

# STANDARDISATION AND CODIFICATION A PERSPECTIVE FOR DEFENCE FORCES AND INDUSTRY

Cmde Gopal R Wani, Director, Directorate of  
Standardisation- MoD/DDP\*

**‘Those who don’t learn history are doomed to repeat it’**, this quote from philosopher George Santayana highlights the importance of the lessons that we must derive from the events that occurred in the past. Standardisation is one such process that the world came to understand and adopt when the Allied forces in the WWII could not get the war equipment of interchangeable nature. This in turn resulted in the formation of International Organisation for Standardisation (ISO) which defines standardisation as under:-

*“The process of formulating and applying rules for an orderly approach to the specific activity for the benefit and with the cooperation of all concerned and in particular for the promotion of optimum overall economy, taking due consideration to account of functional conditions and safety requirements”*

From both logistics and economic considerations, lesser the variety of items purchased, stocked, transported and used by the services, the better the war preparedness and fighting fitness. In India, the benefits of Standardisation were realised as early as in 1959 when Standardisation Committee was set up under the Hon’ble Raksha Mantri and based on the recommendations of the committee, Directorate of Standardisation

was set up in 1962 under a full time Director under the administrative control of Department of Defence Production & Supplies.

Standardization supports the achievement of commonality and interoperability in Defence Services. It is the enabling tool which provides Defence Forces with systems that are interoperable, reliable, sustainable and affordable. Standardisation is also an essential tool of Logistics Management in Armed Forces. Lesser the number of items procured, stocked, transported, maintained and used by troops in the field, the better it is for efficient management. The main aim of Standardisation in Defence is to optimise the existing inventory without affecting the preparedness/ efficiency of the Defence Forces. A standard is a document that establishes uniform engineering or technical specifications, criteria, methods, processes or practices.

Directorate of Standardisation is responsible for ensuring standardization and codification activities in all fields in the Ministry of Defence under the control of Department of Defence Production within the broad policies formulated by Standardisation Committee with following objectives:-

- Codification of Defence inventory to ensure uniform pattern of numbering the items and denoting each item by a well defined scientific nomenclature.
- Variety Reduction through preparation of Standardisation documents like Joint Services Preferred Range(JSPR) and Joint Services Rationalised List (JSRL).
- Entry control to check proliferation of Defence inventory.
- Preparation and promulgation of Joint Service Specification (JSS), Joint Services Guide (JSG) and Approval Notification (AN) for reference and use by defence services.
- Assist in formulation of Joint Services Policy Statement (JSPS) and Joint Service Qualitative Requirement (JSQR)

for procurement of products by services.

- To be repository of Indian and Foreign Standards for the use of Defence Services.
- To facilitate IT enabled services for accessing Standardisation/ Codification databases, standards and specifications.
- To adopt fast changing technology thereby providing better services.
- To ensure that the standards produced are compatible to IS & International standards.
- To co-ordinate and conduct Standardisation programme at National, Inter Service and Intra Service levels.
- To promote adoption of “SI” units in Ministry of Defence.
- To codify all transactions under the Defence Inventory using NATO Codification System (NCS).
- To maintain a Data Base of codified Defence Inventory for the purpose of Rationalisation, Standardisation, Simplification and ‘Entry Control’.
- To maintain and run Technical Information Centre for all Standardisation activities.
- To print, stock and issue Standardisation Documents, Compendiums and Catalogues for the Ministry of Defence Units.

Standards are to be seen as a lever for upgrading the country’s industrial base. We should focus and strengthen research on standards in new technology fields like AI, Big Data, Block Chain and C4ISR. The idea is to formulate high technical standards essentially forcing manufacturers to upgrade their process and ensure interoperability inter-service and intra-service with all available vintage equipment. This standardisation in new areas of technology areas will provide economic leverage and enhance India’s competitiveness.

