National Defence / Défense nationale

B-GL-341-001/FP-001

LAND FORCE

LAND REPLENISHMENT SYSTEM

(ENGLISH)

(Supercedes B-GL-312-006/FT-001, 1987-09-14)

Issued on Authority of the Chief of the Land Staff

Canada

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Canada

FOREWORD

1. B-GL-431-001/FP-001 *Land Force Replenishment System* is issued on the authority of the Chief of the Land Staff.

2. This publication is effective upon receipt. It supercedes B-GL-312-006/FT-001 *Combat Service Support, Volume 6, Transportation in Battle.*

3. The French version of this publication is B-GL-341-001/FP-002 *Le système de ravitaillement de la Force terrestre.*

4. Suggestions for amendments should be forwarded through normal channels to the Director of Army Doctrine, attention DAD 9-2.

5. Unless otherwise noted, masculine pronouns contained herein refer to both genders.

PREFACE

SECTION 1
PURPOSE

1. The purpose of this manual is to outline the replenishment doctrine for providing tactical level support to Canadian army operations. It is a guide for operations and forms the basis for replenishment instruction and training.

2. The practices described in B-GL-341-001/FP-001 *Land Force Replenishment System* are consistent with the principles discussed in B-GL-300-002/FP-000 *Land Force Tactical Doctrine*, B-GL-300-003/FP-001 *Command*, and B-GL-300-004/FP-001 *Land Force Sustainment*, and the former should be read in conjunction with these latter three publications.

SECTION 2
RELEVANCE

3. Canada's national and military strategy is changing dramatically in response to massive global political and economic turbulence. The Army of Tomorrow will be faced with a far more complex world. The dynamics of this new environment are compounded by the broad availability of advanced technology. Information technology is expected to make a thousand-fold advance over the next 20 years. The rapid diffusion of information enabled by these technological advances (particularly those offered through the use of space systems) will challenge the relevance of traditional organizational and management principles. The Army of Tomorrow must recognize where direct change, such as information technology, is necessary and where little or no change is needed. Whether appearing in the form of an effective peacetime forward presence or decisive power projection, readiness and the ability to sustain such missions will be the hallmarks of the Army of Tomorrow

4. The character of future military operations can no longer be anticipated merely by analyzing an adversary's stage of economic development. Regional or even local powers may possess the capability of employing extremely advanced military technologies. Actions by an adversary will require intelligence analysis into areas extending far beyond the traditional battlefield focus. Current political and technical

trends suggest that, as a matter of course, successful operations will depend on multinational commitment and joint involvement for the new forms of conflict. Future military operations will require land forces to rapidly deploy to any part of the world and support forces across the spectrum of conflicts and climatic conditions.

5. Development of the replenishment system necessitates weaving the current strategic, operational, and tactical levels of Combat Service Support (CSS) into a seamless continuum. This seamless system must encompass the total force concept and take into consideration the integration and use of civilians. Formations require a seamless replenishment system capable of providing responsive and effective support in any scenario. Such a system embodies a support continuum consisting of soldiers, civilians (Department of National Defence [DND] and contractors) and blended organizations, and an integrated networked information system. It will establish a replenishment pipeline providing all CSS from the sustainment base to meet the requirements of commanders throughout the full range of operations.

6. CSS headquarters are established in the area of operations. These headquarters direct the flow of support through the pipeline to meet tactical needs and priorities. To achieve such a system requires a cultural change in how the Land Force views CSS. Such a cultural change is comprized of new approaches to such areas as database management, dependence on organizations outside the military for support, reliance on real-time situational awareness, and conversion from traditional support systems to a seamless continuum.

7. It is envisioned that flexibility—a fundamental characteristic of the present sustainment doctrine—will remain critical. In a rapidly changing strategic environment with dramatic ad-vances in technological applications to military operations, replenishment doctrine must be flexible, and support personnel must be willing and able to apply evolving principles and techniques to varying dynamic situations.

SECTION 3
FRAMEWORK

8. This manual provides a conceptual framework of tactical replenishment. It is intended to be a living document that presents new doctrine supporting the Armies of Today and Tomorrow. The sustainment of Army units and formations in operations can only be

accomplished by including sufficient CSS organizations within the force structure at all levels of operations to provide the service support required.

9. The provision of service support is based on the Replenishment System. The Replenishment System begins with the strategic level and transitions across the operational and tactical levels of operation to provide the CSS required through materiel management and distribution to units in combat.

10. In the theatre of operations, there must be a clear understanding among the Contributing Nations (CNs) that national logistic organizations exist in a multinational framework in support of combined operations. Combined logistics was traditionally described within the context of the various zones of the battlefield.

11. To gain a clear understanding of how the sustainment process supports the activities within an operational theatre, it is necessary to describe a typical theatre of operations layout. It is recognized that the modern battlefield will not necessarily be linear and orderly. Instead, it will most likely look like the non-contiguous battlefield shown in Figure 1.

12. Over the entire spectrum of conflict, modern military operations make flexibility and mobility key aspects of successful operations.

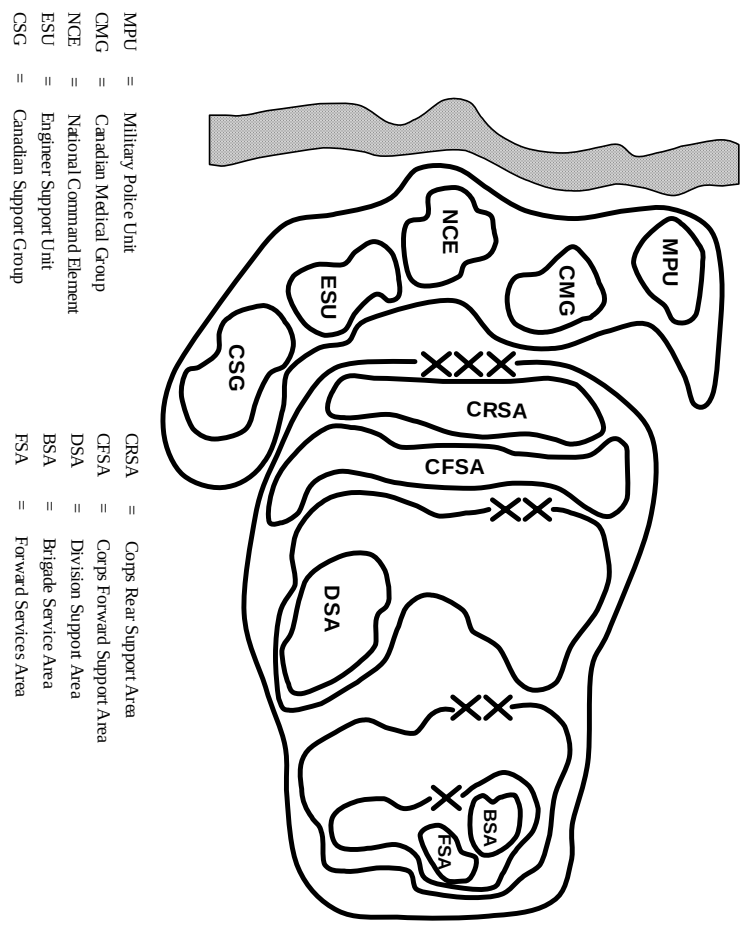

Figure 1: Non-contiguous Battlefield

13. The Land Force sustainment concept is designed to ensure the support of either national or multinational forces, taking their different structures and multinational composition into account. Replenishment is based on national provisions and includes degrees of multinational support as agreed by CNs. While each nation takes responsibility for the provision of support to its forces, other support options such as Role

Specialization (RS), Lead Nation (LN), or Multinational Integrated Logistic Units (MILUs) are employed when determined to be more advantageous.

14. The national command element (NCE) establishes requirements and sets priorities for support of national forces in accordance with the overall direction of the Theatre Commander. The NCE coordinates replenishment operations with CNs at theatre level.

15. **Outline Notion**. A basic outline notion of replenishment for a NATO operation is shown at Figure 2. Each element within the overall system has individual characteristics that affect the commander's plan. The diagram is neither prescriptive nor representative of any specific geographic layout but shows the basic support options. Furthermore, the diagram does not automatically imply linearity in the geographical layout of a theatre of operations.

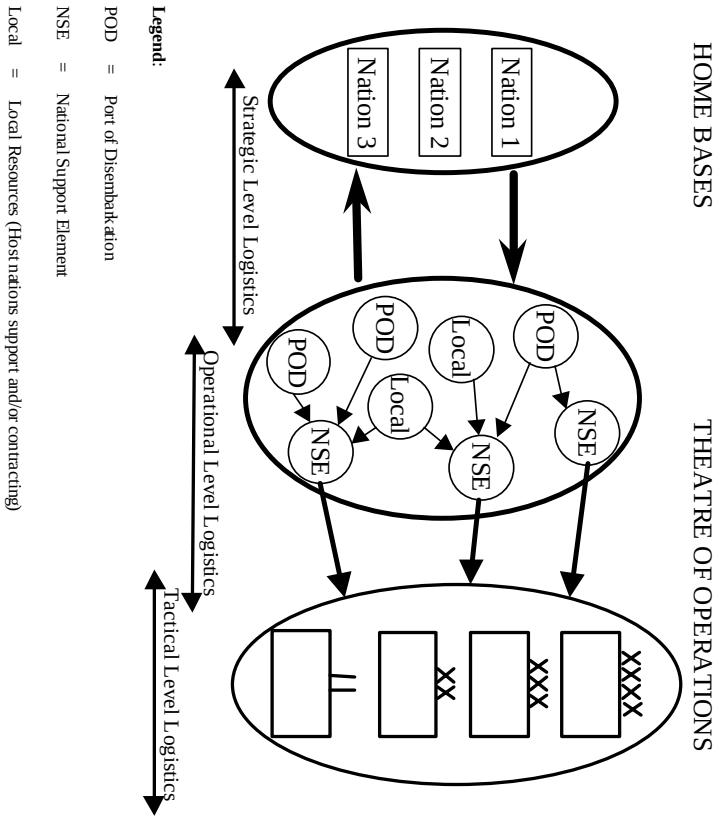

Figure 2: Outline Concept of Replenishment

16. **The Theatre of Operations**. All units and assets (personnel and materiel) enter the theatre by road, rail or through Ports of Disembarkation (POD)—as per Figure 3, these can be Sea Ports of Disembarkation (SPOD) or Airports of Disembarkation (APOD).

17. From there, they move or are transported to (and probably by) the Canadian Support Group (CSG) as part of the Canadian National Support Element (NSE). Most of the general support at the operational level is performed in the rear.

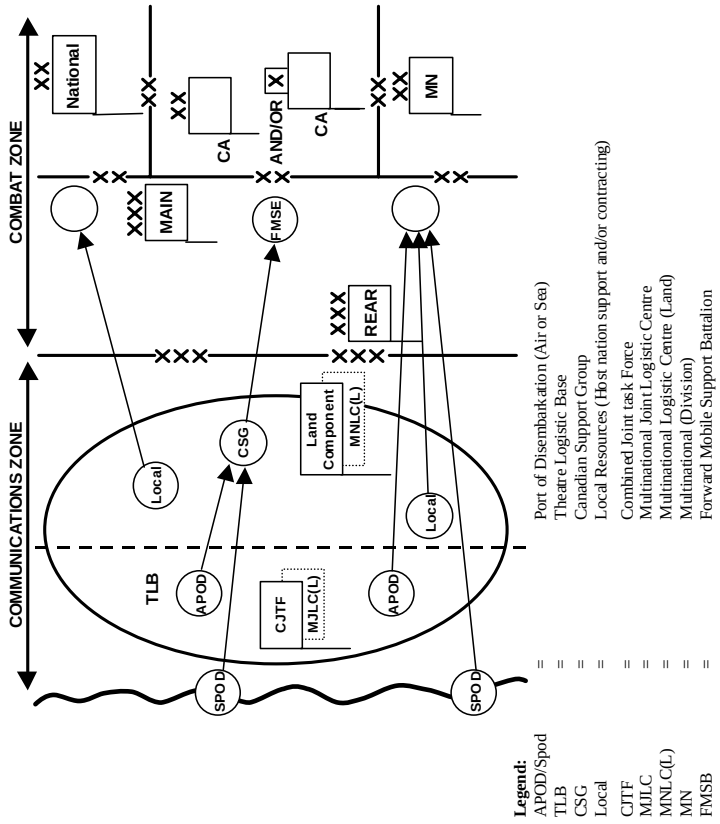

Figure 3: Possible Layout of the CSS Elements in the Theatre of Operations

18. Nations may deploy Forward Support Elements to bridge larger distances between operational level and tactical level support.

19. **Lines of Communication**. The Lines of Communication (L of C), with their associated command and control arrangements, are a complex mix of joint, combined, civilian, and military assets. L of C span the strategic, operational, and tactical levels of operations, thus connecting the strategic base with tactical units deployed in theatre.

20. Robust communications and dedicated information technology systems are needed if the flow of personnel and materiel is to function most effectively. It is planned, in accordance with the Gulf War

experience and present Canadian doctrine and structure, that the forces will advance at a rate of 100 km a day for up to a maximum of seven days.

SECTION 4
SUPPORT TO LAND COMPONENT

21. The replenishment system at the tactical level operates at the end of the pipeline to provide support to the Commander. It synchronizes replenishment activities required to sustain soldiers and their systems. The goal is to remove logistic obstacles from the tactical commander's concept of operations.

