armed non-State actors has been illicitly diverted from government forces.¹ In recognition of these dual threats of explosion and diversion, the General Assembly requested the United Nations to develop **guidelines for adequate ammunition management**.² Finalized in 2011, the International Ammunition Technical Guidelines (IATG) provide voluntary, practical, modular guidance to support national authorities (and other stakeholders) in safely and securely managing conventional ammunition stockpiles. The UN SaferGuard Programme was simultaneously established as the corresponding knowledge-management platform to oversee and disseminate the IATG.

The IATG also ensure that the United Nations entities consistently deliver high-quality advice and support – from mine action to counter-terrorism, from child protection to disarmament, from crime reduction to development.

The IATG consist of 12 volumes that provide practical guidance for ‘through-life management’ approach to ammunition management. The IATG can be applied at the guidelines’ **basic, intermediate, or advanced levels**, making the IATG relevant for all situations by taking into account the diversity in capacities and resources available. Interested States and other stakeholders can **utilize the IATG for the development of national standards and standing operating procedures**.

The IATG are reviewed and updated at a minimum every five years, to reflect evolving ammunition stockpile-management norms and practices, and to incorporate changes due to changing international regulations and requirements. The review is undertaken by the UN SaferGuard Technical Review Board composed of national technical experts with the support of a corresponding Strategic Coordination Group comprised of expert organizations applying the IATG in practice.

The latest version of each IATG module can be found at www.un.org/disarmament/ammunition.

¹ S/2008/258.

² See also the urgent need to address poorly-maintained stockpiles as formulated by the United Nations Secretary-General in his Agenda for Disarmament, *Securing Our Common Future* (2018).

Introduction

Sustainable, safe, secure, effective and efficient through life management (TLM) of ammunition is a multi-layered process. Besides ammunition technical expertise, it requires a whole array of capabilities at different levels, which allow this expertise to be applied, further developed, transferred and/or institutionalised as required. This framework, which enables an organisation (e.g. military, police) to perpetuate its expertise, is also known as organisational capabilities.

Organisational capabilities involve three different dimensions, which need to interact proficiently to establish the required overall framework. The three dimensions are (i) processes, (ii) functional roles and (iii) capability enabling lines.

Organisational capabilities are capabilities that apply to all items of equipment owned by an organisation (e.g. police, military). While temporary management of ammunition may be conducted without these broader considerations, sustainability in ammunition management, however, is highly dependent on properly established capabilities and organisational structures. Additionally, due to the specific hazards related to ammunition, the three dimensions need to be adequately adapted for ammunition management.

Organisational capabilities

1 Scope

This IATG module introduces and explains the aspects related to organisational capabilities. Organisational capabilities reflect an organisation's ability to manage and allocate resources. Related to this IATG module, they involve processes, functional roles and capability enabling lines (CEL). The module also describes the interaction between the three dimensions, linking the CEL to procedural steps and functional roles.

Organisational capabilities are not specific to ammunition management and apply to the management of any type of equipment. This module will nevertheless direct its attention to ammunition management only.

2 Normative references

A list of normative references is given in Annex A. These documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

A further list of informative references is given in Annex B in the form of a bibliography, which lists documents that contain additional information related to the contents of this IATG module.

3 Terms and definitions

For the purposes of this module the following terms and definitions, as well as the more comprehensive list given in IATG 01.40 *Glossary of terms, definitions and abbreviations*, shall apply.

The term 'capability enabling lines' (short: CEL) refers to the cross-sectional functions of an organisation (e.g. Ministry of defense) that must be brought together to integrate goods into the existing organisation and ensure the delivery of a capability. These functions include doctrine and concepts, organisation, training, material, personnel, finances, infrastructure, and safety and security.

The term 'national authority' refers to the government department(s), organisation(s) or institution(s) charged with the regulation, management, co-ordination and operation of conventional ammunition stockpile management activities.

The term 'procurement' refers to the process of research, development and production or purchase which leads to ammunition or an equipment being accepted as suitable for use, and continues with the provision of spares and post design services throughout the life of the ammunition or equipment.

The term 'safety' refers to the reduction or mitigation of risk to a tolerable level.

The term 'security' refers to the result of measures taken to prevent the theft of explosive ordnance, entry by unauthorised persons into explosive storage areas, and acts of malfeasance, such as sabotage.

