

## Chapter 10 Sustaining the Force

### Section I: Introduction

The Army sustains organizations through the acquisition of personnel, materiel, and facilities. The arrival of additional people and materiel through the force integration process creates changes to the organizational paradigm. Changes to the organization and its support structure must sustain a designated level of capability. This level must be maintained through replacement, repair, or rotation of its existing assets.

The sustainment of organizations affects the supported and supporting units. Deviations at installations from the doctrinal supported/supporting unit relationships must be addressed in detail during deployment and operational planning. In addition, as maneuver units modernize, the supporting units (i.e., organization and direct support maintenance teams) must also change.

The determination of requirements and the allocation of resources identifies the current, budget, and program forces that must be sustained. Integration of requirements and authorizations in the structure and composition system provides for sustainment of organizations with personnel and materiel.

Producing materiel is not simply developing, buying, and shipping the systems to the user organizations. It is also continuing to support the systems after fielding. Operational capabilities are maintained by providing repair parts, diagnosing failures, and developing necessary modifications through the life cycle of the system.

### Section II: Logistics Functions, Levels, and Support

The Army's logistics tasks originate with its statutory functions to organize, equip, and train Army forces for the conduct of prompt and sustained combat operations on land. They are

further refined by the defense planning guidance. Within this broad guidance, the Services develop their own programs. The Army's implied logistics tasks are to:

- Equip Army forces.
- Sustain land combat operations.
- Establish reserves of equipment and supplies and provide for expansion of the force.
- Formulate logistics doctrine and support procedures.
- Develop, supply, equip, and maintain bases and other installations.

Logistics concepts, policies, programs, plans, and systems evolve from the core requirements to support and maintain force readiness logistically.

### LOGISTICS FUNCTIONS

The standard Army logistics system supports the movement and sustainment of the force through the following functional elements of logistics:

- Supply, which is the acquisition, distribution, maintenance, and salvage of materiel.
- Maintenance, which maintains materiel in an operational status, restoring it to a serviceable condition, or upgrading its functional utility through modification.
- Transportation, which is the movement of personnel and equipment to meet mission requirements.
- Services, which provide food service, water support, laundry, fumigation and bath, property disposal, and mortuary affairs.

- Facilities, consisting of real property programs and real property maintenance activities pertaining to the operation of utilities, maintenance of real property, minor construction, and other engineering support.

## **LOGISTICS LEVELS OF SUPPORT**

Levels of logistics are determined by the organizational level at which the support is required. There are two primary levels of logistics:

- **Wholesale.** This level includes the national inventory control points, national maintenance points, depots, arsenals, and factories. The work is generally performed in CONUS.

- **Retail.** This level includes support at installations and in the theater of operations. It consists of the following three functions:

- **General support (GS),** which provides logistics support primarily at the theater-level.

- **Direct support (DS),** which provides logistics support to individual user units and activities.

- **User and organizational support,** where unit level personnel perform maintenance on organic equipment and perform unit supply functions.

## **INTEGRATED LOGISTICS SUPPORT**

Requirements for new materiel necessitates an Operational Requirements Document, which outlines the employment and support of a materiel system in using organizations. It describes how a system will be integrated into the force and deployed, operated, and sustained in peacetime and wartime. The ORD establishes required readiness objectives and is the basis for Integrated Logistics Support (ILS).

Logistical supportability of materiel systems is assessed during the system acquisition process through the ILS program. ILS is a disciplined, unified, and interactive approach to the management of technical activities necessary to-

- Integrate support considerations into system and equipment design.

- Develop support requirements that are related consistently to readiness objectives, design, and each other.

- Acquire the required support.

- Provide the required support during the operational phase at minimum cost.

- Seek readiness and life cycle cost (LCC) improvements in the materiel system and support systems during the operational life cycle.

- Repeatedly examine support requirements throughout the service life of the system.

ILS considerations are to be integrated into the system design effort throughout the life cycle management model. The objective is to ensure that developed systems are reliable, maintainable, transportable, and supportable. Concurrently, the required support resources must be developed, acquired, tested, and deployed as an integral part of the materiel acquisition process.