22. Support structures:

a. Integral resources of the land component provide tactical level replenishment. This includes resources integral to units and those included in the formation level close support (CS) service battalion (Svc Bn).

b. The CS Svc Bn normally proceeds to the sustainment point established by the operational level to replenish its holdings of materiel. This occurs daily for combat supplies and as required for other classes of materiel. A Forward Mobile Support Battalion (FMSB) may be deployed as the situation unfolds. The FMSB establishes temporary facilities to the rear of the land component area, within practical turn-around times of the CS Svc Bn. Ammunition and other combat supplies are normally held in different sustainment points, respectively identified as Ammunition Points (AP) and Replenishment Points (RP). As AP and RP stocks are depleted, alternate sites are selected and established as required.

c. Units normally hold three days of combat supplies, while the CS Svc Bn holds one day of supply (DOS) of combat supplies. When capacity limitations prevent holding four DOS at the tactical level (as may be the case with artillery ammunition), NSE stock levels in the forward area are normally increased to compensate for this deficiency. The stock levels held by the unit, the CS Svc Bn, and the FMSB depend on factors such as

capacity, distance, and the tactical situation, and are set by the NCE in conjunction with land component staff and National Defence Headquarters.

23. However, at operational level, support may also come from the host nation, joint and multinational sources, DND civilians, and civilian contractors. Normal relationship exists between support units and the units they support.

24. The CSS command and control structure at each level provides an operation support element to fully integrate replenishment operations. Movement Control Centres and Materiel Management and Distribution Centres coordinate the delivery of materiel in accordance with the respective headquarters plans. These centres are linked via an integrated communications network using automated information systems, automated identification technology, and voice systems.

25. Sustainment doctrine will be increasingly influenced by a number of factors such as changing strategy, developments in human sciences, and information technologies. Information age technology will have a profound impact on doctrine.

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REPLENISHMENT SYSTEM

SECTION 1
GENERAL

1. The replenishment system is the process by which combat supplies, defensive stores, construction materiel, repair parts, and general and technical stores are provided to the fighting forces in the combat zone (CZ). The replenishment system is based on the activities of materiel management and distribution. These complementary activities exist at all levels to effect replenishment.

2. **Role**. The role of the replenishment system is to provide the field force with the combat supplies, general, technical and defensive stores, construction materiel, and materiel required to fight and win on the battlefield.

3. The Canadian replenishment system is designed to provide the required classes of supply to combat formations in order to maintain personnel, weapons, and equipment in battle. It is based on the following concepts:

a. **Forward Replenishment**. Combat Service Support (CSS) must be provided where it is most needed, which is as close to the battle as possible. The degree of forward logistics must be tempered by the need for dispersion, depth, and survivability of stocks, and the degree of threat.

b. **Flexible and Simple Command and Control**. A flexible and simple command and control system is required to coordinate all of the replenishment activities. Since operations rarely proceed exactly as planned, the ability to quickly and efficiently adapt is essential if replenishment is to be uninterrupted. The command and control organization should be arranged and positioned conveniently (i.e. centrally co-located with the headquarters at the communications hub). Centralized command and control is required to maximize the use of limited resources available and to have a more efficient and responsive organization.

c. **Capability to Group and Regroup Rapidly**. The replenishment system must be able to group and regroup its organizations to meet changing circumstances on the battlefield.

d. **Total System Concept**. The interdependence of the CSS services stresses the need to view replenishment as a total system with:

(1) a simple and efficient command and control structure;

(2) a separate and distinct formation headquarters CSS staff; and

(3) a clear delineation of responsibilities between line and staff functions.

e. **Technical Control**. In order to ensure effective and appropriate technical outcome, there is a technical control chain throughout the entire replenishment system for each of the replenishment functions.

4. Replenishment means to refill or restock. This implies the provision and delivery of resources to maintain stock levels and equipment holdings. The normal replenishment system involves periodic forecasts of the quantity of each commodity required to keep stocks at determined levels, tabulation of the total quantities of commodities demanded, and the continuous activity to satisfy resulting requirements.

5. The activity of replenishment is described as either push or pull replenishment:

a. **Push Replenishment**. The automatic issue of stores based on established administrative and operational reports.

b. **Pull Replenishment**. The issue of stores as a result of unit demands.

6. Military operations are conducted within three levels of conflict: strategic, operational, and tactical. Sustainment, as one of the combat

functions, helps commanders build and sustain combat power and plays a major role at all three levels of conflict. Strategic and operational replenishment are focused on the support of wars, campaigns, and major operations, whereas tactical replenishment is more concerned with the support of the battles.

7. Although it is helpful to understand these different levels, it is important to recognize that there is a significant degree of overlap and the reality is that replenishment units assigned to operational level missions will be employed on strategic and tactical level tasks when required. In describing the levels of support, it is not intended to create imaginary or real barriers within the lines of communications. It has more to do with assigning responsibility to given commanders.

8. While the fundamental of self-sufficiency was taken into account in the design of Canadian field formations, it would neither be economical nor realistic to expect that a formation could sustain itself indefinitely or meet every requirement by relying solely on its integral resources. For this reason, the concept of tactical level support (i.e. integral, close or general) was developed and capabilities were layered throughout the field force to provide a measure of flexibility.

9. General support organizations are structured with the capability to provide limited augmentation to integral and close support, respectively, to subordinate organizations if, and when, required.

SECTION 2
REPLENISHMENT SYSTEM LEVELS

10. **Strategic Level Replenishment**. Strategic level replenishment involves the entire effort of the nation including the political and industrial complex, which allows for the production and projection of resources into the operational theatre. The National Defence Logistics Coordination Centre, in conjunction with the sustainment members of the National Defence Headquarters (NDHQ) Joint Staff, is responsible for coordinating strategic replenishment for the Canadian Forces.

11. It is a strategic responsibility to set the in-theatre stock holding policy. For example, the current strategic policy commits 90 days of supply (DOS) to an operational theatre. This policy works on the 30/30/30 principle, which maintains 30 DOS at the operational and

tactical levels, 30 DOS en route to the theatre, and 30 DOS being procured, manufactured, and prepared for shipment in Canada.

12. **Operational Level Replenishment**. Operational level replenishment begins with the reception of materiel into the theatre and ends with the delivery of materiel to the tactical level. Our doctrine recognizes two distinct pipelines in the replenishment system: one which is entirely Canadian and the other which consists of lead/host nation support.

13. In theatre Canadian formations are replenished by the Canadian Support Group (CSG). The CSG provides Canadian-unique items and acts as an access node to non-Canadian systems.

14. Operational level replenishment is coordinated by the in-theatre sustainment staff of the National Command Element (NCE) in consultation with the headquarters staff of the CSG. Key operational replenishment elements are the Supply and Transportation units, and the Forward Mobile Support Battalion (FMSB) of the CSG. These CSG units are responsible to receive all materiel and personnel into theatre and coordinate the movement forward to the Division and/or Brigade Group General Support (GS)/Close Support (CS) units of these formations at the tactical level. The Canadian Forces Joint Manual B-GG-005-004/AF-013 *Logistics Support to Canadian Forces Operations* should be consulted for more information on operational level replenishment.

15. **Forward Mobile Support Battalions**. FMSBs are a unique element in the replenishment system. They provide GS. Although, they are part of the CSG, their role is mostly tactical. The FMSBs are tailored to establish sustainment points for exchange of materiel with the CS Service Battalions (Svc Bn), thereby providing the link between the operational and tactical levels.

16. These units provide to the independent Brigade Group similar GS capabilities to that found in the functional battalions of the Division Services Group (DISGP). They may also come forward in the CZ to deliver repair parts, general and technical stores, or to provide any type of tactical replenishment service that cannot be satisfied by the CS element.

17. In X Allied Corps, the FMSBs have a command and control relationship with a Corps Support Group of the US Corps Support Command (COSCOM) i.e. Operational Control. This enables the FMSB

to either draw its common combat supplies (fuel/rations/water/ammunition (ammo) from the COSCOM and Canadian-unique items from the Supply unit of the CSG, or direct delivery to the units or formations by COSCOM resources. Ultimately, most materiel destined for Canadian troops will be funnelled through a sustainment point established by the FMSB to the DISGP and/or the CS Svc Bn of the Brigade Group.

18. **Tactical Level Replenishment**. The tactical replenishment system is continuous and forward-focussed. It is based on a system of tactical support that includes integral support (IS), CS, and GS:

a. **Integral Support**. IS is the support available from unit resources.

(1) It is accomplished through the echelon system, which has manoeuvre units arranged into three echelons for battle—Fighting (F) echelon, administration (A) echelon, and (B) echelon—as follows:

(a) the F echelon contains the personnel, weapons, vehicles, supplies, and equipment required to fight the battle;

(b) the A echelon contains the personnel, vehicles, supplies, and equipment needed for the immediate replenishment and maintenance of F echelon. For tactical reasons, units may split their A echelon into A1 and A2 echelons; and

(c) the B echelon contains the personnel, vehicles, supplies, and equipment not required in F or A echelons.

(2) The tactical replenishment system is capable of delivering to any of these A and B echelons. However, artillery ammo can be delivered direct to the F echelon, if necessary.

b. **Close Support**. CS is that support provided at formation (brigade/brigade group) level. The Svc Bn functions within the replenishment system as follows:

(1) it receives demands from supported units;

(2) it satisfies demands by delivery to supported units (either direct or via Delivery Point (DP)/Commodity Point (Cdty P) as follows:

(a) for combat supplies, the maintenance load carried by Supply and Transportation (S&T) company is used to fulfil demands; and

(b) for other supplies, unit requests are passed higher to either DISGP or CSG for pick up the next night (these supplies are then delivered to the requesting unit); and

(3) it replenishes its close support stocks by drawing directly from a sustainment point.

c. **General Support**. GS is also provided at brigade group or division level and by higher formations in theatre. Each successive level of the replenishment system becomes more sophisticated and specialized the further one moves back from the forward edge of the battle area (FEBA). Higher level replenishment elements support lower levels and augment forward when tactical requirements dictate. In this fashion, the replenishment system provides for the seamless flow of materiel through the strategic and operational levels to the fighting soldier at the FEBA.

SECTION 3
CONCEPT OF OPERATIONS

19. **General**. Sustainment systems, as defined in B-GL-300-004/FP-001 *Land Force Sustainment*, are interrelated. Forward support is a fundamental element of the replenishment concept.

20. Forward support is achieved by:

a. providing resources integral to each unit;

b. positioning in close proximity to the unit a back up of the more critical resources;

c. positioning less critical resources further to the rear, but maintaining the capability to move those resources forward quickly; and

d. providing communications systems that permit the necessary flow of information.

21. The replenishment system is based on a series of sustainment points with resources deployed throughout an area. Figure 1-1 shows a possible layout of sustainment points and support areas in a theatre of operation.

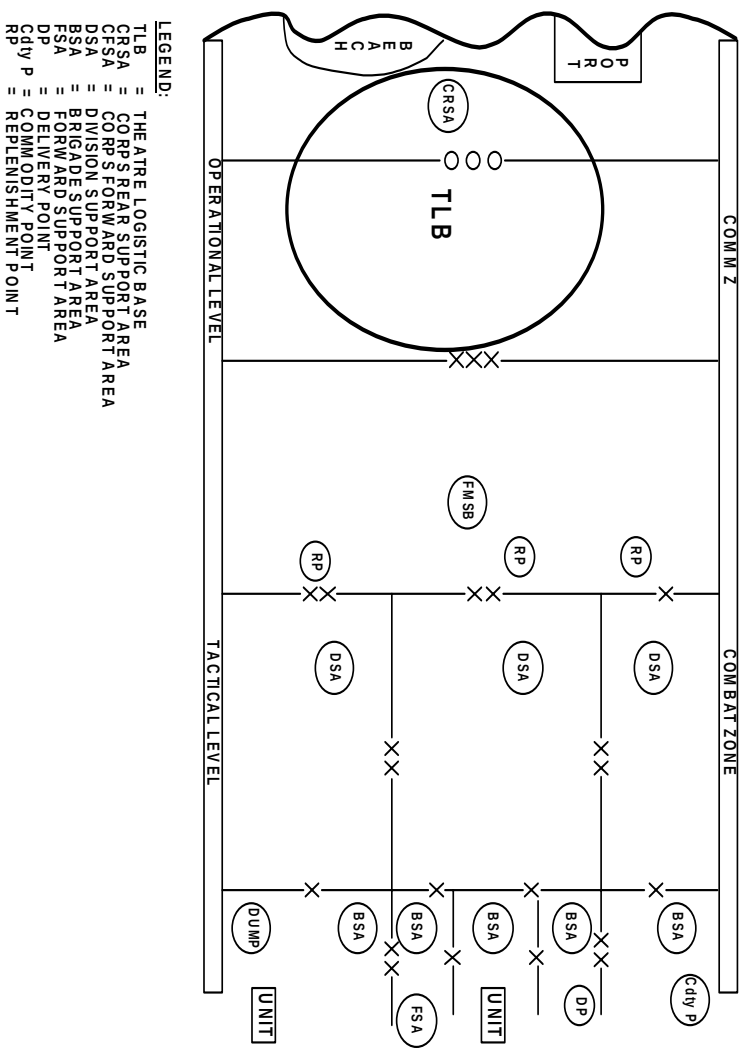


Figure 1-1: Support Areas and Sustainment Points

22. **Support Areas.** Support areas are areas where supply and transportation resources are deployed and worked from.

a. **Forward Support Area**. The Forward Support Area (FSA) is an area forward of the Brigade Support Area (BSA), close to A echelons, used to shorten

replenishment times. It includes supply and transport elements (amongst other elements not affiliated to replenishment), and carries primarily combat supplies, part of the formation maintenance load, for immediate replenishment.

b. **Brigade Support Area**. The BSA is usually located in the rear of the brigade area and includes CSS resources not required further forward and often the units' B echelons. Supply and transportation company elements of a CS Svc Bn not deployed in the FSA are usually found in the BSA. These elements carry the remainder of the formation maintenance load for routine replenishment.

c. **Division Support Area**. This is an area located directly within the Division area that includes a myriad of elements. For the replenishment system, supply and transportation battalions and company elements of a DISGP CS Svc Bn not deployed forward are located in the Division Support Area (DSA). The functional battalions carry the division troops' maintenance load and, in the case of the CS Svc Bn, the brigade's maintenance load for routine replenishment.