The term 'stockpile management' refers to those procedures and activities regarding safe and secure accounting, storage, transportation and handling of ammunition and explosives.

The term 'surveillance' refers to a systematic method of evaluating the properties, characteristics and performance capabilities of ammunition throughout its life cycle in order to assess the reliability, safety and operational effectiveness of stocks and to provide data in support of life reassessment.

The term 'through life management' refers to an integrated approach to the process, planning and costing activities across the whole service life of a specific ammunition type.

In all modules of the International Ammunition Technical Guidelines, the words 'shall', 'should', 'may' and 'can' are used to express provisions in accordance with their usage in ISO standards.

- a) **'shall' indicates a requirement:** It is used to indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted.
- b) **'should' indicates a recommendation:** It is used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form, 'should not') a certain possibility or course of action is deprecated but not prohibited.
- c) **'may' indicates permission:** It is used to indicate a course of action permissible within the limits of the document.
- d) **'can' indicates possibility and capability:** It is used for statements of possibility and capability, whether material, physical or casual.

4 Process

The national authority should establish an ammunition management process that ensures that ammunition is managed from planning to decommissioning. A process can be understood as a series of actions or steps taken in order to achieve a particular end state. Through life management (TLM) of ammunition is the integrated approach to the process related to specific types of ammunition. The TLM process can be divided into four phases; (1) planning, (2) procurement, (3) utilisation and (4) decommissioning.

The process runs as a cycle since the decommissioning of some type of equipment has to be assessed in the planning process to evaluate if it creates new gaps that need to be filled. Additionally, costs and measures for the decommissioning shall be integrated in the planning phase.

The TLM process may involve political and legal decisions, especially with regard to the allocation and release of financial resources. As these decisions are highly specific to each country, this module does not address the decision-making and oversight issues.

4.1 Planning

Derived from government guidance, strategic scenarios, some form of top-level doctrine (i.e. the way in which the forces will be trained, equipped and deployed) and the potential gaps between existing and desired operational capabilities, national authorities should consider the following activities in the planning phase:

- a) develop a cohesive ammunition stockpile plan and define the needs to meet the long-term goals
- b) identification of capability gaps (What equipment – e.g. ammunition – is required to perform the task mandated by government?), including in connection with decommissioning;
- c) cost-benefit analysis (What benefit is expected from the acquisition/procurement in terms of filling the capability gap?) and overview over budget;
- d) definition of the technical specifications in terms of equipment to address said gap;

- e) definition of requirements for procurement, utilisation and decommissioning; and
- f) recipient of feedback from the different processes and roles

4.2 Procurement

Procurement can involve the acquisition of a weapon system (i.e. weapons platform and effectors) including ammunition as a sub-system, or just entail the purchase of ammunition, either to replace expired ammunition or increase stock levels. The decision whether a whole system is to be acquired or solely ammunition is to be purchased is made in the planning stage.

National authorities should consider the following activities in the procurement phase:

- a) the establishment of the detailed requirements of the equipment to be procured, including markings;
- b) the conduct of the tendering procedure;
- c) the evaluation of different equipment as to their compliance with the technical requirements (e.g. requirements may amongst others relate to functionality, reliability, safety etc.);
- d) the selection of a specific type and quantity of equipment to be procured to address said gap;
- e) the procurement of the selected type and quantity of equipment;
- f) the physical delivery to and acceptance by the procurement agency of said equipment;
- g) the physical acceptance of all related technical data (e.g. all relevant test results related to safety and environmental aspects including hazard classification, proof results, accelerated aging, lot numbers for all components etc.);
- h) the physical acceptance of user documentation (e.g. instruction and technical manuals and materials, range safety details, methods of disposal);
- i) the elaboration of registration conception for user;
- j) the elaboration of (re-)training conception for user; and
- k) the physical handover to and integration of the equipment by the entity in charge of the management of the equipment (e.g. user).

During the acquisition/procurement process, the national authority should define and implement all measures related to the continuous utilisation of the equipment (training, operating cost, infrastructure needs, modification requirements to systems employing the ammunition such as new ballistic data etc.).

4.3 Utilisation

The utilisation phase encompasses activities that ensure the continuous performance and use of the equipment as well as the reporting of the stock level. Technical activities related to the management of ammunition are described throughout the IATG³ and are not repeated here.

