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Stockpile Management: Planning[1]

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Overview

Stockpile management is a wide-ranging term that covers specific technical areas related to the safety and security of ammunition and explosives, in addition to issues such as the determination of stockpile size, types of stockpiles, and the management of ammunition in service. Effective stockpile management requires comprehensive planning in order to ensure that all activities related to stockpile management work together as an integrated system.

The critical role of planning

The 'national stockpile' describes the full range of individual ammunition and explosive stockpiles within a country. It includes the stocks of various separate organizations, including the police, military (both active and reserve), border guards, paramilitaries, and manufacturers. Furthermore, it encompasses both large and small ammunition storage facilities, in addition to stocks that are deployed with security forces.

Faced with such a large and varied national stockpile, planning is critical to ensuring that all of the stockpile's sub-components, wherever located, are subject to adequate management procedures, ranging from accounting (CHAPTER 5), through to surveillance (CHAPTER 6), security (CHAPTER 7), and the destruction of surplus ammunition (CHAPTER 9). Not only is this necessary for explosive safety requirements, but it is also the only cost-effective method of efficient stockpile management. Ammunition is a necessary part of states' defence and deterrence capabilities. Therefore, effective planning must cover all aspects of conventional ammunition—from

the defence policy that determines requirements, through procurement, storage, and deployment, to safe disposal.

Definition of stockpile types

One core function of effective planning is to understand the specific demand for ammunition. This enables the ammunition procurement system to determine the quantity and types of ammunition needed to implement national defence and security strategies. For military actors, ammunition requirements will ultimately be determined by the force structure and defence tasks that are derived from the national defence strategy. For police and other agencies, ammunition requirements will comprise a smaller percentage of the national stockpile, and they should be derived from the national security strategy.

Within these sub-divisions, any national stockpile consists of a range of smaller function-specific stockpiles, including the following:

1. *operational ammunition and explosives:* ammunition and explosives necessary to support the routine operations of military, police, and other security agencies over an agreed period of time;
2. *war reserve ammunition and explosives:* ammunition and explosives necessary to support the operations of military, police, and other security agencies during external conflict or general war over an agreed period of time. This is likely to be by far the largest part of the national stockpile;
3. *training ammunition and explosives:* ammunition and explosives necessary to support the routine training of military, police, and other security agencies. This will usually be an agreed percentage of the war reserve holdings;
4. *experimental ammunition and explosives:* very small quantities of ammunition used in trials and the development of munitions;
5. *production ammunition:* ammunition and explosives that have been produced and are awaiting sale under the control of the manufacturer. These may be available to the military during general war, but would not form part of the war reserve, as their availability cannot be guaranteed; and
6. *ammunition and explosives awaiting disposal:* the ammunition and explosives that are surplus to requirements because they are obsolete, unsafe, or damaged.

When states are unable to ascertain these or similar categories, it becomes impossible to accurately gauge realistic ammunition requirements, such as quantities that might be required in the future, or whether there is excessive surplus (CHAPTER 10).

Planning safe storage and handling

National ammunition management systems are only effective if plans also lead to the development of accurate accounting procedures (CHAPTER 5) and thorough and effective rules and procedures for personnel involved in classifying stock.

Risk management

A critical element of planning is the implementation of a robust, effective, and integrated risk management system. Risk management is an often-misunderstood term, within which there are common misconceptions in terms of the relationship between, for example, risk assessment and risk analysis. Figure 8.1 illustrates the relationships between the different components of risk management.

Figure 8.1
Risk management matrix

* As low as reasonably practicable.

Planning for the national stockpile should consider not only explosive risks (CHAPTER 13), but also financial, environmental, and security risks inherent in the storage of large stockpiles of ammunition and explosives. A risk management system is integral to planning, and should be utilized within all aspects of ammunition management.