23. **Sustainment Points**. Sustainment points are the bridges between the players in the replenishment system. With the use of new information systems and digital technology, these points have evolved from being mere geographical stockpiles to being replenishment activities in their own right. They include such entities as operational level ammo points, ration depots, Petroleum, Oils and Lubricants (POL) depots, composite replenishment points (RP), and Forward Support Group and such techniques as forward delivery (delivery direct to echelon by operational resources).

24. Sustainment points provide immediate replenishment of combat supplies and a limited range of critical, fast-moving items to the deployed Canadian formation. They are also the points from which CS replenishment elements draw non-combat supplies that have been demanded by units. For example, the RP in a X Allied Corps scenario receives its common supplies from the US COSCOM, and it also stocks the requisite Canadian-unique items. A RP can be task-organized to hold multiple days of combat supplies, and it is sufficiently far forward to

allow CS transport assets from the CS Svc Bns and the DISGP transportation battalion (Tn Bn) to conduct daily replenishment.

25. Due to the forward location of all operational sustainment points, the nature of their holdings, and the need for survivability, the sustainment points must be moved periodically. To avoid disruption while providing support, a sustainment point should be permitted to run down while a new one is established elsewhere.

SECTION 4
SUMMARY

26. The replenishment system sustains the commander's ability to execute the mission by augmenting or reinforcing the integral tactical support. The goal of replenishment is to enable the commander to execute his mission by providing the right resources at the right time and place. Resources include ready equipment, supplies, and the services required to get them where they are needed and to sustain them through all stages of the operation. Maximum efficiency can only be achieved through extensive coordination and control.

CHAPTER 2
MATERIEL MANAGEMENT

SECTION 1
GENERAL

1. Materiel management is that aspect of replenishment that includes forecasting, procurement, cataloguing, managing in-use materiel, and coordinating the repair, overhaul, and disposal of materiel. The materiel management system in an operational theatre consists of the materiel management staff at formation headquarters, inventory elements at mobile and static supply storage units, and facilities, materiel management, and distribution centres at all levels of the replenishment system and the Canadian Forces Supply System (CFSS).

2. The management system must function as a seamless web to provide effective support to deployed units on the battlefield on a real-time basis. Information technology (IT) is essential for this support; it provides the necessary total asset visibility (TAV) and in-transit visibility (ITV) of materiel.

3. For ease of handling and rapid replenishment, stocks are normally warehoused with maximum emphasis on containerization and palletization utilizing bar coding and radio frequency tracking technology to achieve TAV and ITV.

SECTION 2
MATERIEL MANAGEMENT SYSTEM

4. The materiel management system in the combat zone (CZ) consists of four components:

a. materiel management staff at formation headquarters;

b. inventory elements within support areas;

c. Materiel Management and Distribution Centre (MMDC); and

d. Canadian Forces Supply System (CFSS).

5. The materiel management system is based on dispersed stockholdings at the various levels and within support areas, with the maximum use of IT to provide automated materiel management.

SECTION 3
FORMATION HEADQUARTERS STAFF

6. The formation headquarters staff at the various formation levels establish the applicable materiel management policies for their formation. This includes stockholding policies, controlled and rationed stores policies, and forecasting requirements.

INVENTORY ELEMENTS

7. Inventory elements include both mobile and static units that hold materiel throughout the theatre. They include the Supply and Transport Company of the close support (CS) service battalion (Svc Bn), the Division Service Group (DISGP) Supply Battalion, the Canadian Support Group (CSG) Supply Battalion, Forward Mobile Support Battalions (FMSB) or replenishment points (RPs).

MATERIEL MANAGEMENT AND DISTRIBUTION CENTRE

8. The materiel management and distribution centre (MMDC) is the focal point of the materiel management system. There is a MMDC located at each level of command. The MMDC coordinates the management of commodities under the control of the applicable level of headquarters. It satisfies demands from supported units by reallocating the resources within its jurisdiction. The MMDC also makes recommendations to the formation headquarters staff concerning stockholdings. The MMDC coordinates its activities very closely with the Movement Control Centre (MCC) to effect the distribution of materiel and with the Land Equipment Management System (LEMS) for equipment management and repair parts. The MMDC also performs a planning function by determining materiel requirements on behalf of the formation headquarters, based on the operational plan.

9. Within the materiel management system, the MMDC performs the essential function of maintaining the required management and visibility of stocks by employing IT, emphasizing automated transactions

and asset visibility. This provides historical records for both statistical and audit purposes and the required visibility for use as a planning tool.

10. The MMDC coordinates with the MCC for the effective distribution of materiel. In this capacity, the MMDC exercises direct control for materiel held at the sustainment points and indirect control for materiel held by units. Materiel entering the materiel management system at the tactical level is normally distributed to general support (GS) supply units or sustainment points. As stocks at the CS level are consumed, the GS units replenish them. Replenishment is coordinated by the MMDC.

11. The MMDC coordinates the provision of the following supplies and services as required:

a. the ten classes of supply (see Annex A);

b. in-theatre procurement;

c. inspection, repair, and disposal of ammunition;

d. repair of clothing, tentage, and general stores;

e. laundry, bath, and decontamination;

f. collection and processing of salvage; and

g. in-theatre disposal.

CANADIAN FORCES SUPPLY SYSTEM

12. Elements of the CFSS will operate as an integral part of the Materiel Management System. These CFSS elements provide the necessary automation for the replenishment system along with the policies and processes needed to support the materiel management system.

13. The CFSS requires the capability to deal with other materiel management related software systems such as AVIMS (Automated Vehicle Information Management System) and AIMS (Ammunition Information Management System).

REPLENISHMENT

14. The object of the replenishment system is to enable materiel such as combat supplies, defence stores, vehicles, and controlled stores to move forward quickly in accordance with staff priorities. It also includes the movement of other materiel such as general and technical stores (See figure 2-1 for an outline of the system).

15. The materiel management system achieves the objective of the replenishment system by providing the necessary policies and processes to ensure that the right materiel is available at the right time. The distribution system ensures its delivery to the right place.

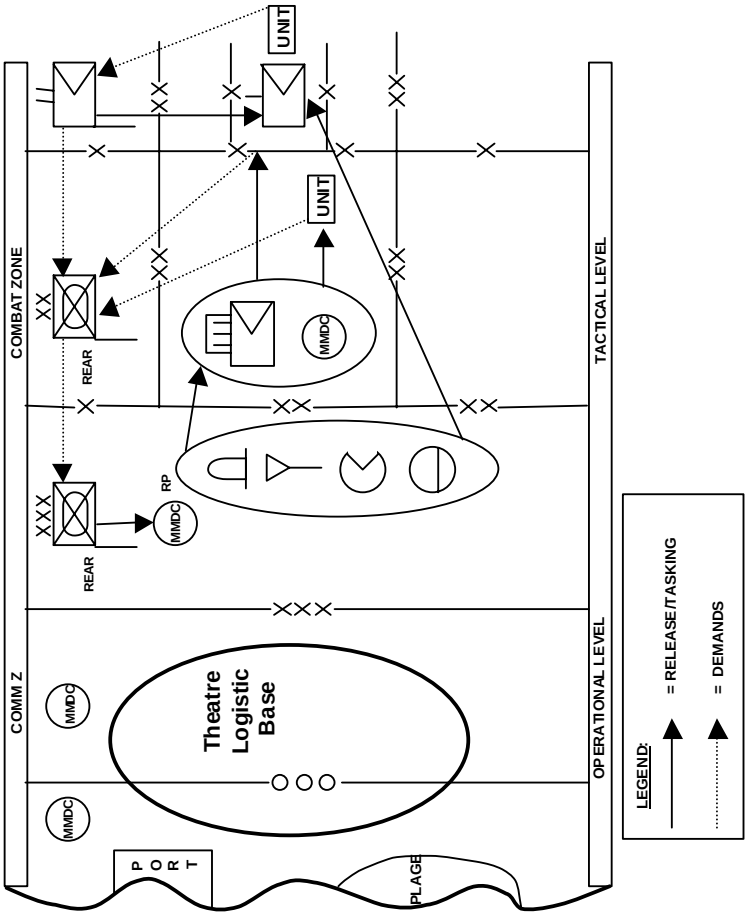


Figure 2-1: Materiel Management System

STOCKHOLDING

16. The in-theatre stockholding policy is established by National Defence Headquarters (NDHQ). The dispersion of these stocks within the theatre is dependent on tactical and geographical factors and is determined by the commander.

17. Stockholding within a formation is normally divided as follows:

a. **Basic Load**. This is the amount of supplies normally held by a unit (IS Level) and calculated as the requirement to sustain that unit in operations for a specific period of time without replenishment. The normal holdings are a three-day basic load of combat supplies and 15 Days of Supply (DOS) of repair parts, general and technical stores.

b. **Maintenance Load**. This is the amount held on wheels at GS/CS Level in either the Independent Brigade Group CS Svc Bn or the division's DISGP Transportation Battalion to replenish the units' basic load. It is normally one DOS of combat supplies.

18. Unit Quartermaster or Logistics staff provides supply support to each unit. The CS Svc Bn provides formation level tactical support. In exceptional circumstances, the CS Svc Bn may be backed up by the DISGP Supply Battalion at the GS level and the CSG at the operational level.

SECTION 4
STOCKHOLDING—CLASSES OF SUPPLY

19. **Class I—Subsistence**.

a. **Fresh Rations**. The CF policy is to provide fresh rations whenever possible, with the aim to provide at least one hot meal every 24 hours. Rations are normally "pushed" forward on the basis of personnel returns submitted by the units.

b. **Combat Rations**. Formations deploy with four DOS of combat rations—three DOS at the unit level and one DOS at the CS Svc Bn level.

c. **Water**. Responsibilities for water are as follow:

(1) **Engineer**. Water production and operating water points.

(2) **Logistics**. Distribution of water through the distribution system. Water may be distributed by jerrican or tanker vehicle or trailer.

(3) **Medical**. Testing of water.

20. **Class II—General and Technical Stores**. Stockholding policy for General and Technical Stores is based on the following factors:

a. due to weight, bulk, and consumption patterns, demands for items such as clothing, stationery, and cleaning materiel are normally processed as bulk demands; and

b. demands are submitted on a "pull" basis.

21. Units normally hold 15 DOS of consumables. Holdings depend on anticipated usage and other operational considerations. The FMSB may hold consumables and a quantity of general and technical stores to meet emergency requirements.

22. **Class III—Petroleum, Oils, and Lubricants.**

a. Bulk fuel requirements are delivered forward at the tactical level by specialized petroleum, oils, and lubricants (POL) vehicles. Packaged POL products and industrial gases are based on forecasted requirements and delivered through normal replenishment methods. Where possible, maximum use is made of Host Nation Support (HNS), Lead Nation (LN) or civilian contracts for Class III products.

b. Units hold three DOS of bulk and packaged POL products and industrial gases. The CS Svc Bn holds one DOS as the formation maintenance load. The RP (or the FMSB, if deployed) holds a minimum of three DOS to a maximum of seven DOS, depending on the tactical situation.

23. **Class IV—Construction and Field Defence Stores**.

a. Engineer stores are consumed in engineer tasks. They may be recovered but are usually left in place. Engineer

stores tend to be bulky, making heavy demands on transport resources. Therefore, maximum use is made of HNS, LN, or in-theatre civilian contracts.

b. Defence stores are a controlled store with the release authority vested in the appropriate formation headquarters (HQ) operations staff. Whenever possible, these stores are obtained from HNS, allied sources, or in-theatre civilian contracts.

c. Units hold only a limited quantity of field defence stores such as overhead protection kits and concertina wire to meet immediate needs. Field defence stores are usually delivered through dumping programs.

24. **Class V—Ammunition**. Stockholding policy for ammunition is determined when a unit or formation is initially deployed to the theatre of operations. The operations staff determines the required stock levels to meet the operational plan. Units hold a basic load of three DOS, with one DOS held at either the Brigade Group CS Svc Bn or the DISGP Transportation Battalion. Some types of ammunition may be designated controlled stores. Dumping programs, particularly for artillery ammunition, are used to deliver large quantities of ammunition. The RP normally holds a minimum of three DOS.

25. **Class VI—Amenities**. Units deploy with a basic load of personal demand items. The provision of personnel support program stores depends on the tactical situation. The bulk of Class VI items are locally procured in-theatre. Replenishment is conducted in a similar manner to Class II items. Reading materials are sent forward on a space available basis during replenishment operations.

26. **Class VII—Major End Items**. Most Class VII items are controlled stores that require release authority by the formation HQ. These items are not held in the CZ, but in the communications zone.