National authorities should consider the following activities in the utilisation phase:

- a) equipping the final user with the new equipment;
- b) allocating personnel to use the new equipment;
- c) (re-)training the final user on the new equipment;
- d) ensuring the implementation of all specifications related to the physical security and safe stockpile management of the equipment;
- e) stockpiling of the equipment;
- f) supply management;
- g) ensuring that stock levels, equipment performance testing or failures are reported;
- h) ensuring that in the case of ammunition incidents component details are recorded;
- i) continuous assessment of the quality of the equipment (including the surveillance of ammunition, i.e. testing and estimation of the remaining safe shelf life); and
- j) maintenance of the equipment.

4.4 Decommissioning

There are many reasons that can lead to decommissioning; amongst others, equipment may become obsolete (not relevant to fulfil the forces' tasks), expire (become too old for further safe use), become surplus (beyond the actual security needs) etc. The decommissioning of equipment that is not further used or that even poses an additional risk, can lead to cost saving measures. Decommissioning can be partial (e.g. only certain lot numbers, that are considered unsafe) or encompass the total stock of a specific type of equipment (e.g. decommissioning because the equipment became redundant).

National authorities should consider the following activities in the decommissioning phase:

- a) assessment of possible decommissioning needs including the related consequences (operationally, financially, in terms of personnel etc.);
- b) decision to decommission a specific type of equipment;
- c) segregation of the decommissioned equipment (especially, if equipment is to be decommissioned due to safety issues, it is necessary to avoid it being issued);
- d) decision on the method of disposal (e.g. demilitarisation, sales, donation, etc.);

³ Further details see IATG 01.10 and table *Functional areas of ammunition management*.

- e) tendering of the demilitarisation process (if external partners are to be entrusted with the decommissioning);
- f) preparation of the equipment for decommissioning (e.g. dismantling of certain sensitive components);
- g) transport equipment to end-user or disposal location;
- h) physical hand-over or disposal; and
- i) update of inventories and records.

Decommissioning equipment may lead to the identification of new requirements hence reverting the process back to the planning phase.

5 Functional roles

In theory, structure follows process. In the case of existing organisations, structures are usually historically grown and sometimes inflated due to various management, technology and other legacies. These organisations tend to resist change, reflecting local requirements and specificities of a nation's strategic situation that might have changed over time. There is no ideal model regarding how an organisation should be structured, since structures are a national prerogative and generally culminate from respective countries' background⁴.

Some key roles, however, are essential when it comes to ammunition management. National authorities should reflect these key roles in the organisation's structure. Possible tasks related to these roles are described in this chapter. National authorities should ensure that these functional roles are performed and that responsibilities are allocated accordingly.

Since coordination among different roles is essential, national authorities should ensure that there are clear assignments and delimitations of responsibilities. A responsibility assignment matrix, also known as RACI matrix⁵ or linear responsibility chart, describes the level of participation by the various roles in completing tasks or deliverables for a project or business process. A RACI matrix maps out who is Responsible (Who is completing the task?), Accountable (Who is making decisions and taking actions on the task(s)?), must be Consulted with (Who will be communicated with regarding decisions and tasks?), and shall stay Informed (Who will be updated on decisions and actions during the project?). Accordingly, the RACI matrix is a valuable tool to allocate responsibilities and define relations.

5.1 Planning role

The planner ensures the inclusion of ammunition aspects into acquisition and procurement projects, defines and monitors stock levels and lot expiration dates, guides ammunition surveillance, plans consumption and replenishment, accounting and control, and maintains the ammunition process.

National authorities should allocate the following tasks to the entity performing the planning role:

⁴ Notably geopolitics, history, politics, economy, society, safety, security, distribution, storage conditions, climatic and environmental conditions, terrain, physical limitations, technology, manoeuvrability, workload and frequency, required skill levels and occupational specific competencies are factors that may influence the nature of organisational structures.

⁵ For more information on RACI matrix, see Project Management Body of Knowledge (PMBOK® Guide) from the Project Management Institute, Chapter on Project Human Resource Management.

- a) coordinate development of doctrine and concepts;
- b) maintain overall responsibility for through life management;
- c) define processes and assign responsibilities for through life management;
- d) define required stock-levels;
- e) define ammunition allowances and contingencies for training purposes;
- f) define types and quantities of ammunition to be acquired/procured;
- g) define specific requirements of equipment to be acquired/procured;
- h) continuously assess available equipment with regard to preparedness, effectiveness and benefit for the organisation;
- i) secure the necessary budgets and personnel for acquisition/procurement and disposal;
- j) ensure timely maintenance of ammunition;
- k) ensure and task ammunition surveillance;
- l) anticipate replacements of obsolete or expired ammunition;
- m) decommission ammunition; and
- n) plan, task and oversee the disposal of ammunition.