Although *risk assessment* requires technical skills and time, it is not a particularly costly component of planning. What is expensive is the *risk reduction* process, which may require significant investment in infrastructure to ensure safe storage conditions. Should this investment not be possible, then the risk that remains must be formally accepted (*'risk acceptance'*) at the highest political levels. In other words, the minister of defence must take political responsibility for any casualties or damage that may result from a lack of investment in an effective ammunition management system. Where there is a significant risk remaining, e.g. to civilians resident within explosion danger areas, then the risk that they are under should be formally communicated (*'risk communication'*) to them so that they may make informed decisions (CHAPTER 18). This again will have political consequences.

Classification systems[2]

Successful stockpile planning requires a classification system to prevent the accidental use of unsafe, unreliable, or unsuitable ammunition. Effective 'risk management systems' rely on classifying ammunition and explosives according to the potential hazard that they represent. They should include two separate systems.

First is a set of standard classifications that relate to the generic risks posed by the materiel in question. These are diverse, but include the following standards: dangerous goods classification, UN serial number, hazard division codes, compatibility group, and hazard classification code. However, these classification schemes indicate latent hazards. They are not based on the technical surveillance (physical and chemical) and proof of the stocks held of specific ammunition types (CHAPTER 6).

A second classification system records the results of technical surveillance and proof. This denotes the precise condition of batches of specific ammunition, rather than the more generic hazards that the ammunition nature might pose. Best practice dictates that the scheme uses codes that define the degree

of serviceability of the ammunition and any constraints imposed on its use, such as the following categories, which are outlined more fully in the chapter of this book dealing with accounting (CHAPTER 5):

- condition A: serviceable stocks available for use;
- condition B: stocks banned from use pending a technical investigation;
- condition C: stocks unavailable for use pending technical inspection, repair, modification, or test;
- condition D: stocks for disposal (SEESAC, 2006, p. 3).

Regular inspection and surveillance (CHAPTER 6) are core components of effective stockpile management planning. These procedures inevitably identify defects, which necessitate the reclassification of ammunition into different condition groups, which are determined by those defects. Within the North Atlantic Treaty Organization (NATO), the following generic classifications are applied to ammunition defects:

Critical: defects affecting safety in storage, handling, transportation, or use;
Major: defects that affect the performance of the ammunition and that require remedial action to be taken;
Minor: defects that do not affect the safety or performance of the ammunition, but are of such a nature that the ammunition should not be issued prior to remedial action having been taken;
Insignificant: any defect that does not fall into any of these categories, but which could conceivably deteriorate into one of them if no remedial action is taken; or
Technical: any defect that requires further technical investigation (SEESAC, 2006, p. 3).

Condition classification systems, such as these, prioritize the disposal of ammunition on the grounds of ammunition stability (CHAPTER 9) and are a vital part of ensuring maximum safety in ammunition stockpiles.

Service life documentation

Safe, effective, and efficient ammunition management necessitates stockpile management personnel recording, and being able to retrieve, a variety of

information related to the origins, nature, role, deployment history, planned service life, and potential shelf life extensions of ammunition. This information relates to marked (CHAPTER 3) batches of ammunition, and it is best practice for it to remain with these batches throughout their life cycle, from manufacture, through storage or deployment, to their eventual use or disposal.

Documentation varies from state to state, but the Ammunition Management Policy Statements (AMPS) system listed by the South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC, 2006, Annex C) is illustrative of the detail required.

Planning stockpile size

The basic determining factors used to define the size of a national stockpile are the force structure, equipment levels, and the strategic concept of deployment or operations derived from military tasks within the national defence strategy.[3] There are many intervening—often political, rather than strategic—imperatives that account for significant differences in the way states formulate these three factors. However, at the level of stockpile management, these remain the basic stockpile size planning considerations:

1. *force structure*: the numbers and types of units in a given military (or other security) force;
2. *equipment levels*: the numbers and types of equipment (weapons) in a given unit; and
3. *concept of strategic deployment*: the number of days that the unit is expected to sustain itself at various levels of conflict (SEESAC, 2006, p. 4).