The total ILS strategy for a materiel system is prepared by the materiel developer and coordinated with the combat developer, logistician, technical and operational evaluators, and other program participants before Milestone 1. The approved ILS plan will prescribe materiel system acquisition events and processes requiring ILS action, interface, or support. These processes include system engineering, contracting, and MANPRINT. The plan also lists requirements for support and sustainment of the

system after fielding by addressing potential upgrade, replacement, or disposal considerations.

### **Section III: Logistics Planning**

Logistics planning focuses on the transition from peacetime to wartime. The adequacy of the logistics support considers:

- Strategic and theater lift availability.
- Sustainability requirements of supported forces.
- Availability of in-place prepositioned war reserve stocks.
- Logistic force shortfalls.
- Warning time.

### **PLANNING RESPONSIBILITIES**

#### **Department of the Army**

A comprehensive logistics analysis of OPLANs for various theaters is conducted to identify, develop, and recommend logistics concepts, policy, programs, plans, and systems. It also includes assessing logistics readiness and sustainability. This evaluation is performed to assess logistics supportability, adequacy of logistics force structure, and enhancement of logistics planning efforts. OPLAN logistic analyses focus on three primary aspects:

- Logistics force structure and deployment.
- Logistics planning guidance.
- Logistics support capabilities and constraints.

The logistics data network (LOGNET) supports both Army and joint crisis action and mobilization efforts. It provides data on unit materiel operational capability, requirements for support to a deployment force, and sustainability

of the force over time. LOGNET uses time-phased force deployment lists (TPFDL), applies wartime attrition replacement factors and consumption rates, computes requirements for selected classes of supply, and applies asset availability to those requirements. It can project redistribution of major end items among mobilization stations and ensure that both reserve and active component units have authorized materiel.

#### **Army Materiel Command**

The AMC is the wholesale logistics command responsible for the materiel function of research, development, acquisition, and sustainment of a trained, ready Army. The mission of AMC and its subordinate commodity commands falls within three areas: the acquisition of materiel, responsibility for supporting the readiness of that materiel while in user hands, and eventual disposal of the materiel.

### **SUSTAINMENT PLANNING**

Logistics sustainability projects the future availability and serviceability of equipment. It examines requirements versus availability of repair parts and other supplies, issue/turnaround times, storage and transportation, and related facilities.

Sustainment planning is a function of integrating several processes to ensure that support and sustainment are considered from the initiation of a concept through Phase IV of the LCSMM.

During Phase IV of the LCSMM, the materiel system is operated, supported, and maintained in accordance with its intended operational concept. An analysis of the system is conducted to ensure it meets the original requirements. Analysis also is used to identify areas for continued improvement in cost, performance reliability, and capability of the system. The system is sustained in the active inventory until the decision is made for upgrade, replacement, or disposal.

### Logistics Supportability Considerations

Logistics supportability is a subset of cost, schedule, and performance. A continuous interface between the program management office and the manpower and logistics communities should be maintained throughout the acquisition process. ILS plans and programs, including host nation support, should be structured to meet peacetime readiness and wartime employment objectives and tailored to the specific system. Innovative manpower and support concepts should be considered early in the development process to influence the design of the system being acquired. Alternative support concepts should be assessed during the requirements and concept formulation phases.

### Manpower and Personnel Integration

MANPRINT focuses the materiel acquisition and development process on the capabilities and limitations of the soldiers who operate, maintain, repair, and support equipment. The goal of MANPRINT is to optimize total system performance, including the human dimension. The program integrates the domains of manpower, personnel, training, human factors engineering, systems safety, and health hazards parameters and constraints.

MANPRINT issues are considered throughout requirements generation, early analysis, solicitation, system review, and test and evaluation processes. Emphasis is placed on design influence in the early phases. MANPRINT is a separate major area with the same visibility as technical, management, supportability, and cost areas.

### Logistics Support Analysis

Logistics support analysis (LSA) supports decisionmaking concerning the scope and level of logistic support requirements. Initial LSA strategy development is the responsibility of the combat developer. It begins in the preconcept phase concurrent with development of the acquisition strategy and is included in the ILS plan.