5.2 Acquisition or procurement role

While acquisition relates to the purchase of ammunition as part of the total weapon system, procurement is limited to the purchase of ammunition only (e.g. to replenish stock-levels). During both activities, the entity responsible for acquisition/procurement obtains relevant information (e.g. technical parameters for surveillance), assures quality during delivery and also acts as an interface with industry for acquisition/procurement, servicing and disposal.

National authorities should allocate the following tasks to the entity performing the acquisition/procurement role:

- a) analyse the market situation, including opportunities for and limitations of procurement cooperation;
- b) define production specifications (e.g. markings);
- c) define the planned evaluations (develop business plans);
- d) define long lists of possible equipment for acquisition/procurement;
- e) define basic verification procedures and criteria for pre-evaluation and conducting pre-evaluation;
- f) define short lists of possible equipment for acquisition/procurement;
- g) define protocol for evaluation and technical tests and conduct them;

- h) together with planning role, define user tests;
- i) analyse the efficiency of the tested equipment;
- j) select the type of equipment to be acquired/procured;
- k) negotiate the acquisition/procurement (including training and maintenance) contracts;
- l) conduct lot acceptance tests with supplier;
- m) together with surveillance role, define surveillance concept;
- n) hand over equipment to the entity in charge of the management of the equipment (e.g. user);
- o) report to planning role; and
- p) conduct disposal of equipment after official decommissioning.

5.3 Logistics role

The logistics role entails the safe and secure management and distribution of ammunition, information management and accounting, storage operations and determination of storability of new ammunition (e.g. space, specific needs). The logistics role also acts as an interface with the user.

National authorities should allocate the following tasks to the entity performing the logistics role:

- a) evaluate specific logistics and infrastructure requirements;
- b) inspect equipment, including management of testing equipment;
- c) maintain equipment, including through outsourcing;
- d) manage spare parts for equipment;
- e) establish stockpiling principles and stockpiling equipment;
- f) supply equipment to user and to entity in charge of surveillance role as required;
- g) manage infrastructure relevant to stockpiling equipment;
- h) ensure training, capability and availability of logistics personnel to deal with equipment;
- i) develop logistics and technical documentations of equipment;
- j) (re-)pack and (re-)label equipment;
- k) handle and transport equipment; and
- l) certify personnel and equipment for transportation.

5.4 Safety and security role

The safety and security role provides guidance on safety and security, inspects implementation of safety and security provisions, enforces compliance with regulations, assesses hazards and threats to ammunition storage and manages risks.

National authorities should allocate the following tasks to the entities performing the safety and security roles:

- a) Develop risk-based approaches to ensure safety and security:
 - define safety and security objectives;
 - select performance measures;
 - determine safety and security criteria;
 - develop risk calculation procedure;
 - define decision protocol; and
 - certify infrastructure and equipment for utilisation.
- b) Apply the developed approach to ensure safety and security:
 - define situations to be analysed;
 - collect data on threat and hazard potential, protection measures and exposed objects;
 - apply risk analysis model;
 - evaluate calculated risk;
 - reduce calculated risk if necessary with additional safety measures; and
 - accept and monitor residual risk.

5.5 Surveillance role

The purpose of surveillance and in-service proof is to provide the information required to ensure that ammunition remains safe and reliable, and performs correctly throughout the period of its intended life. This topic is covered in detail in IATG 07.10 *Surveillance and proof*.

Surveillance, including in-service proof provides the means by which initial service life estimations can be confirmed, or even extended, to ensure safe and reliable use throughout the required service life. Surveillance and in-service proof can also be used to assess the continued safety of unserviceable ammunition during storage and transportation, pending its disposal.

Surveillance and in-service proof provides evidence

- a) that the risk from ammunition in service, regardless of age, remains tolerable and As Low as Reasonably Practicable (ALARP) throughout the life of the ammunition;
- b) that ammunition functions correctly and reliably throughout its period of use; and
- c) to enhance maintenance and component replacement plans.

