



NATO

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AC/326

CNAD AMMUNITION SAFETY GROUP

AC/326 – CASG

The CNAD Ammunition Safety Group

Patrick Lamy

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AC/326 - CASG

OUTLINE

- CASG Role and Mission**
- CASG Structure**
- Organization and Functioning**
- NATO Documentation**
- Ammunition S3 Requirements and Assessment**
- NATO IM Policy**
- Relationship with Industry/Munitions Designers**



CASG Role and Mission

Role and Mission

Structure
Organization & Functioning
Documentation
Ammunition S3
IM Policy
Relationship with Industry

❑ CASG within NATO Organization

CASG is one of the CNAD Main Groups

- **NAAG (AC/225)**
- **NAFAG (AC/224)**
- **NNAG (AC/141)**
- **NIAG**
- **CASG (AC/326)**
- **LCMG (AC/327)**

❑ CASG Mission

“On behalf of CNAD, to be responsible for Ammunition Life Cycle Safety in Support of NATO Priorities”

CASG Role and Mission

□ Scope of Work

“All safety aspects of ammunition assigned for NATO missions (including planning, training and operations), for their complete life cycle, in accordance with the objectives, priorities and requirements of the CNAD mission and guidance as described in CNAD Management Plan”

□ Aims

The overall aim is to support Alliance military operations through encouraging and coordinating common approaches amongst nations by:

- **ensuring the safety and suitability for service of munitions, during all the phases of their operational and logistical life**
- **minimizing the associated risks by introducing safer (IM, MURAT, ...) munitions**
- **integrating munitions risk management into NATO planning and operations**

□ **Technical Areas of Work**

Munitions safety through the 'life cycle' and guarantee on munitions safety level encompasses:

- **Design rules for munitions and munitions components, particularly concerning energetic materials and fuzing and other initiation systems;**
- **The definition of commonly agreed safety specification and requirements, based on the acceptability of risks;**
- **Evaluation and testing methods and tools for assessing munitions and munitions components (which includes energetic materials) safety level including the effect of aging on this safety level;**
- **Rules and guidance for the safe use, handling, storage, operational transport and disposal/demilitarization**

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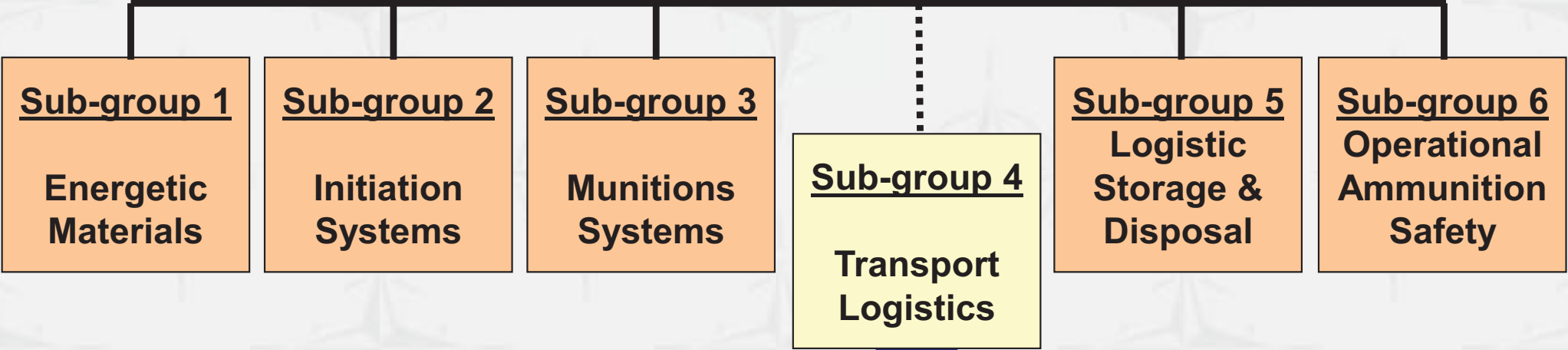
CASG (old) Structure

CNAD



MAIN GROUP

Terminology Management Team



LC (Logistics Committee)

CASG Structure

□ NATO Reform – Committee Review

2010-2011

- **NATO decision to reduce the total number of committees from 415 to 100**

2011-2012

- **CNAD approves new CASG structure:**
 - **Main Group and 3 Sub-groups**
 - **Merging of SG/1 and SG/2**
 - **Merging of SG/5 and SG/6**
 - **Hazard Division Classification transferred under the responsibility of SG/B (former SG/3)**

Fall 2012

- **First SGs meeting in new format**

Role and Mission Structure
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CASG (new) Structure