27. **Class VIII—Medical Materiel**. Medical and dental stores are the responsibility of the Health Services Support System. Some items (e.g., bandages) may be shipped through the normal replenishment system as directed by the Health Services authority. However, upon arrival in theatre, they are passed to units through the medical chain.

28. **Class IX—Repair Parts and Components**. Units hold 15 DOS of repair parts for Integral Level repairs. The CS Svc Bn Maintenance Company holds 15 DOS for CS Level repairs. Replenishment of Class IX for units is provided by the FMSB or DISGP Supply Battalion.

29. **Class X—Materiel to Support Non-military Programs**. These items are intended for use on humanitarian operations. The majority of these items are obtained in theatre. Categories of activities could include emergency assistance to refugees, economic and agricultural development, and so on.

FORECASTING

30. Accurate forecasting of requirements is key to successful materiel management. Accurate forecasting is instrumental in achieving the aim of having the right numbers of items in the right place at the right time. Much of the forecasting function can be automated. Stockholding policy and forecasting requirements work in tandem. Once stockholding policy has been established, the principal requirement is to ensure that the stock levels are amended to reflect changes in the operational situation.

PROCUREMENT

31. Items in the CFSS are categorized as either centrally or locally managed items. Centrally managed items are controlled by NDHQ equipment staff and are usually included as part of weapon, vehicle, or soldier systems. Locally managed items usually include consumables such as rations and cleaning and stationery supplies. The NDHQ Transfer of Stocking Screening Board, on a periodic basis, controls identification of items as either centrally or locally managed items. The in-theatre procurement policy is established by NDHQ in accordance with the applicable Canadian laws and governmental policies.

32. Depending on the nature of the theatre, policies may have to be modified to meet procurement requirements. Some local procurement authority may be devolved to the lower levels of the chain of command, depending on the tactical and local economic situation. Local procurement will be directed to those items where bulk and volume would make the transport costs to import these items from Canada prohibitively

expensive. Local procurement is normally conducted in the rear area, with only limited local procurement being conducted in the tactical area.

CATALOGUING

33. The cataloguing of items depends on the item being either centrally or locally managed. Centrally managed items are catalogued when they first enter the CFSS. The Director Cataloguing and Initial Provisioning at NDHQ conducts this function using the NATO Codification System. This system is a uniform and common system designed to identify and classify materiel held in supply stocks by means of NATO stock numbers. Some centrally managed items (e.g., repair parts) may be assigned a manufacturer's part number (Local Catalogue, LOCAT "M" type numbers). LOCAT "L" type numbers (locally assigned) are assigned by the theatre MMDC. These numbers are used for locally manufactured or locally procured equipment. The theatre only has a limited cataloguing function.

MANAGING IN-USE MATERIEL

34. This function encompasses the full range of materiel management including stock taking, the operation of a materiel location system, writing off materiel, and the special requirements needed to handle hazardous materiel, controlled, and shelf life items.

WAREHOUSING—CONTAINERIZATION/PALLETIZATION

35. Materiel is held on vehicles, trailers, or on the ground. Materiel held on vehicles and trailers is stored in accordance with the automated location system. For integral support, a basic load of combat supplies and 15 DOS of G&T stores and repair parts are held in unit vehicles and trailers. At the CS level, the carriage of materiel is normally limited to a maintenance load of combat supplies. At the GS level, most materiel is held on the ground in standard pallet loads or in containers. The key to effective warehousing of the ground mounted materiel is the use of tracking technology such as bar coding and radio frequency devices that not only identify the location of pallets and containers, but identify the load lists by type and quantity.

TOTAL ASSET VISIBILITY AND ASSET TRACKING

36. The effective operation of the materiel management system is based on TAV and ITV. These are achieved by maximum exploitation of IT and containerization / palletization.

37. **Total Asset Visibility**. TAV is achieved through the use of assured and reliable communications, automation, and identification technology. TAV enables the materiel management system to accurately establish priorities for replenishment and cross service materiel between units and formations.

38. **In-transit Visibility**. ITV is the ability to track materiel on a real time basis from the time that it leaves an inventory element and moves forward to another inventory element or customer. ITV is achieved through the use of identification technology such as bar coding and radio frequency tagging of materiel, pallets, and containers.

REPAIR AND OVERHAUL

39. Materiel that becomes unserviceable in a unit shall be forwarded to the appropriate supporting unit for repair. Unit items requiring repair shall be repaired using the unit's integral resources. If a replacement item must be provided immediately, the non-serviceable item shall be returned to the CS unit and a replacement demanded. In such instances repair becomes the responsibility of the CS unit. Materiel submitted for repair shall remain on charge to the unit while in the physical custody of the repair facility. Repaired materiel shall be returned direct to the unit when repairs are completed. Materiel condemned or found to be beyond local repair or provisionally condemned is not returned to the unit, but is back loaded beyond the tactical GS level to a higher repair facility. The unit concerned is credited and may demand a replacement. Unit holdings of materiel requiring repair, overhaul, and modification are physically identified and converted to a stockholding code using one of the three following terms: repair, overhaul, or modification.

DISPOSAL

40. An item becomes surplus because it is obsolete, uneconomical to repair, or in excess of forecasted requirements. Items that are condemned

or scrapped and weapons system are controlled by NDHQ/Equipment Program Management staff. NDHQ/Director Disposal, Sales, Artifacts, and Loans disposes of other surplus materiel. However, in a theatre of operations, these disposal responsibilities are devolved to the national command element with the appropriate guidance from NDHQ.

41. An additional concern within the theatre of operations is the requirement for the control of the disposal of warlike materiel—both our own and captured enemy materiel. Canadian small arms are not disposed of in-theatre but are returned to Canada for disposal. Surplus materiel designated for disposal is back loaded through the replenishment system to the CSG. At this level, disposal action is undertaken. Depending on the type of item, disposal could occur in theatre (for bulky, low value, non-warlike items) or the item could be back loaded to Canada if of a high value or warlike nature.

42. An additional requirement pertains to the disposal of hazardous materiel. Canadian policy states that the applicable national environmental laws or Canadian standard, whichever is the highest standard, be applied in an overseas theatre. Therefore, the indiscriminate disposal of hazardous products and materiel is prohibited. In particular, additional emphasis is applied to radioactive items. In some instances, it is possible to establish arrangements with the host nation or allied nation to handle materiel disposal.

SUMMARY

43. The materiel management system consists of four components: formation HQ staff, inventory elements within support areas, MMDCs, and the CFSS. This system must function as a seamless web in order to provide an optimal level of support.

44. The exploitation of IT at all levels, including tracking technology, is paramount.

45. Special handling and storage characteristics and stockholding levels for the various classes of supply must be considered when planning materiel management to meet battlefield requirements.

46. Consideration must also be given to materiel management from the initial introduction of materiel to the battlefield to its final disposal.

ANNEX A
CLASSES OF SUPPLY

Class No.	Canada Grouping	Description	USA Class	NATO Class	Remarks
I	Subsistence.	Food and water.	I	I	
II	General and Technical Stores.	Clothing, individual equipment, tentage, tent sets and tool kits, hand tools, admin and housekeeping supplies, etc.	II	II	
III	Petroleum, oils, and lubricants.	Petroleum fuels, lubricants, hydraulic and insulating oils, preservatives, liquid and compressed gases, chemical products, coolants, de-icing and anti-freeze compounds, etc.	III	III	
IV	Construction and Field Defence	Construction materials to include	IV	IV	

Class No.	Canada Grouping	Description	USA Class	NATO Class	Remarks
	Stores.	installed equipment and all fortification/ barrier materials.			
V	Ammunition.	Ammunition of all types: bombs, explosives, mines, fuses, detonators, pyrotechnics, rockets, propellants, including chemical, radiological, and special weapons, etc.	V	V	
VI	Amenities.	Personal demand items; non-military sales items.	VI	II	
VII	Major End Items (Vehicles and major equipment).	A final combination of end products that is ready for its intended use; principal items, e.g. launchers, tanks, mobile machine shops,	VII	II and IV	

Class No.	Canada Grouping	Description	USA Class	NATO Class	Remarks
		vehicles, etc.			
VIII	Medical Material.	Including medical-specific repair parts.	VIII	II	Procured and held by medical services.
IX	Repair Parts and Components.	Includes kits, assemblies and sub-assemblies, repairable and non-repairable, required for maintenance of all equipment.	IX	II	
X	Material to Support Non-Military Programs.	Agriculture and economic development, if not included in V and IX.	X	II	
	Miscella-neous.	Maps, salvage and captured material, etc.	M		

CHAPTER 3
DISTRIBUTION

SECTION 1
GENERAL

1. The Replenishment System is based on the activities of distribution and materiel management. These complimentary activities exist at all levels to effect replenishment.

2. The distribution system deals with all assets entering, leaving, and moving within the theatre. The goal of distribution is the ultimate provision of materiel, personnel, and services to units at the required time and place. The distribution system includes the personnel, techniques and procedures, infrastructure, and equipment designed to receive, store, maintain, move, and control the flow of materiel, personnel, and services between the point of receipt into the military system and the point of provision to units.

3. Automation and communication are essential to effective distribution. Composed of supply and transportation sub-systems, distribution is a cogwheel interacting with all other components in the complex Combat Service Support (CSS) system.

4. The efficiency of a distribution system depends on the synchronization of the various components. One of the critical elements in effecting this synchronization is the coordination of materiel management and movement control through all levels to create a seamless system and provide Total Asset Visibility (TAV). TAV is the ability to provide timely and accurate information on the identity, status, and location of materiel and equipment from the source of production to delivery to the user and ultimately disposal.

SECTION 2
STRATEGIC AND OPERATIONAL LEVEL DISTRIBUTION

5. At the strategic level, TAV allows the Land Force to acquire, position, and move materiel to the theatre when required to meet the needs of the force according to the theatre commander's strategic priorities.

6. The national command element staff coordinates with National Defence Headquarters authorities to prioritize strategic movement of assets to the theatre. The link with the theatre distribution system allows operational level support forces to receive, prepare, and move materiel forward.

7. A principal goal of the distribution system is to move critical supplies and other resources such as personnel, equipment, material, and mail as rapidly as possible under positive control, with minimum handling, from the port of disembarkation (POD) to the unit (see Figure 3-1). Supplies may bypass routine warehousing and supply activities as appropriate.

8. The system depends on centralized distribution management. Distribution management coordinates the materiel management and movement control functions of the Land Force from the operational through tactical level. Furthermore, distribution management also integrates the activities of other theatre CSS managers including personnel management elements.

9. Finally, effective distribution requires close coordination between the operations staff and administration staff at any level of headquarters with the distribution managers who execute the support activities to effect the distribution.

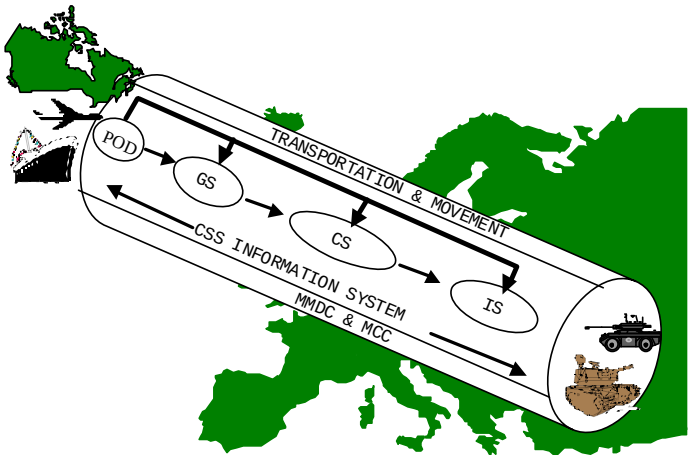


Figure 3-1: Distribution Pipeline

10. Distribution managers have visibility of all resources in the replenishment system and the Land Equipment Management System because of their integration with the movement control system.

11. In-transit visibility (ITV) is the ability to identify the location of resources at any moment in the distribution system. It allows distribution managers to re-route supplies in the system, including just-in-time delivery to different units or locations, enhancing the ability to support shifts in operations. Visibility allows cross levelling of assets throughout the theatre and provides status of supplies in transit to reduce the need to requisition supplies through the system. Furthermore, it reduces the need to build up large stockpiles of supplies in the theatre. This ability depends on synchronized CSS information management systems, communications, and automated identification technologies.

12. The distribution elements deploy early to manage reception of personnel, supplies, and equipment and to assess available distribution assets such as container-handling equipment. The distribution system uses a container-based system, as much as possible, for all classes of supply. Distribution managers must also consider resources from host

nation support (HNS), contracted equipment, and multinational capabilities.

13. The preferred distribution method is direct throughput from the POD to the supply organization or even directly to the unit if possible. Distribution managers at all levels manage the assets required to accomplish this throughput. Distribution managers are responsible for the tasking of all theatre level transportation assets available to the Land Force. These include common user land transportation, HNS and contracted vehicles, watercraft, aircraft, and rail resources. If cargo requires sorting before shipment to the sustainment point, managers direct it to a supply facility to perform that function and prepare it for forward movement.

14. Distribution management elements coordinate personnel and postal activities to support the Personnel Support Services System and, more particularly, the receipt and movement of personnel replacements and mail to formations and/or units.

SECTION 3
TACTICAL LEVEL DISTRIBUTION

15. CSS staffs at the tactical level must be linked to the CSS management systems at the operational level to make the system work. They must be prepared to receive support from higher levels. In addition, managers and leaders of the distribution components at the tactical level must coordinate, manage, and execute the activities required to provide supplies, personnel, and services to the supported force.