National authorities should allocate the following tasks to the entity performing the surveillance role:

- a) In the planning and acquisition/procurement phases:
 - develop a programme and test plan (including selection of samples);
 - evaluate shelf life;
 - develop an implementation plan (including specific test equipment, budgeting, statement of work, firing plans etc.); and
 - develop cost structure for through life surveillance and in-service proof cost.
- b) In the utilisation phase:
 - implement periodic test plan;
 - sample, monitor, test and analyse; and
 - provide reports and recommendations to planning role (i.e. Does the ammunition still meet the requirements?).

5.6 User role

As the consumer of ammunition, the user provides feedback with regard to training, handling, performance and deviation from the standards of the ammunition.

National authorities should allocate the following tasks to the entity performing the user role:

- a) training of personnel in use and handling of ammunition;
- b) physical security of ammunition in field storage, depots and during ammunition transports;
- c) inform about performance failures or changes (e.g. malfunctions, effectiveness); and
- d) inform about deviations from standards (e.g. denomination of quantity, packaging, labelling and compatibility).

6 Capability enabling lines

In order to use a specific type of equipment over its shelf life, it needs to be integrated into the broader functioning of an organisation. This can be broken down in eight capability enabling lines (CEL) which are of predominantly non-material nature and not solely related to ammunition management but to the management of any type of equipment. They are constantly evolving as a factor of threats and hazards, changes in policy, laws and the environment, technological developments, new capability requirements, modified resources etc. CEL focus on comprehensive development and management rather than on single cases. Annex C provides examples of the possible considerations made by the different CEL when procuring new equipment or changing ammunition operations.

National authorities should ensure that appropriate CEL are established and that they are fit to support the ammunition management process.

6.1 Doctrine and concepts

Among the CEL, doctrine (and doctrine development) holds an outstanding and overarching position. It depicts the development of operational capabilities and the assignment of resources to execute operational tasks. It is an expression of the principles by which organisations (e.g. military or police), independently of a concrete situation, successfully guide their actions towards their objective and hence contribute to achieve the overarching (e.g. security policy or military-strategic) goals. It is authoritative, but requires judgement in application. Ammunition has a very specific role and function within the operational environment as captured in doctrine.

A concept is an expression of the capabilities that are likely to be used to accomplish an activity in the future. It is designed to give an overall picture of the operations using one or more specific assets, or set of related assets, in the organisation's operational environment from the users' and operators' perspective. Ammunition and the management thereof forms a critical part of those relevant assets within the operational concept. This emphasises the necessity to manage ammunition as part of the total system.

6.2 Organisation

Organisation (and organisational development) relates to the structure of the department or ministry, the military or police, including potential contractors, as well as the organisational relationships among the different units and personnel. The TLM approach to the management of equipment within the organisation necessitates close cooperation, coordination, information-exchange and liaison with the relevant stakeholders within the organisation and where relevant, outside the organisation.

6.3 Training

Training (and training development) is the provision of the means to practise, develop and validate, within constraints, the practical application of a common doctrine to deliver a capability. It includes technical, methodological and leadership training. Training is vital pertaining to the ammunition environment due to the safety, risk and strategic importance of this asset.

6.4 Material

Material (and material development) relates to the provision of platforms, systems, weapons, spare parts, etc. (expendable and non-expendable, including updates of legacy systems) needed to outfit/equip an individual or group within an organisation.

6.5 Personnel

Personnel (and personnel planning and development) relates to the timely provision of sufficient, compliant, motivated and vetted personnel to deliver capabilities, now and in the future. General healthy, vigilant and well-trained personnel will reduce risk in the work environment that poses specific demands.

6.6 Finances

Finances (and financial planning) relates to the timely provision of sufficient finances to deliver capabilities, now and in the future.

6.7 Infrastructure (real estate and information technology)

Infrastructure - real estate - (and infrastructural development) relates to the acquisition, development, management and disposal of all fixed, permanent buildings and structures, land, utilities and facility management services in support of the capabilities. It includes estate development and structures that support personnel. The general condition and upkeep of the infrastructure is vital in order to ensure the optimisation of ammunition management, security, safety and to minimise risk.

Information technology (and its development) relates to the provision of a coherent development of data, information and knowledge⁶ requirements for capabilities, exercise control, manage, oversight of the system requirements and all processes designed to gather and handle data, information and knowledge (e.g. record-keeping and inventory management).