CNAD

**MSIAC
NATO Project**

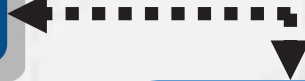
CASG Main Group

Terminology Management Team

Sub-group/A
 Energetic Materials & Initiation Systems

Sub-group/B
 Ammunition Systems Design and Assessment

Sub-group/C
 In-service & Operational Design and Assessment








Organization and Functioning

❑ Participating Nations

- Group open to NATO, PfP and MD nations, ICI countries, and Australia, Singapore, South Africa, Japan, Iraq and Mongolia
- 25 nations are regularly participating

❑ Chairmanships

- **MG** Patrick Lamy 
- **SG/A** Irmeli Tuukkanen  Homesh Lalbahadur 
- **SG/B** Ken Tomasello 
- **SG/C** Wayne Haggart 

❑ Meetings

- MG and SGs use to meet 2 times a year
- Custodian Group could meet to prepare draft documents

Organization and Functioning

Sub-groups Main Tasks

- **SG/A – EMT (Energetic Materials)**
 - Selection and qualification of Energetic Materials
 - Assessment of sensitivity, chemical and physical properties, aging behavior, suitability for service
 - Specification of EM and their constituents

- **SG/A – IST (Initiation Systems)**
 - Design principles and testing procedures
 - Characterization of components employed in firing trains
 - Design requirements of fuzing systems

Organization and Functioning

- **SG/B –Ammunition systems design and assessment**
 - Design principles and assessment methodologies for ensuring Safety and Suitability for Service (S3)
 - Testing policies and methodologies for S3
 - Insensitive Munitions and Hazard Classification

- **SG/C – In-service and operational safety management**
 - Safe ammunition processing, storage, demilitarization and disposal
 - Disposal principles
 - Support for munitions risk-based decisions by the NATO Command Structure (NCS) for multinational operations

Documentation

❑ New NATO Directives for Standardization - Definitions

Interoperability is the ability to act together coherently, effectively and efficiently to achieve Allied tactical, operational and strategic objectives.

NATO Standardization is defined as *“the development and implementation of concepts, doctrines, procedures and designs in order to achieve and maintain the compatibility, interchangeability or commonality which are necessary to attain the required level of interoperability, or to optimise the use of resources, in the fields of operations, materiel and administration”* (see reference 1.1.3.1).

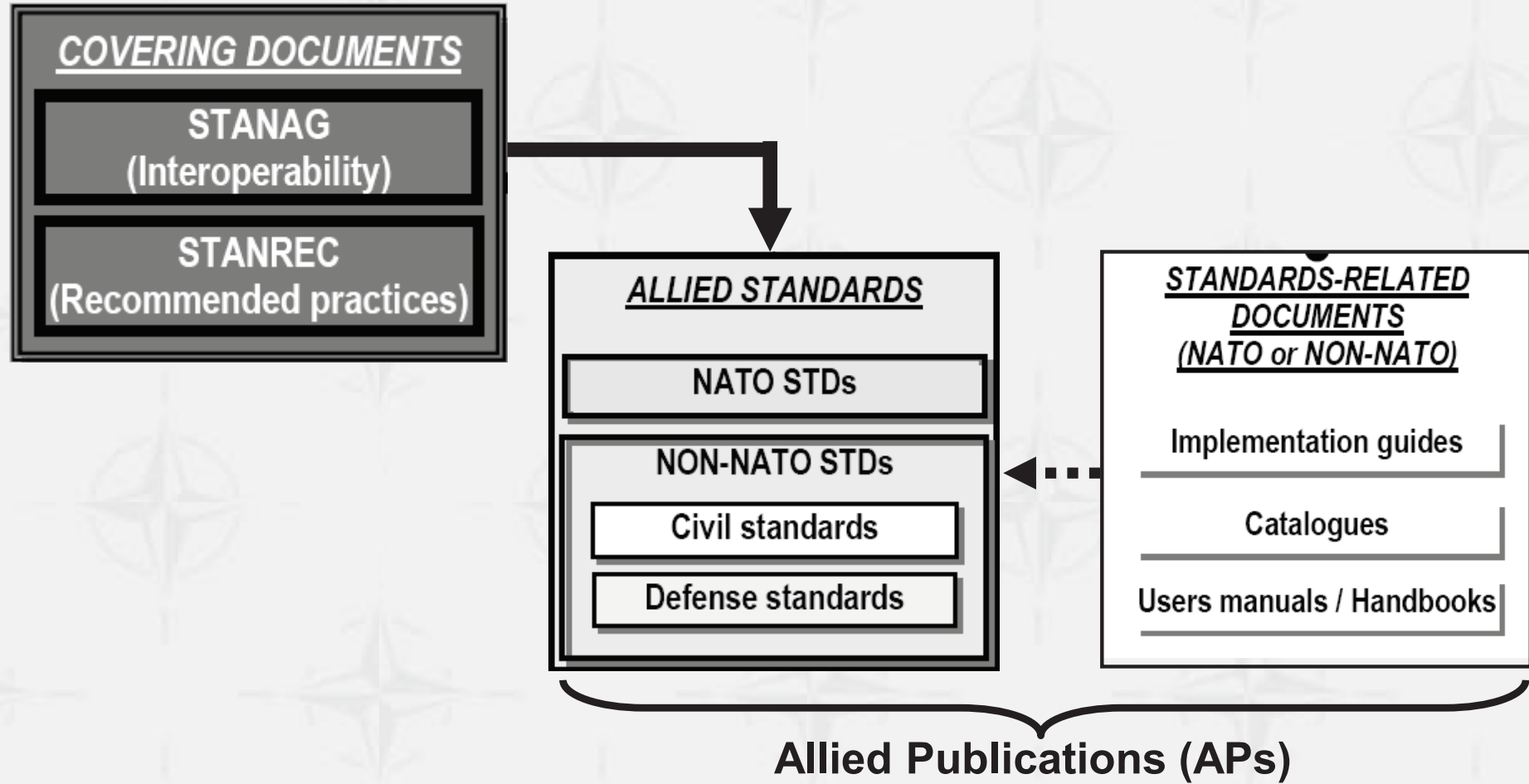
A **standardization agreement (STANAG)** is a NATO standardization document that specifies the agreement of member Nations to implement a standard, in whole or in part, in order to meet an interoperability requirement.