16. **Distribution Policy**. The general policy is that materiel moves from operational to tactical level by the most direct route. The distribution system's goals are:

a. responsiveness to the user;

b. flexibility to cater to changing conditions; and

c. economical use of facilities, transport, manpower, and other resources.

DISTRIBUTION SYSTEM

17. The distribution requirements are coordinated with the materiel management system to monitor shipping activities and to provide timely information to control, plan, and take corrective action in the movement of materiel.

18. The unit determines the urgency (PULL only items) by means of a required delivery date (RDD). In turn, the Supply Staff translates the RDDs into appropriate priority codes. These codes are used by supply and transportation staff to select the most economical means of issuing and transporting supplies, using the resources of military and civilian transportation systems, as appropriate.

19. The distribution system provides the link between dispersed general support (GS) storage sites and supporting close support (CS) level sustainment points. The close relationship between supply and transport ensures more responsive daily support operations.

20. The distribution system has been developed to meet the volume of shipments and the special requirements associated with certain classes of supply.

a. **Class III**. For bulk fuel, the distribution system may consist of pipelines, tankers, petroleum, oils, and lubricants (POL) containers and bladders, and POL pod trucks. They provide the link between the POL points and the units. Due to the nature of bulk fuel and the requirements to continuously push fuel forward, transportation assets are dedicated to the fuel distribution system. Medium and heavy pod trucks are co-located with POL points to support bulk fuel distribution.

b. **Class V**. To support ammunition requirements, the distribution system provides for continuous refill. It relies on containers and Pallet Loading System (PLS) trucks to move ammunition from operational level areas forward. To support daily high tonnage shipments, heavy and medium truck units co-locate with GS/CS ammunition points.

c. **Class VII**. Though the volume of movement is small, the unique weight of Class VII weapon systems requires a low bed type of distribution system when these weapon systems cannot be moved by other means of transport. GS organizations are equipped to move this equipment.

d. **Class IX**. The shipment volume of repair parts warrants establishing standing movement requests for the routes between the repair parts of the GS supply unit and CS maintenance companies. The majority of repair parts shipments are configured as throughput pallets, and pallets are broken down for transhipment to units.

DISTRIBUTION SUB-SYSTEMS

21. The distribution sub-systems, described as the means to move supplies and military forces forward and to evacuate them to the rear are critical components of tactical support. All functional areas of sustainment and all combat functions rely on the transportation and supply sub-systems.

22. The key elements of a distribution sub-system are:

a. **Lines of Communication**. The lines of communication (L of C) consists of all methods of transport—either land, air, sea, or rail—that connect an operating military force with bases of operations and along which supplies and military forces move.

b. **Facilities**. Facilities serve as the shipment, reception, transhipment, maintenance, and holding points for supplies and military forces moving into and out of an area of operations along the L of C.

c. **Units**. Specified units are responsible for operating the facilities.

d. **Lead Nation, Host Nation Support, Regional Access, and Mutual Support**. Civil and military assistance provided by host and allied or friendly nations for

reception, onward movement, and sustainment of forces.

23. A number of considerations must be taken into account when developing a sub-system for distribution. Among the more significant considerations are the following:

a. **Effectiveness of Transportation**. Tactical airlift is often the most efficient means of moving personnel or equipment and supplies when time is a critical factor. On land, high capacity, wheeled vehicles are more efficient. These factors, depending on the tactical situation, should influence the selection of transportation modes to best meet tactical requirements.

b. **Sustainment Capability**. The ability of the basic infrastructure to receive, warehouse, and forward replenishment resources influences the efficiency of the entire replenishment system.

c. **Echelon of Support**. The replenishment system must be designed to respond to the needs of the most forward combat forces, providing supplies and services when and where they are needed. Proper echeloning pushes sustainment forward.

d. **Geography and Climate**. Geography and climate must be considered when establishing L of C.

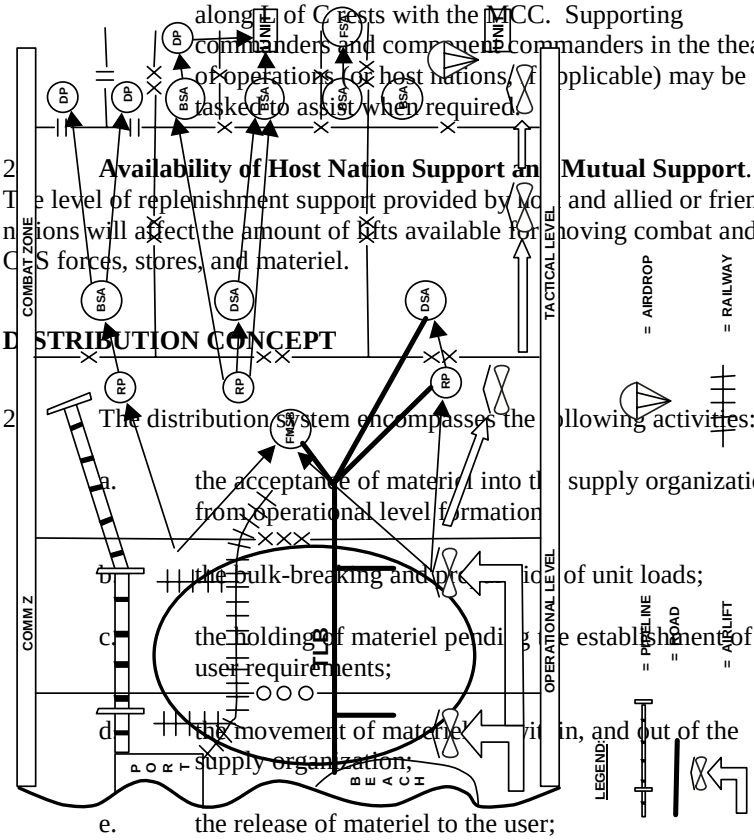
e. **Sustainment Enhancements**. Any asset that reduces transportation bottlenecks should be considered and planned for in advance (e.g., high capacity sustainment points or materiel handling equipment).

f. **Sustainment Engineering**. The capability of the engineer to improve the existing infrastructure, if required, impacts on the efficiency of the replenishment system.

g. **Protection**. Sustainment is a key element of combat power. Therefore, specific provisions to provide protection must be made for its components.

h. **Responsibility**. Responsibility for controlling the deployment or redeployment of forces and materiel travelling through facilities or sustainment points and along LOC rests with the MCC. Supporting commanders and component commanders in the theatre of operations (or host nations, if applicable) may be tasked to assist when required.

2. **Availability of Host Nation Support and Mutual Support**. The level of replenishment support provided by host and allied or friendly nations will affect the amount of lifts available for moving combat and CSS forces, stores, and materiel.



DISTRIBUTION CONCEPT

25. The distribution system encompasses the following activities:

a. the acceptance of materiel into the supply organization from operational level formations;

b. the bulk-breaking and preparation of unit loads;

c. the holding of materiel pending the establishment of user requirements;

d. the movement of materiel within, and out of the supply organization;

e. the release of materiel to the user;

f. in-transit visibility, and

g. accounting.

26. Materiel remains at the sustainment points until a need is determined, and then with the unit until consumed or until it reaches an unrepairable or obsolete state. In the latter case, the materiel re-enters the distribution system, and the cycle for the materiel begins again. (See figure 3-2.)

Figure 3-2: Tactical Distribution

27. Requirements for materiel are often unpredictable. The non-availability of materiel can have serious consequences on an operation. Stock levels must be monitored continuously and materiel moved in a manner that meets the units' requirements in any situation.

SECTION 4
METHODS OF DISTRIBUTION

28. The key to providing effective sustainment or replenishment is getting the goods delivered. Below is a list of distribution methods that have been used in the past: (this list is not exhaustive, nor is it exclusive)

a. delivery points (DPs);

b. commodity points;

c. dumps;

d. replenishment points (RPs);

e. pick up by units directly;

f. direct delivery to units;

g. ammunition or engineer dumping program; and

h. Forward Support Group (FSG).

DELIVERY POINTS

29. DPs offer certain advantages and disadvantages.

a. Advantages:

(1) DPs require the occupation of an area for only a minimum period of time and are difficult for the enemy to locate and attack;

(2) daily DPs minimize the movement of CS traffic in forward areas and regulate the workday for CS units;

(3) when units cannot accurately forecast their needs, provisions can be made for supplementary and emergency demands;

(4) DPs will not always be on a 24-hour cycle; they may be established when required every 12 hours, 18 hours, or 24 hours as dictated by the operational tempo and the commander's direction;

(5) daily DPs may operate during periods of radio or electronic silence; however, their flexibility is reduced;

(6) DPs can be done in different ways, either by cross loading of commodities if the tactical situation permits or by an exchange of trucks if time and tactical situation is a limiting factor; and

(7) DPs can take place in almost any area, from a town square, a wooded area, a wide road, an open field, or, if necessary, right in the A echelon location of a unit.

b. Disadvantages:

(1) daily DPs result in considerable vehicle concentrations forward, and this provides a degree of safety in numbers from small enemy parties but offers an attractive target for larger enemy forces; and

(2) DPs normally generate a large amount of daily radio traffic, making it easier for enemy direction finding of combat service support unit headquarters.

COMMODITY POINTS

30. These points usually serve a number of units and may hold a single type of commodity, e.g. an ammunition point, or a mixed of combat supplies. In many cases, a commodity point carrying a forward reserve of fast moving ammunition and POL is established as part of a FSG. The decision to establish a commodity point is made by the formation commander.

a. Advantages:

(1) They minimize administrative vehicle concentrations in the forward area, reduce radio traffic, and provide a quicker response to unit needs on a 24-hour basis.

(2) Commodities are either grounded or on wheels, depending on the tactical situation, and they are always manned by CSS personnel for distribution and accounting. Furthermore, this method eliminates the requirement for most supplementary and emergency demands.

b. Disadvantage: commodity points limit flexibility and are difficult to defend against even relatively small enemy ground attacks.

DUMPS

31. Dumps are sustainment points that provide large quantities of ammunition, defence and engineer stores for special activities, or other commodities such as fuel. Dumps may be unmanned, and the commodities are expected to be fully utilized. It may be necessary to conduct dumping programs in the forward area.

32. The staff planning for, and the implementation of, a dumping program is normally conducted at division level or higher but may be done at brigade group level during independent operations. Dumps are located sufficiently forward to permit pick up by unit integral support transport resources or to permit delivery by CS transport resources.

33. **Dumping Program**. Dumping is simply the stockpiling of commodities required for an upcoming operation that are greater than can be met by normal methods of replenishment. Dumping applies to any operation in which such stocks are built up either in the rear or forward areas in preparation for any activity. As a general guideline, a dumping program is not deemed completed until the requisite quantities have been placed on the ground and the vehicles have been reloaded and are ready to resume their normal tasks.

34. Dumping is an uneconomical way of accumulating stocks and should only be undertaken when fully justified. Much effort is required to build up the dumps, and it is seldom possible to remove them once they have been formed and the transport vehicles have been reloaded. The headquarters (HQ) staff must closely supervise the siting, stocking, and control of dumps to avoid loss and wastage and to guard against over-insurance. The types and quantities to be held in each dump are decided by the operations staff and the arms concerned and are based on the tactical plan. Some risks are always involved, and it is the commander's responsibility to decide the level of risk that can be accepted. To reduce labour requirements and increase efficiency of a dump, maximum use of containers and PLS should be used. This assists in the rapid build up or draw down of a dump.

35. Dumping is only one way to provide for the sustainment of a force during a particular operation and is generally supplemental to DP operations. Dumping may often be an unacceptable option because of the tactical situation or a shortage of the necessary supplies or of transport or both. However, when dumping is feasible, the usual operations under which it is undertaken are:

a. **In the Defence**. Defended areas, localities, and gun areas are stocked with sufficient essential commodities to enable them to fight for a desired period of time.

b. **In the Withdrawal**. It may be necessary to stock intermediate positions for defence. Sometimes it is necessary to establish small dumps, particularly of POL products and ammunition on the withdrawal routes, at which the withdrawing troops can replenish.

c. **In the Attack**. Sufficient ammunition to meet the fire plan is dumped at guns or with formations. It is

essential that all echelons be full when they move forward after the attack goes in. Additional stocks of POL products and other commodities may also be placed in RPs.

36. Dumping is therefore concerned, for the most part, with gun ammunition, POL products, engineer resources, and defence stores. In the case of gun ammunition, the normal practice is for artillery to retain their basic load on vehicles and to use dumped ammunition whenever possible.

REPLENISHMENT POINTS

37. The RP is an operational level installation which is responsible for composing unit loads and is located behind the formation rear boundary but sufficiently far forward to allow CS transport to effect daily replenishment. Normally, one RP is designated per formation.

FORWARD SUPPORT GROUP

38. If it is necessary to deploy combat service support elements forward, a FSG may be formed to either allow elements to respond to formation's immediate CSS requirements or to provide quick replenishment of combat supplies to units.

SECTION 5
DISTRIBUTION MANAGEMENT—TRANSPORTATION

39. The mission of the transportation staff within the distribution system is to plan, direct, and control all modes of transportation. The aim is getting the right people and equipment moved to the correct place and time in the desired quantities, proper condition, and by the most economical means to the satisfaction of the commander. B-GG-005-004/AF-014 *Movement Support for Canadian Forces Operations* provides the details of movement. The paragraphs that follow highlight the distribution management.