6.8 Security and safety

Security (and security development) relates to the provision of measures required to protect data, information, knowledge, personnel, equipment and infrastructure from internal and external physical (e.g. internal theft, terrorism, environmental threats) and intangible threats or hazards (e.g. cyber threats).

Safety (and safety development) relates to the provision of measures required to protect personnel, populations and the environment from harm arising from the equipment held and activities performed by an organisation (e.g. military or police).

7 Interaction between three components

During the four process phases (clause 4), the different functional roles (clause 5) need to interact at different degrees with the eight CEL (clause 6). This continuous interaction ensures a system approach, namely that an equipment, which is being acquired/procured or for which adequate management is being developed, is consistently integrated in the existing management process with due regard to all relevant required resources.

Interaction points between the functional roles and the CEL mainly occur in the planning and procurement phases, diminish strongly in the utilisation phase and are more intense again in decommissioning phase. Generally speaking, the responsible functional role (as defined through the RACI matrix⁷) in each phase (or part of a phase) shall ensure that regular coordination takes place with all the CEL.

Annex D provides a simplified example on how coordination can be ensured in each phase throughout the life of the ammunition. For each phase (or partial phase), national authorities should identify responsible roles. These responsible roles should be in charge to interact in a timely manner with the relevant CEL. Which roles and which CEL must be involved at what stage should be

⁶ Data is defined as raw facts, without inherent meaning, used by humans and systems. Information is defined as data placed in context. Knowledge is information applied to a particular situation.

⁷ See clause 5.

identified beforehand. Interactions are hence initiated by the functional role responsible or accountable for the specific phase.

Annex A

(normative)

References

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this part of the guideline. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of the guideline are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO maintain registers of currently valid ISO or EN:

- a) IATG 01.10 *Guide to the International Ammunition Technical Guidelines*. UNODA. 2020
- b) IATG 01.30 *Policy development and advice*. UNODA. 2020
- c) IATG 01.40 *Terms, glossary and definitions*. UNODA.2020
- d) IATG 01.90 *Ammunition management personnel competences*. UNODA.2020
- e) IATG 07.10 *Surveillance and proof*. UNODA. 2020.

The latest version/edition of these references should be used. The UN Office for Disarmament Affairs (UNODA) holds copies of all references⁸ used in this guideline and these can be found at: www.un.org/disarmament/un-safeguard/references/. A register of the latest version/edition of the International Ammunition Technical Guidelines is maintained by UNODA, and can be read on the IATG website: www.un.org/disarmament/un-safeguard/. National authorities, employers and other interested bodies and organisations should obtain copies before commencing conventional ammunition stockpile management programmes.

⁸ Where copyright permits.

Annex B **(informative)** **References**

The following informative documents contain provisions, which should also be consulted to provide further background information to the contents of this guideline:

- a) Project Management Institute, *Project Management Body of Knowledge (PMBOK® Guide)*, Sixth Edition, 2017

The latest version/edition of these references should be used. The UN Office for Disarmament Affairs (UNODA) holds copies of all references⁹ used in this guideline and these can be found at: www.un.org/disarmament/un-safeguard/references. A register of the latest version/edition of the International Ammunition Technical Guidelines is maintained by UNODA, and can be read on the IATG website: <http://www.un.org/disarmament/convarms/ammunition>. National authorities, employers and other interested bodies and organisations should obtain copies before commencing conventional ammunition stockpile management programmes.

⁹ Where copyright permits.

Annex C (informative) **Examples of the relation between the different CEL**

Example 1 – Considerations made by the different CEL when procuring a new type of artillery fuze (M1156 Precision Guidance Kit (PGK) for an existing type of artillery shells)

Doctrine

The aim is to use the newest model fuze, which creates more efficiency in use and ensures better mobility of own units

The operational procedures for the use of the new fuze remain unchanged.

Organisation

The new artillery fuze does not require adjustments to organisational structure.

Training

The procurement and introduction of a new fuze requires the following training:

- Personnel of the logistics organisation (management of fuzes); and
- Personnel of artillery units (use of fuzes).

It shall be verified, which observers, in addition to forward observers, can direct artillery fires with the new fuze and ensure appropriate training.

Material

The existing artillery ammunition (projectiles, charges and primers) can be fired with the new fuze. In addition to the fuzes, the following training and operational material shall be procured:

- PGK settable trainers;
- PGK cut away models;
- M76 PGK fuze wrenches;
- Extended Length Artillery Projectile Extractors (ELAPEs);
- Fuze Setters (with integration to the existing artillery system); and
- PGK fuzes for the simulation system.