The LSA process is thus applicable to all phases of the life cycle and all types of acquisition efforts. It is intended to apply ILS and MANPRINT influences in system design and selection and in developing the required support system.

### **LSA Objectives**

Specifically, LSA is performed at the system and subsystem levels to identify-

- Existing or proposed support structure and any associated constraints.
- Total support requirements for the system.
- Significant support, cost, and readiness drivers of similar fielded systems. This will provide comparative baselines and establish ILS-related goals and thresholds for materiel system development.

### **LSA Focus**

LSA includes the use of analytical techniques and models to-

- Develop and evaluate alternative support concepts.
- Project logistic support requirements.
- Perform design trade-offs to optimize logistic supportability and MANPRINT considerations.
- Perform trade-offs among the ILS elements.
- Measure the impact of LCC on materiel and support system alternatives.

### **Integrated Support Management Model**

The integrated logistics support management model includes-

- The Acquisition Management Milestone System (AMMS). This is an automated management information system designed to provide a standard system for scheduling the major milestone events throughout the acquisition cycle for developing, testing, and fielding a total system.

- The Computer Aided Milestone Schedule (CAMS). This is an AMMS management tool. It is designed to assist the materiel system and equipment proponent for new and current acquisition programs in establishing an AMMS milestone schedule. This program identifies significant life cycle dates and determines the scheduled dates for the remaining AMMS milestones.

- The LSA Application Status System (LASS). LASS provides an automated means of maintaining and retrieving application status information on LSA and logistic support analysis record requirements. LASS accomplishes this during all life cycle phases of a materiel system or equipment acquisition.

### **Systems Effectiveness Considerations**

The effectiveness of a system depends on its capability and availability to perform a specified military mission. Overall effectiveness depends on the materiel design capabilities and the concepts of employment and support. Consequently, the effectiveness of a system will vary according to its reliability and maintainability. Effectiveness will also vary according to the effectiveness of support under multiple-system uses in an operational environment.

The reliability, availability, and maintainability (RAM) program has significant impact on achieving and maintaining the required levels of effectiveness and readiness at minimum cost throughout the life of the system.

The RAM program ensures that materiel systems are operationally ready for use, will perform assigned functions, and can be economically operated and maintained within the

scope of logistics concepts and policies. The program contributes to reducing LCCs while increasing the overall operational effectiveness of systems by fielding systems that can be operated and maintained by trained personnel.

Appropriate RAM parameters must be properly quantified in requirements documents, included in contract specifications, and measured during tests. This will-

- Influence design of the system.
- Determine test requirements and test results.
- Permit logistics support planning.

### **Tailored Materiel Fielding Plan**

To ensure that new materiel systems are properly supported when handed off to the user, the materiel developer of AMC initiates a tailored materiel fielding plan. It contains the plans, schedules, procedures, and command actions necessary to deprocess, deploy, and sustain the new equipment. The total package fielding (TPF) method provides gaining commands significant relief from much of the initial burden associated with force modernization fielding. Under TPF, commodity commands provide the user with AMC-prepared, free-issue materiel packages.

### **Total Package Fielding Responsibilities**

Under TPF, the materiel fielder assumes responsibilities for relieving much of the logistics burden from the gaining MACOMs and their subordinate units. The materiel fielder develops, plans, and acquires the materiel system. In addition, the materiel fielder requisitions the system and virtually all its support. A total materiel requirements list is coordinated with the gaining MACOM. The materiel developer consolidates and packages the initial issue support items by unit level. The delivery of the packaged support items and the major end items is coordinated with the gaining units. Finally, a joint inventory with the gaining units is conducted before hand-off. The materiel

developer also provides the necessary documentation for all materiel to be posted to gaining unit records.

### **Coordination Requirements**

Materiel hand-off requirements are identified and coordinated during fielding coordination meetings. The actions required by the fielding and gaining commands will vary based on system complexity and on whether a formal hand-off is conducted by the fielding command. Under TPF, the fielding command is responsible for ensuring the successful fielding and initial supportability of the materiel system.