## **INSS**

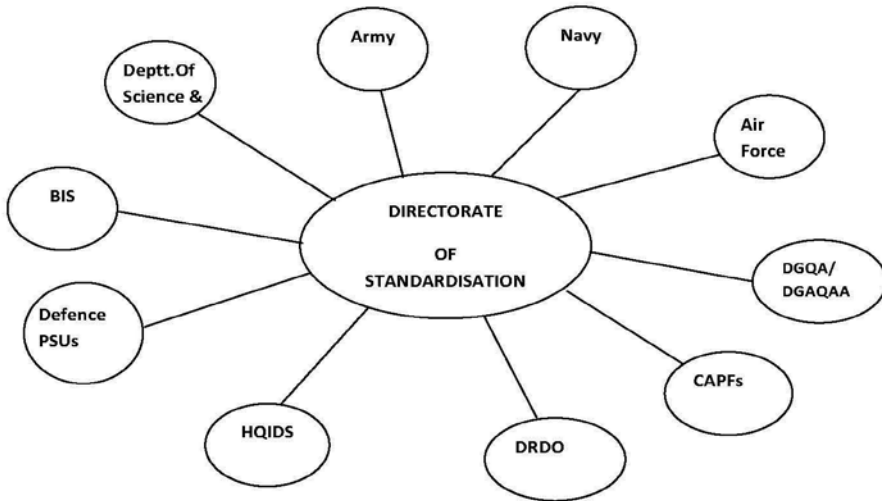
The Indian National Strategy for Standardisation (INSS) framework was released in Jun 2018. INSS provides direction for Indian Political and executive leadership on how best to use standardisation, technical regulations, quality infrastructure and related activities to advance the interests and well being of Indians in a global economy. This framework will provide far reaching benefits to economy and will raise the credibility of “Make in India” brand in global market. It will help align the strategy of sectors with national priorities and policies. This will also leverage the best practices and innovations from across the globe and ensure a facilitating environment for next leap of transformation. The Four pillars of INSS are:-

- Standards Development
- Conformity Assessment, Accreditation and Metrology
- Technical regulations and SPS measures
- Awareness, Counselling, Training and education

As part of INSS efforts DoS has been accredited as “**Standards Development Organisation**” (SDO). The standards developed by DoS will be recognized as National Standards. Recently DoS has initiated few Standards for items having Dual use (Civil & Military) for acceptance as National Standards. Directorate of Standardisation interface with the various organisations (including CAPFs) as shown below to establish effective standardization activities and harmonisation of standards within the services:-

### **Codification of Item of Supply**

Codification is the process of standardizing and developing a norm for a common identification language. Directorate of Standardisation is a member of Allied Committee (AC/135) the Apex Body of NATO Codification System (NCS). This has placed Indian Codification System



at International level and DoS has attained the status of being National Codification Bureau (NCB).

Codification of any item of supply is considered as a mandatory activity to identify the item with a unique number which provides the detailed information of the item/product alongwith the details of manufacturer. To achieve the internationally adopted codification pattern, Directorate of Standardisation also designated as National Codification Bureau(NCB) of India has adopted the NATO Codification System (NCS) towards codification of item of supplies by allocating NATO Stock Number (NSN) to each item and unique NCAGE code to each manufacturer since 2016 and has achieved the Tier-II membership status in NCS. Prior adopting NCS the codification of defence inventory was being undertaken using in house codification software CODISAP to generate the DCAN Numbers. However, to align with International community and ensuring uniform codification pattern for all item of supplies ex-import from NATO nations and members of Allied Committee/135 the NCS has offered an edge to Indian Codification System.

## Benefits of Codification

Today, more than sixty countries around the world use the NCS in some manner within their logistics systems. Most of these countries assign and use NATO Stock Numbers (NSNs) as a key to logistics data. NATO Codification offers many significant advantages to countries participating in the NCS, as well as to NATO organizations and private sector participants outside the Defence community.

The NCS is often referred to as an international language of logistics. It is not an inventory control system; it is the logistics language used by such systems. Likewise, it is not a supply accounting system, but the logistics language used by supply systems, procurement systems, maintenance systems, storage and distribution system, disposal system and transportation systems. The NCS is the foundation of inter-service and inter-country logistics cooperation. The NCS provides a common supply language in NATO and supports multinational logistics operations in countries that have treaties with the United States to participate in assigning and using NSNs.

Essentially the NCS is used for two purposes:-

- To save money
- To aid logistics operations

## Save Money

***Inventory Reduction.*** Logistics managers need to know where stock is located and how much is available. If the NCS is used (as part of an inventory control system) they have a tool to identify interchangeable items in different locations nationally or internationally. Thus, it prevents buying unnecessary stock, avoid storage costs for overstocked items, and use items before they become out of date. By using standard methods for identifying and tracking items two private companies

reduced inventory by \$75 million and \$97 million respectively by using tools like the NCS.

***Avoid New Inventory.*** Since equipment often has common parts with other existing equipment, the NCS can be used to eliminate duplicate items in the supply system. In the United States, a large producing country, they have experienced that parts for brand new equipment match existing parts in the catalog more than 30% of the time.

***Lower Purchase Prices.*** Various purchasing offices within a nation may buy the same items. If the NCS is used (within a procurement system), senior managers can quickly identify duplicate purchases and compare prices. This allows them to consolidate purchases into larger packages to negotiate lower prices.