Personnel

The new fuze requires no additional personnel.

Finances

Costs are incurred in the following areas:

- Procurement of the fuzes and related training material;

- Modification of field manuals, forms and training requirements;
- Modification of the software of the command and control system;
- Modification of the existing training material; and
- Modification of the simulation systems.

Additional costs will be incurred for the surveillance of the fuzes. No further costs for fuze management (handling, storage, etc.) are expected. No special requirements for handling and storage are known.

Infrastructure (real estate & information technology)

The new fuzes will be stored in the existing explosive storehouses. The TNT equivalent of the fuzes has to be checked. It may be necessary to adapt the storage regulations in this respect.

The new fuzes have to be entered into ammunition accounting system for management and handling purposes. Software adaptations must be made in the following areas:

- Command and control system; and
- Modification of the simulation systems.

Security and safety

No additional measures need to be taken when handling the fuzes. Additional safety requirements are not yet known.

Example 2 – Considerations made by the different CEL when restacking ammunition in the framework of an assistance project

Doctrine

The aim is to ensure that the stacking of ammunition is performed in accordance with the IATG in order to contribute to efficiency, improve logistics, prevent diversion (including recognise leaks in a timely manner) and uphold the safety and security guidances.

In order to do so, adequate national standards for ammunition operations (including stockpiling) as well as training should be developed.

Organisation

The newly stacked ammunition does not necessarily require adjustments in the force's organisational structure. The ammunition depots remain subordinated to the pre-existing organisation.

Personnel allocations, however, may need to be revised to ensure that sufficient, adequately trained and vetted personnel is available both during the restacking operation and for sustainable operation thereafter.

A temporary organisation to perform the restacking may be considered. The transition from pre-existing, to temporary, to new organisation is to be managed.

Training

The IATG-compliant stacking of ammunition requires training of the following personnel in order to ensure that stacking procedures are sustainably conducted over time.

- Ammunition operator: training on proper stacking, labelling, issuance and reception of ammunition;
- Ammunition processor: training on inspection, maintenance and repair of ammunition;
- Ammunition accountant: training on accounting measures relevant to stacking procedures;
- Ammunition supervisor: training on supervision tasks, which will ensure that stacking procedures are observed over time;
- Ammunition manager: training on how ammunition stacking procedures must be managed to ensure compliance with standards over time;
- Ammunition Inspector: training on how to develop, implement and audit ammunition stacking instructions; and
- Ammunition Regulator: training on how to develop technical instructions for ammunition stacking.

Material

The restacking does not involve the procurement/acquisition of new ammunition.

For the restacking of the existing stock, the provision of following equipment should be considered:

- Ammunition boxes;
- Labels (e.g. HD/CG);
- Stack tally cards;
- Dunnage (e.g. pallets);
- Banding material;
- Handling equipment (e.g. forklift trucks);
- Personal protective equipment (e.g. gloves); and
- Cleaning material (i.e. to keep ESH clean).

Personnel

Two phases should be considered:

1. The restacking process: During this phase, additional, adequately trained personnel could be required. This increase of personnel requirement is only temporary but should be planned.
2. The sustainable management of the stocks: After the conclusion of the restacking operation, sufficient, adequately trained personnel should be employed to ensure that ammunition operations are sustainably conducted.

During both phases, personnel requirements for guarding and other tasks on the ammunition depot (e.g. cut back vegetation, cleaning, office activities ...) should also be considered.

Finances

Two phases should be considered:

1. The restacking process: This phase requires a financial effort in order to ensure the training of personnel, the procurement of equipment, the refurbishment of infrastructure, procurement of data management software, the conduct of the restacking operation etc.
2. The sustainable management of stocks: After the end of the restacking phase, financial means should be made available to ensure long-term ammunition operations, including continuous training of personnel, maintenance of infrastructure, equipment and software, procurement of replacement material etc.

Financial disbursement related to infrastructure, including security and ammunition management related buildings (maintenance, facilities for personnel etc.), also need to be considered.

The procurement of new or adapted IT systems (e.g. for data management) should also be considered.

Infrastructure (real estate & information technology)

Restacking of ammunition should involve ensuring that the ESH in which the ammunition is stored complies with the IATG. The refurbishment of the ESH should be planned accordingly. This includes security related aspects (e.g. perimeter fencing, CCTV ...), ammunition maintenance buildings, facilities for guards and ammunition personnel etc.