40. The fundamentals of distribution are reflected in the principles of movement at all levels throughout the area of operations. These principles are:

a. **Centralized Control**. Control of movement is centralized at the highest level from which it can adequately be exercised. This ensures that the overall movement resources and road regulation priorities can be satisfactorily assessed and, if necessary, plans adjusted with the least amount of inconvenience to all concerned.

b. **Regulation of Movement**. Movement is regulated so as to flow evenly and to avoid congestion or breakdown along the L of C. A central controlling authority provides a clear system of priorities.

c. **Fluidity and Flexibility**. Materiel is moved in an even and continuous flow to optimize the use of resources. Switching from one mode to another is required to allow for programmed or emergency movements or to react to disruption by enemy action.

d. **Maximum Utilization**. Economy of effort is vital to accomplishing the transportation mission. The effects of overloading and light loading, as well as the quickness of the "turn around," have an impact on carrying capacity. Therefore, logistic staffs must endeavour to optimally load vehicles throughout the transportation system.

41. Some of the military vehicles of the replenishment system are capable of general transport tasks such as troop lift and lift of major components as well as the forward movement of personnel replacements. The primary resources to conduct general transport are found at the GS level within the transportation battalion (Tn Bn) of the Canadian Support Group, the Division Support Group Tn Bn, the Forward Mobile Support Battalion (FMSB), and within the CS Service battalion Supply & Transportation Company. Note that vehicle establishments are usually based on the critical task to be performed, which is usually transport of combat supplies. Other general cargo/transport tasks can only be performed when the primary tasking is not being carried out.

42. Within each headquarters, the transportation staff is responsible for coordinating all transportation activities. With the advancements of information systems and concept like TAV, an efficient and flexible

transport system is mandatory for moving materiel within the distribution system.

43. **Modes of Transport**. In an area of operations, all available transport modes are used to move personnel and materiel. The modes of transport are air, road, rail, sea, inland waterways, and pipeline. Each mode of transport possesses inherent capabilities and limitations, which must be recognized and considered when integrating the various modes into a theatre wide transportation system. The primary means of supporting field formations is by wheeled vehicle; however, air transport resources can be used to great benefit.

44. **Air Transport**. It provides high speed of movement and great flexibility. Factors affecting the use of air transport include weather conditions, range and carrying capacity of the aircraft, availability of landing facilities, and degree of air superiority attained by friendly forces.

45. **Road Transport**. Road transport permits the transportation of cargo and personnel from origin to destination without transfer to another means. It may be used in long distance movement operations, as part of the international operation, or in local movement operations such as intra-depot lifts and sustainment operations. It also serves as a connecting link with other means of transportation.

46. **Rail Transport**. Rail transport permits the movement of large tonnage of cargo and large numbers of personnel over long distances. Of all the transport means, rail is least affected by weather. However, rail transport is less flexible than other means because it depends on a fixed flatcar. The usefulness of rail transport for military operations is dependent on the relationship between the direction of the flatcar and the axis of advance. Virtually any commodity can be moved by rail, subject only to clearance restrictions along the route and the availability of specialized equipment such as refrigerator or tank cars.

47. **Sea and Inland Waterways**. Sea and inland waterway systems can transport great quantities of bulk cargo and can move heavy outsized cargo not easily transported by other means. Disadvantages of sea and inland waterway transportation include slow speed, vulnerability to weather and enemy action, lack of flexibility, confinement to canals, and time required repairing damage to facilities such as wharves and piers.

48. **Pipeline**. Petroleum and/or water pipelines provide the means of moving large volumes of petroleum fuels and/or water rapidly without burdening other means of transport. Military pipelines may be flexible hoselines (assault), low-pressure coupled lines (tactical), or high-pressure welded lines (logistics pipelines). However, the pipeline system is vulnerable to saboteur activities.

49. **Animals**. The use of pack animal transport should never be ruled out, particularly where rugged terrain is encountered. Although limited in capacity, it is a time proven mode to transport relatively small loads over either short or long distances in the roughest conditions. Imagination and adaptability of local resources are the keys to the successful use of animal transport. The limitations imposed are the requirement for forage (both lift and availability) and veterinary resources.

DISTRIBUTION MANAGEMENT—MOVEMENT

50. Movement management is divided into two functions:

a. **Movement Control**. This function includes planning, coordinating, programming, and monitoring the allocation and use of available transportation resources to meet the needs of the commander.

b. **Traffic Control**. This function includes planning, scheduling, and directing the use of the available road network.

51. **Movement Control**. Movement control within formations and units of a functional command, area or task force in the combat zone (CZ) and the communications zone (COMM Z) of the area of operations is the responsibility of the appropriate commander. Movement control organizations speak with the authority of the Commander and in accordance with his assigned priorities.

52. **Movement Organizations**. There are two basic elements in the movement organization: the staff and the line organization that coordinates/controls the execution of the movement plan.

a. **Staff**. The staff at the headquarters, through the administrative plan, establishes general priorities,

policies, and procedures. Assistance is provided by transportation staffs who advise and recommend on transportation related subjects. The staff tasks the executive movement element and exercises centralized control of movement at the highest level of command.

b. **Line**. The day-to-day operational control of the movement of transportation resources is the responsibility of the executive element of the movement organization and is usually referred to as the movement control centre (MCC). The MCC balances and coordinates all the shipping, transporting, and receiving activities to provide a responsive transportation system capable of satisfying the commander's movement requirements.

53. The operational level headquarters MCC manages the movement capability available in the area of operations. A high degree of coordination exists between the MCCs in each headquarters to effectively regulate movement between the operational level and units in the CZ.

54. **Movement Relationships**. Movement involves three main elements and, in addition, a number of specialist services which may be required depending on the circumstances. The three main elements are:

a. the movement organization;

b. military and civilian transport agencies; and

c. users.

55. In addition to the above, there are other organizations that may become involved in providing specialist services such as packaging, escorts, traffic control, accommodation, messing, quarantine, customs, medical, and finance.

56. The relationships between movements and the other elements are:

a. **Movement Organization**:

(1) acts as the medium through which all users of transport obtain space;

(2) acts as the intermediary between the users and the transport agencies;

(3) decides the mode of transport necessary and advises on routing to implement the movement order or instruction;

(4) ensures that there are facilities for loading and unloading the transport mode;

(5) allocates traffic by routes, amounts, and destination; and

(6) plans, coordinates, and controls movement in support of the Operations Staff.

b. **Transportation Agencies**:

(1) decide on the method of operating its mode of transport; and

(2) provide advice to Movement Staff on the operational aspects of their mode.

c. **Users**:

(1) identify the movement requirement;

(2) stipulate any deadlines, restrictions, and/or limitations; and

(3) provide the priority for movement, normally in terms of desired order of arrival and the RDD.

57. Movement Control units or detachments are deployed to implement the movement control plan at main focal and terminal points in a transport system such as:

a. airfields;

b. ports and beaches;

c. depots;

d. railway stations, marshalling yards, and railheads;

e. road regulating points and major exchange points; and

f. inland waterway waterheads.

58. **Movement Planning**. Most movement plans are based on detailed staff work for implementation. This staff work includes the following:

a. **Units Movement Staff Tables**. The Units Movement Staff Tables (UMST) list vehicles, weapons, major equipment items, loose cargo by weight and cube, and personnel down to platoon/troop level.

b. **Unit Staff Table/Task Force Movement Table**. These two documents arrange the data taken from the UMST, in terms of priority for movement by location and by units to platoon/troop level. A Task Force Movement Table (TFMT) can also be developed from a Unit Staff Table (UST) and is essential in the case of a formation, battalion group, or air squadron movement. The UST/TFMT is initially approved at the level of command competent to direct its execution. The responsibility to produce these documents usually lies with the G4; they are approved by the operations staff.

c. **Movements Estimate**. Once planning information is gathered, a movement estimate is completed. It sets out a series of options that could apply to a given situation. After selecting the preferred option, a movement plan is developed. The movement estimate follows the same format as all other estimates and is characterised by brevity, clarity, relevance, and accuracy.

d. **Movement Plan**. The movement plan specifies how all movement resources are to be tasked. This allows all involved, particularly movement staffs and

transport/terminal agencies, to continue more detailed planning. The movement plan maximizes delegation without violating the first fundamental of movement—centralized control. The movement plan is only one part of the Administrative Order and normally appears as an annex.

59. **Traffic Control.** The traffic control headquarters is a control agency which works in conjunction with the MCC. Traffic control includes planning, routing, and scheduling the use of the road network by vehicles and personnel afoot (including troops and refugees) to utilize transportation facilities and equipment most effectively in meeting operational requirements.

60. The commander accomplishes traffic control through the traffic control headquarters and its subordinate detachments in the area of operations. The extent of traffic control exercised by a headquarters depends on the amount of movement expected and the capacity of the road network.

61. The traffic control headquarters operates in close co-operation with the transportation staffs. The commander, as required, attaches military police, engineer, communications, Civilian-Military Co-operation, and other officers to the traffic control headquarters.

62. Functions of traffic control detachments include:

a. Reporting convoys and other vehicles arriving at and clearing the regulating point so that the rate of march can be adjusted if necessary.

b. Receiving and correlating the dissemination of traffic control and operational information.

c. Reporting current road conditions and changes as they occur. These reports are sent to the traffic control headquarters and to other regulation points along the route as appropriate.

d. Communicating changes in movement plans and route priorities to elements as they arrive at regulating points.

63. The role and functions of traffic control at corps, division, brigade, and brigade group levels are similar to that in the COMM Z.

SECTION 6
SUMMARY

64. Distribution is a fundamental part of the replenishment process in CSS activities at all levels of operations. Distribution includes:

a. receipt, storage, and maintenance of equipment in transit; and

b. movement and control of resources between the receipt of materiel into the theatre and final delivery to units.

65. Distribution is a key to CSS operations. The ultimate goal of both requirement determination and acquisition of resources is the provision of materiel and services to the supported units.

ANNEX A
POSTAL

1. The distribution aspects of mail are similar to supply commodities, but its timely delivery has an unquestionable morale factor. Policies concerning mail regulations are covered in the Personnel Support Services (PSS) System manual.

2. In the field, outgoing mail is collected at sub-units and forwarded to the unit postal facility where official and personal mail is gathered and forwarded through the unit DP to the CS postal facility. Incoming mail is collected at the DP and forwarded to the postal orderly for sorting and internal distribution using the unit replenishment system. The unit postal facility can be located at either A or B Echelon.

3. The postal functions include the reception of mail from CS/GS support level postal facility and its distribution within a formation or a unit, collection of mail and its despatch to close support level postal facilities, and the provision of financial postal services (e.g. stamps and money orders).

4. The postal services provide sustainment as follows:

   a. handling all official and personal mail, except that carried by the signal despatch service;

   b. receiving and distributing the incoming mail;

   c. consolidating and despatching the outgoing mail;

   d. implementing the postal procedures and policies issued by higher formation headquarters;

   e. operating postal facilities, which provide limited postal financial services; and

   f. arranging for a postal tracing and redirection of mail service.

OTHER POSTAL ACTIVITIES

5. **Personal and Unclassified Mail**. The formation postal unit assumes responsibility for mail received from the operational level postal organization and arranges for onward movement. The formation postal unit arranges for the movement of mail to the unit level postal organizations, which arrange further distribution.

6. **Classified Mail**. Classified mail is normally received by the formation postal unit and distributed by the postal unit's courier service to the formation level Canadian Forces post offices (CFPOs).

7. **Replenishment of Postage Stamps and Money Orders**. All CFPOs normally deploy with a basic supply of these items. Formation level CFPOs coordinate the replenishment of unit level CFPOs within their formation.

8. **Sorting of Intra-theatre Mail**. Units segregate and consolidate mail destined for other in-theatre units from mail destined for Canada.

OTHER CONSIDERATIONS

9. **Postal Support to Other In-theatre Elements**. The CSG Postal Platoon may offer support to other elements that have limited or no integral postal support capability. A CFPO is established in a central location to support the units.

10. **Access to Personnel Data**. The postal unit requires access to personnel location data to effectively trace and redirect personal mail.

11. **Censorship**. Censorship is not a postal function and mail must be cleared through the unit censorship before being placed in the postal system. The postal orderly does not participate in censorship activities.

CHAPTER 4
TACTICAL REPLENISHMENT

SECTION 1
GENERAL

1. Replenishment at the tactical level comprises the resupply activities required to support the conduct of battles and engagements. It involves the synchronisation of all tactical replenishment support functions required to sustain soldiers and their equipment.

2. Tactical replenishment, like operational replenishment, includes support to the close, deep and rear battle. Just as the tactical commander conducts operations throughout his entire area of responsibility, the Combat Service Support (CSS) commander is responsible for supporting the operations across the battlefield.

3. CSS units integral to or supporting the deployed tactical force provide the bulk of CSS. However, support may also come from the host nation, joint and multinational sources and/or civilian contractors. In any case, flexibility and innovation are crucial. The execution of tactical replenishment should enhance the commander's momentum.

4. The replenishment system must provide support and services at the locations and times required to support operations. Therefore, CSS leaders form and revise task organisations to support the tactical commander's plan.

5. At the tactical level, CSS personnel focus most of their attention forward while maintaining links to the operational level. Being close to the Forward Edge of the Battle Area (FEBA) requires that steps be taken to ensure the survivability of support assets.

SECTION 2
TACTICAL LEVEL REPLENISHMENT

6. The purpose of replenishment is to enable combat power at the tactical level. The focus of the replenishment operations depends on distribution and effective materiel management, which in turn rely on a highly refined command, control and communications system.