### **Aid Logistics Operations**

***Cross Service Supply.*** The NCS aids cross service supply between the military branches (when used within a supply system). Thus, a Navy supply operation can supply a local Air Force contingent since they both use the same method for identifying items of supply. This saves money too, since redundant supply operations are expensive. Again, these savings are even more important at the Alliance level.

***Interoperability Between Countries.*** The NCS being international codification system also facilitates the sharing of supply support between countries. Use of a common language understood by everyone simplifies the technical dialogue between countries and users. For example of this benefit, the NATO experience in Bosnia where peacekeeping force from a non-NATO (and non-NCS using) nation arrived without repair parts. Within a very short period of time, some 30% of their equipment were unserviceable for lack of spares. They were unable to ask for support from other nations because they did not use any relevant materiel identification system. Finally, the French forces used the NCS to help

them identify the spares they required and, eventually, the problem was resolved.

**Reduced Equipment Downtime.** Military services in the area of operations and logisticians are in a better position to get the right parts to the right place, in time.

**Quicker Identification of Supply Items.** An accurate description of items, combined with an easy to use catalog, allows supply personnel to more quickly identify needed items.

**Better Tracking of Vendors.** The NCS includes a system for identifying and tracking commercial vendors. Combined with procurement systems, managers can more systematically track such critical information as past performance by the contractor, addresses and telephone numbers, and political/social data (such as geographical distribution of vendors and manufacturers within a country and minority group ownership).

**History of Commercial Sources.** Logisticians can use the NCS to determine past sources for purchases of the item of supply. This can be useful when items are difficult to obtain.

**Aid Domestic Industrial Base.** When a company's reference number is recorded on an item of supply in the NATO Master Catalogue of Reference for Logisticians (NMCRL), it is visible to other countries as a potential source for that item. Thus, the company's opportunity for sales is improved.

## What is NSN?

The NSN was designed to be usable by both humans and machines. Without exception, NSNs are numbers that are thirteen digits long. The first four digits classify items into logical groupings. The remaining nine digits make each NSN unique. The most important advantage of NSN is that almost everyone in government and business, worldwide,



recognizes and can use it. This is true for computerized systems as well as human management of supplies because the format of NSNs is always consistent.

The process of assigning and maintaining NSNs is a collection of activities called cataloging. When a new item is ordered often enough, or when a new weapons system enters service, cataloging activities are initiated. A wide range of logistics data is assembled about that item including price, item name, manufacturers part number, physical characteristics and many other kinds of data. This data collection process is the backbone of cataloging. The system then assigns the next available number and a new NSN is created. All of the data about an item of supply is referenced to an NSN and an item of supply manufactured by many manufacturers, if it has the same form, fit and function, it is assigned only one NSN. As the central link between all of the various kinds of logistics data it allows efficient, reliable management of logistics data, and of the items themselves. Without NSNs, management would be difficult and confusing because the NSN is the key that unlocks the rest of the data.

### **Benefits of NSNs – Cost Control and Exact Identification**

Cataloging, and its use of NSNs, supports logistics managers with a standard method of identifying and tracking items. Managers can rely on the structure and attributes of items cataloged by NSN to avoid purchase and storage of unnecessary stock, and to use items before their shelf life expires. Supply managers use the classification inherent in the first four digits to group similar items for improved management. Use of NSNs also helps managers avoid purchase of duplicate inventory, account for existing inventory, and negotiate lower purchase prices for new inventory by reviewing pricing information.

NSNs play a central theme in the emerging role of contractors supporting

military operations as well as in the continuing integration of the Services in joint military maneuvers. An item may be purchased from a contractor, delivered by the Air Force, distributed by the Navy and used by the Army. The importance of using a single language of supply, such as the NSN provides, becomes increasingly important.

The manufacturer of any item of supply on request can be allotted a unique internationally recognized Manufacturer registration code i.e., NCAGE (NATO Commercial and Government Entity) code which is mapped to the NSN of the item of supply. Therefore, visibility of the manufacturer through NCAGE code for the respective products when visible to the nations using NCS would yield ample opportunities for the national defence product manufacturers to enhance the export potential and lead the nation towards AATMANIRBHARTA.

### **Our Commitment**

Directorate of Standardisation, MoD/ DDP as National Codification Bureau(NCB) of India plays an important role in implementing standardization within services and supply management by issuing and managing the use of NSNs. We are partners with all the individuals, manufacturing units, quality assurance agencies (AHSPs/ Responsible Organisations) and nations who depend on accurate, efficient cataloging to acquire and use millions of items of supply. It is the commitment of NCB, India to lead logistics innovation in NSN management for the benefit of our Services and Indian Industry.

**\*Cmde Gopal R Wani**, is appointed as Director, Directorate of Standardisation, MoD/ DDP New Delhi.