At the same time, the ammunition should be recorded appropriately in order to achieve full asset visibility. The procurement, further development or continued use of a data management system should hence be a priority.

Security and safety

The ESH shall be secured in accordance with the IATG.

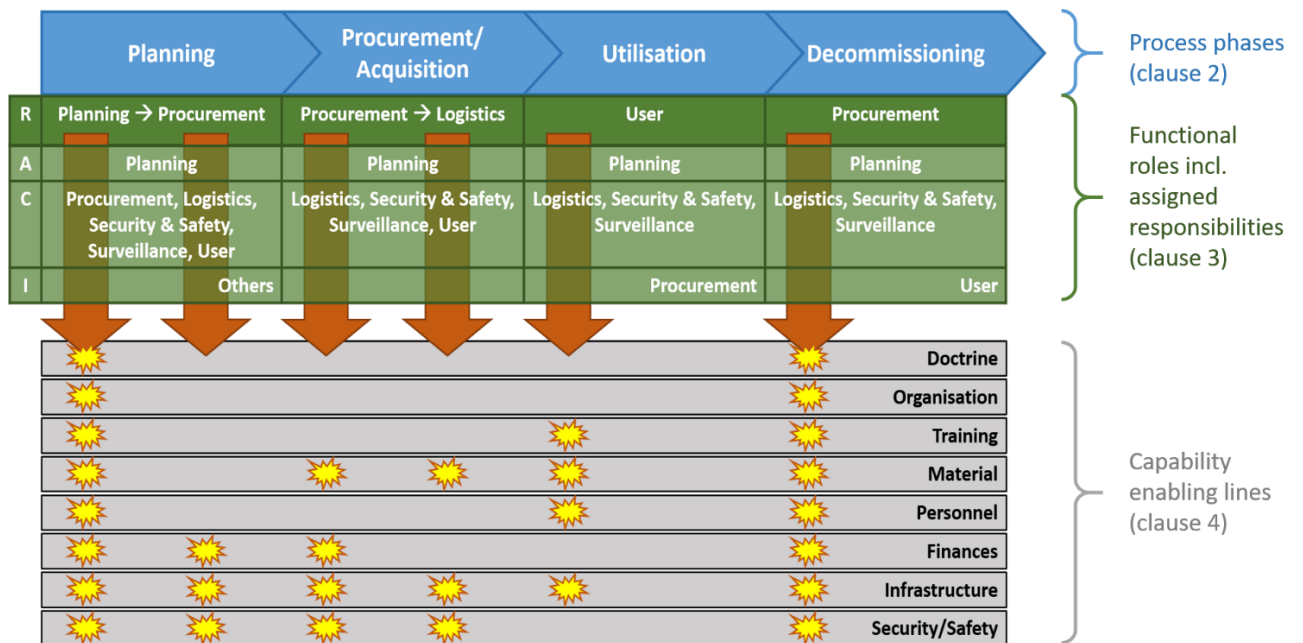
Personnel working in the ESH shall be vetted in accordance with the IATG.

Equipment used in the ESH shall be safe to use in accordance with the IATG.

Annex D (informative)

Examples of the interactions along the process between functional roles and CEL

For each phase (or partial phase, see chapter 4), national authorities should identify responsible roles (see chapter 5). These responsible roles should be in charge to interact in a timely manner with the relevant CEL (see chapter 6). Which roles and which CEL must be involved at what stage should be identified beforehand. Interactions are hence initiated by the functional role responsible or accountable for the specific phase.



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Amendment record

Management of IATG amendments

The IATG are subject to formal review on a five-yearly basis. This does not preclude amendments being made within these five-year periods for reasons of operational safety, efficacy and efficiency or for editorial purposes.

As amendments are made to this IATG module they will be given a number, and the date and general details of the amendment will be shown in the table below. The amendment will also be shown on the cover page of the IATG by the inclusion of the amendment number and date.

As the formal reviews of each the IATG module is completed, new editions will be issued. Amendments will be incorporated into the new edition and the amendment record table cleared. Recording of amendments will then start again until a further review is carried out.

The most recently amended, and thus extant, IATG module is posted on www.un.org/disarmament/ammunition

Number	Date	Amendment Details
0	31 March 21	Release of Edition 3 of IATG.