A **STANREC** is a NATO standardization document that lists one or several NATO or non-NATO standards relevant to a specific Alliance activity unrelated to interoperability. STANRECs are developed and, strictly, used in the materiel fields of standardization.



Documentation

❑ NATO Standardization Documents





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Documentation

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To date, CASG is:

□ 96 STANAGs

- SG/A – EMT 42 STANAGs
- SG/A – IST 13 STANAGs
- SG/B 38 STANAGs
- SG/C 3 STANAGs

□ 36 APs

- SG/A – EMT 8 APs
- SG/A – IST 8 APs
- SG/B 17 APs
- SG/C 3 APs

Ammunition Safety and Suitability for Service

Scope of Activity:

- Develop/revise overarching S3 and commodity specific documents as required to facilitate acceptance of international test evidence by nations without the need to retest for safety issues allowing at least an Initial Operating Capability.
- Ensure commonality between the documents to deliver consistency & best practice. Active involvement from UK, USA, Fra, NLD, GER.
- The documents will refer to existing NATO test methods under AC326 (e.g. IM STANAGS) or AC327 (e.g. AECTP test methods) where possible to enhance interoperability.



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Ammunition Safety and Suitability for Service

AAS3P-1: Guidance

10 series:
Missiles &
Rockets

AAS3P-10: Shoulder launched man portable rockets and missiles

AAS3P-11: Surface and underwater launched munitions

AAS3P-12: Aircraft Launched Munitions

20 series:
Ammunition

AAS3P-20: Large calibre munitions (greater than 40 mm)

AAS3P-21: Medium calibre munitions (20–40 mm)

AAS3P-22: Small calibre munitions (less than 20 mm)

AAS3P-23: Mortars

30 series:
“Others”

AAS3P-30: Aircraft non-stores

AAS3P-31: Ship carried ancillary munitions

AAS3P-32: Surface ancillary munitions

AAS3P-33: Man carried ancillary munitions

NATO IM Policy

NATO IM policy has been relatively stable (inactive?) over the past few years. Probably now time for review, revision & enhancement to deal with problems of today:

- Reaction Description Review**
- Cook-Off mitigation Devices – Design guidance & test methodology**
- Test Method review**
 - **Fast Cook-off – Potential use of Propane**
 - **Slow Cook-off – rate of temperature increase**
 - **Intermediate Cook-off – What about more severe reactions at conditions somewhere between fast & slow cook off?**
 - **Fragment speed**
 - **Balancing IM result against other risks & performance**
 - **Other Vulnerability issues (EFPs, impact/UNDEX)?**

NATO Industry Interaction

NATO CASG Interaction with industry has historically been limited. In the future, with shrinking Governmental staff reductions and increasing reliance on industry, do we need to enlarge this interaction? If so:

- How will Nations ensure that other nations representative is fully empowered and that suitable governance is in place?**
- How will security and intellectual property be managed/protected?**
- Will international cooperation be degraded?**
- Will nations technical competence be enhanced or degraded?**
- Should interaction be limited to technical input only?**



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