7. The replenishment of the two Canadian formations within X Allied Corps is somewhat different. The Canadian Division includes a Divisional Services Group (DISGP) whose replenishment elements provide all Close Support (CS) and General Support (GS) within the Division.

8. The Canadian Mechanised Brigade Group has a CS Service Battalion (Svc Bn), which provides CS level support within the brigade. A forward-deployed operational level unit of the Canadian Support Group (CSG), provides GS level support. B-GL-331-005/FP-001 *Electronic Battle Box* contains the detailed organisations of CSS units.

TACTICAL REPLENISHMENT OF THE CANADIAN DIVISION

9. The complexity of warfare demands a high degree of flexibility on the part of CSS units. The replenishment system provides flexibility through grouping and deployment to ensure it is capable of supporting sustained operations. The replenishment system is based on a series of sustainment points, as described in the first chapter, using materiel management and distribution resources deployed throughout the division area.

10. The DISGP is a tactical formation, integral to the Canadian Division. In providing timely support to the division's needs, some elements of the DISGP must be located as close to the combat elements as the situation permits. The proximity of service support elements to the forward area dictates a high standard of training in warfighting skills. Therefore, a high degree of readiness must be maintained, 24 hours per day, to respond to immediate and routine demands. In addition, the pace of the battle demands long hours with a consequent requirement for dedication, stamina and determination on the part of every service support soldier.

11. Replenishment tasks are likely to be conducted on a 24/7 basis to meet immediate requirements of units engaged in battle. Specific activities, particularly at unit level, may include emergency replenishment.

12. **Command and Control**. In general, the division headquarters issues orders and directives, assigns priorities, allocates resources and tasks, and provides guidance to CSS organisations regarding future

operations. The functional unit commanders, assisted by their staffs, develop detailed plans and orders to control and execute the CSS portion of the Division Commander's plan.

13. DISGP CS Svc Bns will normally be allocated OPCOM, OPCON or TACOM to a brigade; this command relationship must be specified in the division orders. These DISGP CS Svc Bns control elements attached from the functional units of the DISGP when they are augmented.

14. **Affiliation**. The synergies that develop when a CS Svc Bn is assigned to the same brigade time after time achieve startling efficiencies. It permits the development of a close working relationship. The DISGP and the CS Svc Bns coordinate requirements for additional resources to a specific brigade, when required.

15. The DISGP provides CS and GS replenishment to the division as shown in Figure 4-1. In the X Allied Corps model, the DISGP draws its operational level support from the US Corps Support Command (COSCOM) and the Canadian Support Group (CSG) through sustainment point(s) established by the Forward Mobile Support Battalion.

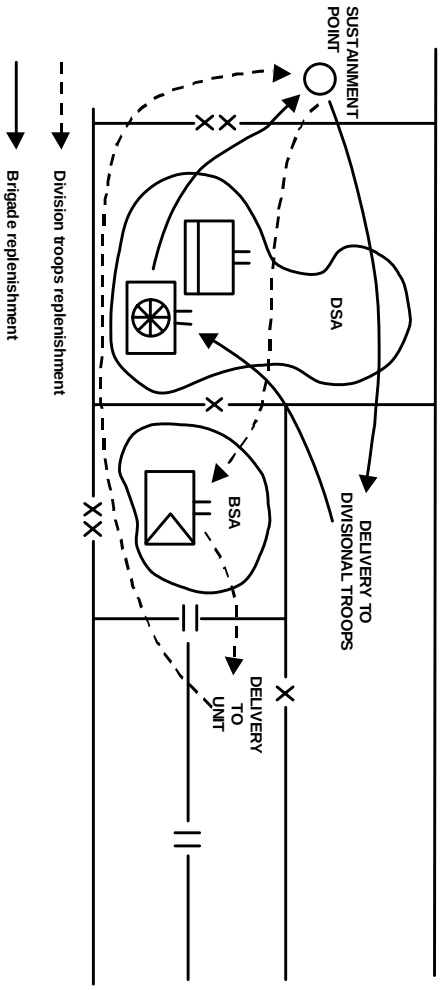


Figure 4-1: Tactical Replenishment of the Canadian Division

TACTICAL REPLENISHMENT OF THE INDEPENDENT BRIGADE GROUP

16. The Independent Brigade Group is a formation, with the normal combat elements of a brigade, which has its own combat support and CSS resources enabling it to conduct independent operations. The only replenishment capability integral to the Independent Brigade Group is the

provision of combat supplies, which are carried on wheels in the CS Svc Bn Supply and Transportation Company (S&T Coy).

17. Since the Independent Brigade Group is not supported by a DISGP it will draw from the forward elements of the CSG. These classes of supply are either brought forward by GS elements of the CSG or the S&T Coy picks them up at the Sustainment Point during the routine replenishment cycle.

18. The main replenishment element of the Independent Brigade Group, the CS Svc Bn S&T Coy is a highly mobile element. It carries the Independent Brigade Group's maintenance load of combat supplies but will deliver other classes of supply when required. The S&T Coy's replenishment cycle transits between the units of the Independent Brigade Group and the Replenishment Point.

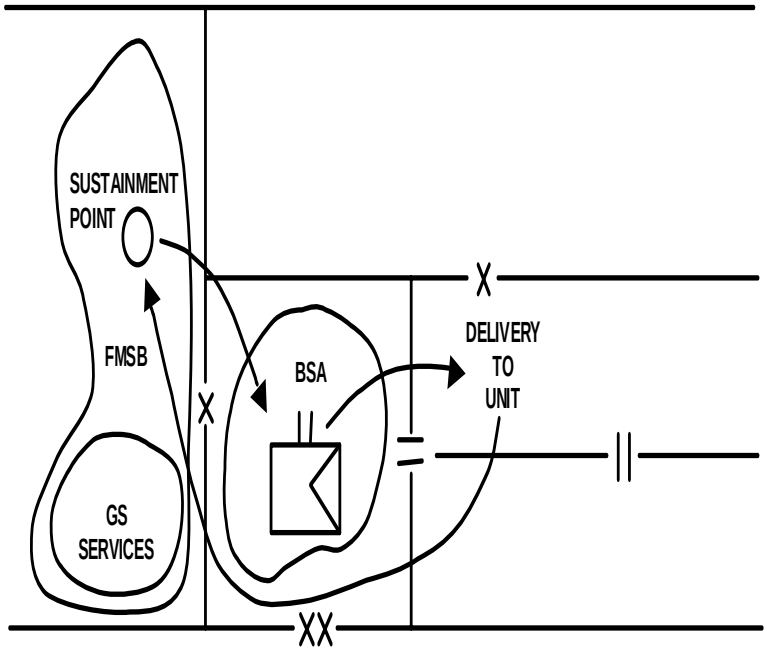


Figure 4-2: Tactical Replenishment of the Independent Brigade Group

19. **Command and Control**. The relationship of the administrative staff of the Independent Brigade Group and the CS Svc Bn is essentially the same as the division level relationships. The CS Svc Bn is integral to the Independent Brigade Group and internal command and control functions are exercised in a manner similar to combat units.

20. The Independent Brigade Group headquarters prepares plans, issues orders and directives, assigns priorities, allocates resources and tasks and provides guidance to CSS organisations. The Independent Brigade Group CS Svc Bn prepares detailed plans and executes them in support of the Independent Brigade Group Commander's plan.

21. In the Independent Brigade Group CS Svc Bn, the Logistics Operation Centre (LOC) is the primary control element. The primary task of the LOC is to control and coordinate brigade group sustainment support.

22. The Independent Brigade Group may be supported by a CSG support element or by allied formations. In the latter case, augmentation of corps resources from an allied corps or the Communications zone is necessary. As at other levels, the CSS organisations within the Independent Brigade Group maintain close liaison, coordination and co-operation.

23. The Independent Brigade Group is a corps asset. It is used where and when the corps commander judges it necessary. The brigade group may receive additional CSS elements depending on the situation. Those elements will come from either the corps or CSG.

24. Whether in a Division or Independent Brigade Group concept, the CS Svc Bn functions within the replenishment system as follows:

a. It receives demands from the supported units.

b. It satisfy demands by delivery to supported units:

(1) for combat supplies—from maintenance load carried by the S&T Coy;

(2) for other supplies—by drawing from GS unit; and

(3) coordinates replenishment (direct delivery or unit pickup).

c. It replenishes its maintenance load and other commodities by drawing from the sustainment points.

SECTION 3
SUPPLY

25. The resupply of stores and equipment is normally commodity oriented, from the operational level supply units in the communications zone to the tactical level supply units. The Materiel Management and Distribution Centre (MMDC) receives demands for resupply. They are delivered either through sustainment points, through delivery to a CS Svc Bn or by direct delivery to units as the tactical situation permits.

26. **Controlled and Rationed Stores**. A limited range of stores and equipment are subject to a special form of control when the item has very high operational significance (controlled stores) or is in short supply (rationed stores) as explained in B-GL-300-004/FP-001 *Sustainment*.

27. The Commander through his G3 staff, with CSS staff or arms advisors recommendations, designates which items are controlled stores and who has releasing authority.

28. CSS staffs in formation headquarters maintain a list of these items and may recommend changes for operations staff concurrence based on the Commander's plan.

29. Unit demands for controlled stores are passed in the normal manner; however, a request for release of such stores must also be passed via the staff chain to the releasing authority. At each headquarters level, requests are consolidated and passed to the next higher formation headquarters, usually on a daily basis.

30. Demands are not satisfied until release authority is received from the formation staff (see Figure 4-3). CS tactical level units hold a limited range of controlled stores when directed. In most cases, issue will be made from COSCOM or CSG. The staff should keep the number of items to be controlled to a minimum.

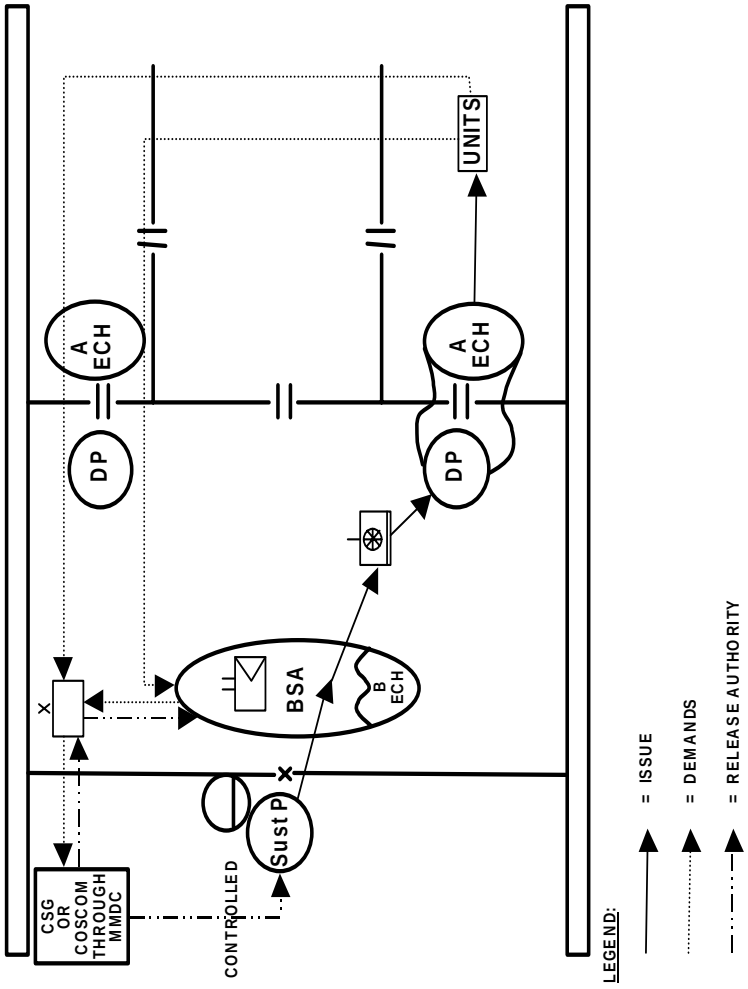


Figure 4-3: Replenishment System for Controlled Stores

COMBAT SUPPLIES

31. Based on staff data, the replenishment of each of these commodities can be predicted. The replenishment of combat supplies must be constant, flexible and based on a continual topping-up to pre-determined stock levels (push system) (see Figure 4-4).

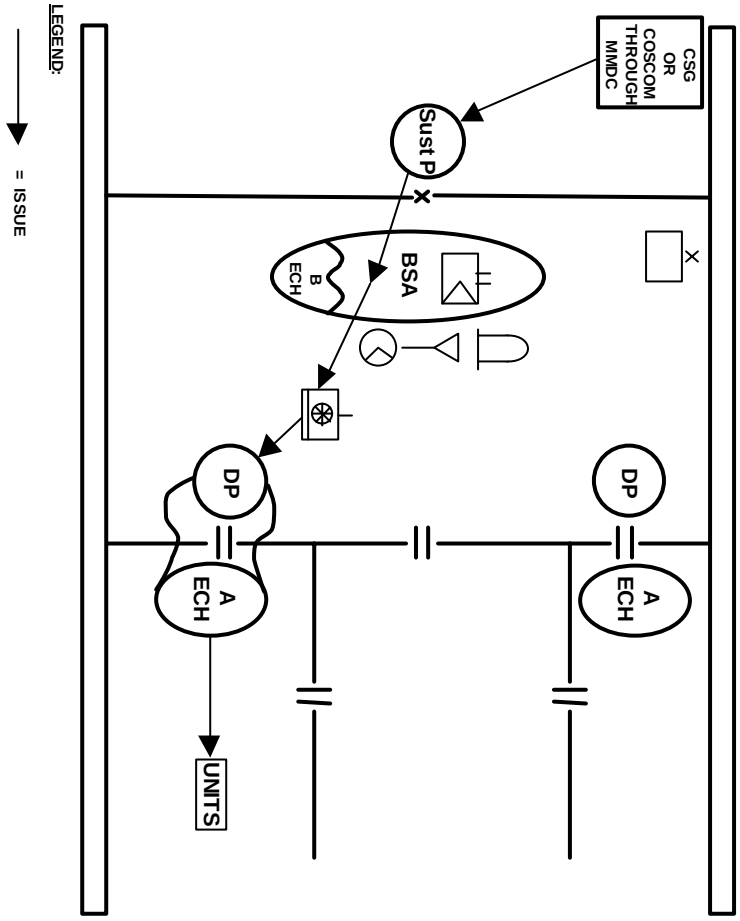


Figure 4-4: Replenishment System for Combat Supplies

32. The replenishment of combat supplies is as follows:

a. **Subsistence (Class I)**. The replenishment of subsistence is divided into two categories: rations and water.