### **Section IV: Maintenance Function**

Materiel maintenance includes all actions taken to keep materiel in a serviceable condition, restore it to serviceability, or upgrade its utility through modification. As a general policy, maintenance is performed where equipment is operating or has failed.

Maintenance management in the Army is vertically oriented either on commodity groups or weapons systems. Within commodity groups, the management effort is predicated upon cost and item essentiality. Vertical maintenance management provides a direct line from HQDA to the ultimate user through the commodity management chain. Wholesale support responsibility is centralized at AMC. Vertical management techniques are used to obtain cost-effective operations and responsive improvements and rely on standardization of management systems, improvement of asset reporting, and control. This provides better asset knowledge and visibility, streamlines the Army's logistics support structure, and conserves resources.

### **LEVELS OF MAINTENANCE**

#### **Army Maintenance (Less Aviation)**

The maintenance framework for non-aviation units contains four levels:

- **Unit Level.** Unit-level maintenance is performed by the user and is characterized by quick turnarounds based on repair by replacement and minor repair. The cornerstone of unit maintenance is preventive maintenance checks and services.

To improve forward maintenance to the user, there is greater use of built-in-test/built-in-test-equipment, modularity, common tools and test equipment, and discard of components and selected small end items.

- **DS Level.** This level is performed by combat service support units assigned to divisions and corps. This level is characterized by high mobility, a forward orientation, and repair by replacement. Divisional maintenance units support maneuver elements while nondivisional units provide area support and reinforcing support to the division. DS units are organized on a modular team basis to support specific systems and their auxiliary equipment (tank system support teams, engineer system support teams, etc).

- **GS Level.** GS maintenance is a semifixed, deployable sustaining maintenance capability at theater level. Its basic purpose is to support the theater supply system through repair of components. Maintenance at this level is job or production line operations, as appropriate, and is performed by modular units composed of commodity-oriented platoons.

- **Depot Level.** Maintenance at this level supports the wholesale supply system. It is production-line oriented and is performed by select commodity-oriented organizations, special repair activities, AMC depots, and contractor personnel.

#### **Aviation Maintenance**

Aviation maintenance is performed at three levels. Aviation unit maintenance (AVUM) is a combination of organizational and limited DS maintenance. Aviation intermediate maintenance (AVIM) is a combination of the remaining DS and limited GS maintenance capabilities. Lastly,

depot maintenance includes some maintenance previously performed at GS level.

### **Section V: Transportation Function**

Transportation is the movement of personnel and materiel to meet Army requirements and commitments. It can be considered the connecting link among the logistics functions, enabling the system to operate.

#### **FOCUS**

The transportation management program focuses on maintaining a wartime lift capability in a peacetime environment. This helps ensure strategic mobility and a continuous movement of supplies to deployed forces. To develop and maintain this capability, the most responsive transportation systems are incorporated into the transportation program. Containerization, intermodalism, electronic data interchange systems, and the air lines of communications are used to improve transportation services during peace and war.

Strategic mobility is defined as the capability to deploy and sustain military forces worldwide in support of national strategy. The DOD concept for strategic mobility includes airlift, sealift, and overseas prepositioning of materiel. The US transportation Command provides this support to the Army.

The development of containerized shipping techniques permits the rapid surface movement of materiel. The direct support system is designed to take advantage of this capability and to deliver materiel directly to the user. Although airlift capabilities have increased, the Army still relies on surface movement for the bulk of its cargo.

#### **TRANSPORTATION FUNCTIONAL AREAS**

A transportation system within a theater of operations is divided into three functional areas:

- **Modal Operations.** These consist of the physical movement of personnel and materiel on a transportation conveyance. Basic modes of transportation are air, rail, road, and water.

- **Terminal Operations.** This involves the transfer of cargo from one mode of transport to a different mode. It also includes the transfer of cargo from one type of transport within a mode to a different type at an intermediate point along the transportation system. Terminal operations in a theater of operations typically take place at railheads, truckheads, pipeheads, airheads, inland waterway terminals, ports, or beaches.