Any planning for national stockpiles necessitates calculating daily ammunition expenditure rates (DAERs) of single weapons at varying degrees of combat intensity, and then processing this information through factors 1, 2, and 3, above. The (deteriorating) condition of ammunition over a given period of time also has to be factored into the equation, as does ammunition used in training or during specific operations, such as peacekeeping duties.

DAERs are usually kept secret, and states are responsible for assessing their required expenditure rates, based on the strategic situation and any

collective security obligations they may have. In conjunction with accurate inventorying of stockpiles, however, these calculations are critical to planning the size of the required national stockpile—and, by extension, reducing surplus or ensuring sufficient supply (CHAPTER 10). It is clear, however, that many countries do not calculate their DAERs, and (often in conjunction with poor inventorying) this poses problems for stockpile forecasting and the accumulation of surplus stockpiles.

Planning the location of stockpiles

As several chapters in this book note, planning stockpile location is critical from the perspective of both stockpile security (CHAPTER 7) and the safety of surrounding populations (CHAPTER 18). Information on where to locate stockpiles can be found in the Organization for Security and Co-operation in Europe's *Best Practice Guide on National Procedures for Stockpile Management and Security* (OSCE, 2003a).

The *Guide* notes a number of features that relate to efficiency, including the proximity to security force personnel (i.e. consumers), for reasons of logistical efficiency; and the dispersal of stockpiles among two or more locations in order to limit loss should the stockpiles be attacked or destroyed in an accident.

These national security considerations should, however, also be balanced by imperatives that have implications for a broader set of stakeholders (CHAPTER 17), foremost of which is preventing harm to civilian populations by minimizing casualties in the event of an accident. These measures include keeping stockpiles at any one facility to the minimum levels and consistent with the role of the personnel and/or the explosive safety capacity of the site; and creating danger areas and safety distances in accordance with appropriate regulations, such as NATO's *AASTP-1: Manual of NATO Safety Principles for the Storage of Military Ammunition and Explosives* (NATO, 2006).

Progress to date

Stockpile management planning that is based on recognized technical standards, such as the NATO (2006) *Manual of NATO Safety Principles*, and equivalents, is generally recognized to comprise international best practice.

In many countries, however, these technical standards are seldom followed. Even when the states in question have national stockpile management legislation, it is often not based on a modern risk management system. This often equates to a tolerable risk level that is considerably higher than international best practice. For example, a comparison between the *Manual of NATO Safety Principles* and the former Soviet Union's *USSR Armaments and Ammunition Safety Manual* (USSRMoD, 1989)—which is still in use in many Eastern European countries—shows radical differences in terms of safety distances and permitted safe stockpile levels.

Although international support is provided to countries to assist with improving stockpile security and the disposal of surplus stocks, there are few projects that address the development of an integrated ammunition management system.

Conclusion

Comprehensive, integrated ammunition management and planning systems are critical to the safe, effective, and efficient accounting, procurement, storage, and disposal of ammunition. The expertise and knowledge are available within the wider international community to assist other countries in improving their ammunition stockpile management and planning in order to achieve international best practice.

Current levels of donor assistance and funding, and the scope of donor-assisted projects, however, will need to increase dramatically if the extant ineffective management systems prevalent in many states are to be addressed.

Notes

1 This chapter is intended to provide an introduction to stockpile management planning, but its scope is limited by space. Readers are recommended to consult the 'Further reading' section at the end of the chapter for more detailed information.

2 This presents information from SEESAC (2006). It has been condensed and updated where applicable.

3 For example, the number of days of sustainable use required for the various levels of conflict.

Further reading

NATO (North Atlantic Treaty Organization). 2006. *AASTP-1: Manual of NATO Safety Principles for the Storage of Military Ammunition and Explosives*. Brussels: NATO. May.

OSCE (Organization for Security and Cooperation in Europe). 2003. *Best Practice Guide on National Procedures for Stockpile Management and Security*. FSC.GAL/14/03/Rev.2. Vienna: OSCE. 19 September.

SEESAC (South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons). 2006. *RMDS/G 05.50: Ammunition and Explosives Stockpile Management*, 4th edn. Belgrade: SEESAC. 20 July.

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