(1) **Rations**. Rations, whether combat or fresh, are pushed forward based on personnel strength returns. They are drawn in bulk at the Sustainment Point and delivered, by CS asset and normally via delivery point (DP), to units.

The maintenance load of rations for the formation is held at the CS level.

(2) **Water**. Whenever possible water will be supplied through engineer water points in the formation area. It is normally a unit responsibility to collect water from water points. When this is not possible, water must be provided similar to rations through the replenishment system, delivered to units, normally through a DP, by close support transport. In winter, water is delivered in the form of ice blocks.

b. **POL (Class III)**. Petroleum, oils and lubricants (POL) is pushed forward whenever possible based on consumption rates or demands. Consumption is fairly predictable and is adjusted readily based on changes to the operational plan. The maintenance load of POL is held within the CS tactical level organisation. Each unit holds its own basic load. To the greatest extent possible replenishment is based on a bulk system with delivery being made by CS or GS transport to units via a POL point or DP. Packaged POL and industrial gases are provided on pull replenishment.

c. **Ammunition (Class V)**. The replenishment of ammunition is divided into two categories: artillery ammunition (including air defence missiles) and non-artillery ammunition:

(1) **Artillery Ammunition**.

(a) The replenishment of artillery ammunition within a formation must be controlled centrally and coordinated among artillery and CSS staffs. It relies heavily on forward dumps, mobile and static ammunition points, and routine DPs. It operates on a continuous cycle with delivery

usually taking place by CS or GS transport as far forward as possible.

(b) Replenishment quantities and types are calculated on staff assessments and are pushed, based on consumption as reported in artillery ammunition returns and states.

(c) In the Independent Brigade Group, the CS Svc Bn holds the formation maintenance load of artillery ammunition. In the division, the Transportation Battalion of the DISGP holds the formation maintenance load of artillery ammunition. Artillery units hold the basic load. The formation is normally replenished from CSG Sustainment Point. Ammunition can be delivered by operational level transport to the guns directly, through Ammunition Point (AP) or DP, or dumped in forward areas. Service battalions become involved in the dumping programme of artillery ammunition only when tasked. Otherwise the normal replenishment system for artillery ammunition is provided by the tactical level ammunition transport units/sub-units directly to artillery units.

(2) **Non-artillery Ammunition**. This includes small arms, tank, anti-armour and mortar ammunition.

(a) In principle, the replenishment of non-artillery ammunition is based on the push system. However, it will respond to demands initiated by the units. These unit demands can be passed via various communication

information systems or hand delivered to the MMDC.

(b) The maintenance load for the formation is dispersed within the CS tactical level support. Delivery to formation units is made by either CS or GS unit transport through a DP, AP, as part of a dumping programme or directly to the user's location.

STORES AND EQUIPMENT

33. Routine demands for stores and equipment from units are sent to MMDC which directs unit loads preparation at the Sustainment Point. These unit loads will be picked up by the CS Svc Bn (see Figure 4-5). If the formation cannot satisfy the demand from stock it is passed to the CSG or COSCOM.

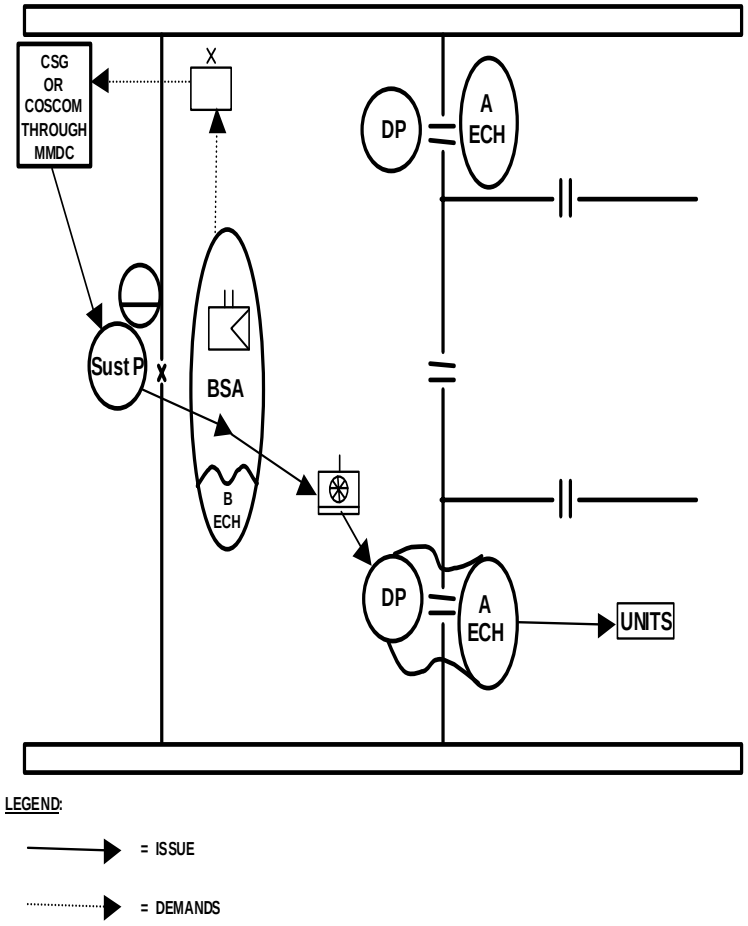


Figure 4-5: Replenishment System for Stores and Equipment

34. In addition to the combat supplies, the following categories of stores are provided through the replenishment system:

a. **General Stores and Technical Stores (Class II)**.

(1) **General Stores**. This class of stores includes fire fighting equipment, camp and barrack stores, hand tools, engineer tools, hardware, metals, paint and printing and stationary supplies and equipment, etc. Resupply stocks are held at the GS level. A small range and quantity of clothing and accoutrements will be

held in unit quartermaster stores. Resupply stocks are held at the GS level.

(2) **Technical stores**. This class of stores includes all armaments and complete technical equipment such as radios, radar sets, generators, computers, radiation detection equipment and fire control equipment. Resupply stocks are held at the GS level.

b. **Amenities (Class VI)**. Personnel Support Program amenities include necessary individual items such as soap, toothpaste, magazines, newspapers etc. which will not be available for purchase in the area and must therefore be provided. Resupply stocks are held at the GS level.

c. **Repair Parts (Class IX)**. CS Service battalions hold only a limited stock of integral support repair parts for the Maintenance Company. Generally 15 days of integral support spares are carried. Resupply stocks for units are held at the GS level.

d. **Other Supplies**. The CS service battalion can provide any other supplies demanded if held in stock. Normally, however, the demands are passed to the GS level either to be filled or to be forwarded to the CSG or COSCOM for delivery forward. Supplies are provided to units through the normal replenishment system used for combat supplies. The great bulk of routine demands is handled by normal re-supply procedures.

CONSTRUCTION AND FIELD DEFENCE STORES (CLASS IV)

35. Construction stores are non-explosive materials normally consumed in engineer tasks, which may be recovered but are usually left in place. As the stock range of these stores is vast, only the formation engineer support regiment holds a representative selection. It is supplemented by manufacture or through CSS resources by local purchase. Authority to purchase materiel locally may be delegated to effect economy and quicker response.

36. Field defence stores are non-explosive materials used by all arms in defence works. Defence stores are normally controlled stores and are handled according to the procedures established for the ordering, accounting and distribution of controlled stores.

MAJOR END ITEMS (CLASS VII)

37. Major end items include such essential equipment as armoured vehicles, guns, engineer equipment and vehicles. Because of their operational importance, most of these items will usually be controlled at the highest level. However, the National Commander may delegate the release authority for some items to the Manoeuvre Commander.

38. Vehicles are taken off unit charge once it is assessed that they are beyond GS level repair. Once a vehicle has been so taken off, the unit may request a replacement through the formation headquarters staff. This staff will authorise release for the equipment it controls. Demands for other equipment will be consolidated and submitted to higher for authorisation.

SALVAGE

39. Salvage is normally returned via DPs to the Sustainment Point where it is collected by GS transportation units and returned to salvage points established in the rear area. At these locations salvage is sorted and further back loaded or disposed of in accordance with established policies.

LAUNDRY, BATH AND DECONTAMINATION

40. Laundry, Bath and Decontamination (LBD) services are provided throughout formation areas by GS unit. The range of services provided include the following:

a. laundry services and bath facilities;

b. decontamination of personnel;

c. decontamination of vehicles, equipment, clothing and non-clothing items; and

d. exchange of clothing.

41. B-GL-363-001/FP-001 *Land Force NBC Operations* manual contains the detailed LBD operations as part of the Nuclear Biological Chemical doctrine.

SECTION 4
SUMMARY

42. Replenishment at the tactical level comprises the re-supply activities required to support the conduct of battles and engagements. It involves the synchronisation of all support functions required to sustain soldiers and their weapon systems. It normally involves support to formations and units. Replenishment at this level is more immediate. While battles may last for weeks, replenishment is normally measured in days or even in hours.

43. In any case, flexibility and innovation are crucial. The execution of tactical replenishment should enhance the commander's momentum. The tactical replenishment system must provide all classes of supply at the place and time most supportive of operations. The intention of tactical replenishment is the removal of obstacles to the commander's plan of operations. This support system depends on effective materiel management and distribution.

GLOSSARY

For the purpose of B-GL-341-001/FP –001, the following terms and definitions apply:

AP	Ammunition Point
APOD	Airport of Disembarkation
AIMS	Ammunition Information Management System
AVIMS	Automated Vehicle Information Management System
BSA	Brigade Support Area
Cdty P	Commodity Point
CFPO	Canadian Forces Post Office
CFSA	Corps Forward Support Area
CFSS	Canadian Forces Supply System
CIMIC	Civil-military Cooperation
CJTF	Combined Joint Task Force
CMG	Canadian Medical Group
CN	Contributing Nation
COMM Z	Communications zone
COSCOM	Corps Support Command
Coy	Company
CRSA	Corps Rear Support Area

CS	Close Support
CSG	Canadian Support Group
CSS	Combat Service Support
CZ	Combat Zone
DISGP	Division Services Group
DND	Department of National Defence
DOS	Days of Supply
DP	Delivery Point
DSA	Division Support Area
Dump	Dump Site
ESU	Engineer Support Unit
FEBA	Forward Edge of the Battle Area
FMSB	Forward Mobile Support Battalion. FMSBs are unique elements in the replenishment system. They are part of the organization of the CSG. However, their role is almost entirely tactical. This unit provides material brought in theatre by strategic resources to the CS units of the formation. See B-GL-300-004/FP-001 Land Force Sustainment, Chapter 3.
FSA	Forward Support Area
FSG	Forward Support Group

GS	General Support
HNS	Host Nation Support
HQ	Headquarters
IS	Integral Support
IT	Information technology
ITV	In-Transit Visibility
JIT	Just-in-Time
LBD	Laundry, Bath and Decontamination
LEMS	Land Equipment Management System
LN	Lead Nation
Local	Local Resources
LOCAT	Local Catalogue
L of C	Lines of Communications
LOC	Logistics Operation Centre
MC	Movement Control
MCC	Movement Control Centre
MILU	Multinational Integrated Logistic Unit
MJLC	Multinational Joint Logistic Centre
MMDC	Materiel Management and

	Distribution Centre
MN	Multinational
MNLC(L)	Multinational Logistic Centre (Land)
MPU	Military Police Unit
NCE	National Command Element
NDHQ	National Defence Headquarters
NDLCC	National Defence Logistics Coordination Centre
NLU	National Level Unit
NSE	National Support Element. [NATO]Any national organisation or activity that supports national forces which are part of the NATO force (AJP 4). [CA] Logistic organisation set up to offer GS/CS support to a contingent deployed for operations outside the country. It deploys in the same theatre of operations as the organization it supports (ADTB).
POD	Port of Disembarkation
PLS	Palletised Loading System
POL	Petroleum, oils and lubricants
PSS	Personnel Support Services
RDD	Required Delivery Date
RP	Replenishment Point

RS	Role Specialisation
SPOD	Sea Port of Disembarkation
S&T	Supply and Transportation
Svc Bn	Service Battalion
TAV	Total Asset Visibility
TFMT	Task Force Movement Table
TLB	Theatre Logistic Base
Tn Bn	Transportation Battalion
UMST	Unit Movement Staff Table
US COSCOM	United States Corps Support Command
UST	Unit Staff Table