- **Movement Management.** This includes staff planning and coordination to ensure that the transportation system is used for the movement of personnel and cargo to the right place, at the right time by the most economical and efficient means. Movement management functions are performed by staff elements and control centers at various levels of command. The two major elements of movements management are transportation movements and highway regulation.

### **Section VI: Supply Function**

Supply is the procurement, distribution, maintenance while in storage, and salvage of commodities needed to equip, maintain, and operate a force. This includes the determination of type and quantity of supplies.

#### **SUPPLY CATEGORIES**

There are three categories for requesting and issuing supplies:

- **Scheduled Supplies.** These respond to requirements that can be reasonably predicted (Classes I, III [bulk], V, and VI),

- **Demand Supplies.** These are supplies for which a requisition must be submitted (Classes II, III [packaged], IV, VII, and IX).

- **Regulated Supplies.** These are supplies that the commander has decided must be closely controlled because of scarcity, high cost, or mission need.

## **LEVELS OF SUPPLY**

Levels of supply, expressed in days of supply, are the quantities of materiel to be held in anticipation of future demands. The Deputy Chief of Staff, Logistics, Department of the Army prescribes levels of supply authorized to be on hand or on requisition based on experience factors. They are maintained at various levels of logistics support.

### **Theater Level**

Theater stocks consist of war reserve materiel (stock for initial wartime consumption), operational project stocks, prepositioned materiel configured to unit sets, and a theater safety level. Additionally, the theater holds those stocks that are excess to the DS and user echelon and are within DOD retention criteria.

### **DS and GS Level**

Authorized stockage list stocks are held by DS/GS units. They consist of demand-supported, mission-essential, and initial provisioning items. Inventory at the DS/GS level is used to support the consuming organizations.

### **Unit Level**

A unit's prescribed load list (PLL) consists of demand-supported and mission-essential items to support unit maintenance and initial provisioning items. Materiel authorized for unit stockage (PLL stocks) must be on hand or on order (replaced as consumed).

## **OTHERS**

Other supply programs include Army food program (subsistence, troop issue, wholesale subsistence supply, and garrison and field food service), clothing sales/initial issue activities

programs, organizational clothing and individual equipment items program.

## **Section VII: Organization Sustainment**

### **AUTHORIZATION DOCUMENTS**

An organization must have the ability to place demands on the Army supply system. To do this the organization must have a HQDA approved authorization document and a valid address so the system has the ability to deliver to specific organizations. The SORTS is the single automated system within the DOD used to provide the National Command Authorities and the Joint Chiefs of Staff with authoritative identification, location, and resource status information on organizations. Before a unit can be documented in the authorization document database or assigned people and equipment, it must first be registered in SORTS. This address is based on the UIC uniquely assigned to parent organizations and the Department of Defense Activity Address Code (DODAAC). The DODAAC is a unique address code that identifies a specific unit authorized by DOD to requisition, receive supplies, or receive billing.

### **FORCE READINESS CONSIDERATIONS**

Assessment of the Army's capability to mobilize, deploy, and sustain forces defines current force readiness by comparing its actual capabilities with its designed capabilities. The logistical sustainability of the force is analyzed to identify and measure the effects of various readiness and resource shortfalls and indicate possible solutions. The results are incorporated into Army guidance documents. They are used as an analytical basis for establishing priorities and allocating resources in the POM process by-

- Assessing the capability of the Army to deploy logistically ready forces and to sustain them in combat, consistent with the prescribed scenario.
- Providing a common baseline that facilitates wartime planning by the logistics community.

- Developing a means to allocate resources and establish priorities by expressing the relationship between logistical assets and requirements.

The force integration analysis is a detailed affordability and executability analysis providing a link between the planning and programming processes by assessing affordability and executability of the Total Army analysis force.

### **Summary**

Logistics sustainability is the "staying power" of forces, units, weapon systems, and equipment. It includes those mechanisms, equipments, and facilities necessary to provision organizations with people and materiel over prolonged periods. Sustainment capability must be structured into all the Army plans, processes, products, and organizations. The measurement of sustainment is the basis for success of Army forces in combat.