



Army

Land Warfare Doctrine 4-0

Logistics

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Introduction

In the Australian Defence Force, the widely accepted definition of logistics is ‘the science of planning, and the carrying out of the movement and maintenance of forces’.

At the strategic level of command, logistics is fundamentally joint in nature. The nature and scope of joint and multinational logistics in support of operations, from the strategic to the tactical level, is described in detail in *Australian Defence Doctrine Publication 4.0, Defence Logistics. Land Warfare Doctrine 4-0, Logistics* is primarily focused on Australian Army logistics contribution to operations.

Army describes its physical warfighting capabilities by function, with combat service support being one such function. Combat service support exists within the logistic continuum, and sustains the land force at the operational and tactical levels of command through the timely provision of support for supply, maintenance, transport and movement, personnel services, health, and engineer sustainability.

This edition of *Land Warfare Doctrine 4-0, Logistics* is composed of the following four chapters:

- *Chapter 1.* This chapter discusses the theory and principles of logistics; highlighting logistic influences and challenges posed by a complex operating environment.
- *Chapter 2.* This chapter introduces the types of logistic support and describes each of the functions of logistics in finer detail and provides considerations specific to each logistic function.
- *Chapter 3.* This chapter focuses on the command and control arrangements for logistic assets at each level of command. The chief premise is the centralised control and decentralised execution of logistic support to optimise the use of scarce logistic resources.
- *Chapter 4.* This chapter provides a broad overview of logistic planning which is fundamental to operational success at all levels of war.

Chapter 1

Theory and principles of logistics

Historical example – World War I logistics over the shore

Once the items had been acquired, the War Office organised for their delivery, by trucks and trains, to British portside towns, where responsibility was handed over to the Royal Navy for their transport to the Middle East Force's main logistics base at Alexandria, Egypt. Where practical, items were loaded in bulk, with one type of item in one or as few ships as possible. With an absence of deep water harbours or functioning ports closer to the Gallipoli peninsula, it was realised that all stores and supplies would have to be transhipped into smaller vessels – which could lay off the Gallipoli peninsula – upon arriving in Alexandria. Packing them battle ready, with the ability to offload their cargo direct onto the shore, was not an option. All of this resulted in more work, more administration, and more delay. At such distances, and subject to further complexities caused by unfavourable weather, delays at the various ports of call, and a lack of cooperation between the Services, the difficulties of supplying the Middle East Force were, as one senior logistician later wrote, 'beyond description or possibility of exaggeration'.

Dr Rhys Crawley¹

Origins of logistics

The concept of logistics is as old as organised warfare and, like war itself, has evolved considerably over time. The strategy of Alexander the Great, for example, depended on logistics and his mastery of it. Roman legions were supplied through an excellent network of roads built by their army and the storehouses located at key points. This was a relatively simple task due to armies being limited in size and the nature of the warfare that they fought. Warriors generally provided their own weapons and means of mobility for battle, so the only major logistic issue was the demand for food and fodder, which could generally be met from the surrounding countryside if they continued to move.

1. Crawley, R 2015 'Logistics Over the Shore in the First World War' in Ordnance: the Journal of the Royal Australian Army Ordnance Corps, Volume 40.

Gunpowder was inserted into the barrel of a handgun during the mid-fifteenth century. This was an important step in the cannon shrinking down to a portable size and being placed in the hands of an individual, creating infantry and giving birth to the modern Army and increased considerations for supporting the execution of a battle.

The advent of the industrial revolution transformed the conduct of war and the role of logistics. A combination of mass production with mass armies increasingly equipped with machine-age weaponry led to a change in the quantity and nature of demand for support and supplies. Concurrent technical advances in transportation, production and packaging also dramatically increased the capacity of states to provide this support. In this environment, the logistical limitations of speed, reach and capacity contributed to the increasingly static nature of operations, culminating during World War I. The further development of mechanisation, enabled by the internal combustion engine and more flexible road transport, dictated the reassessment of this balance, to a degree, by the advent of World War II.

The shift in the focus of military demand, from food and fodder to ammunition and then to fuel and spare parts, transformed the requirements for military logistical planning during World War II. Using their industrial and transport capacity, combined with more sophisticated quantitative techniques for forecasting and programming, the Allies built up a logistic superiority which enabled them to crush the Germans in a materialschlacht – a battle of equipment. By the end of World War II logistics was considered efficient, with emerging supply chain theory operating on a global scale.

The spin-off from the development of military logistics during World War II was its extension into the world of business during the post-war period. While the business process of physical distribution had been studied during the early part of the 19th century, it was the combination of World War II military logistic experience and the concept of marketing in the 1950s that led to the development of logistic management. By linking the economic concept of resources, time-and-place utility and total cost analysis, it was recognised that the cost and service impacts of logistic management could contribute significantly to a firm's competitive advantage. This required organisational and functional change within business in order to achieve integration and consolidation of related activities. The description of logistics as 'the time-related positioning of resources' has wide applicability and utility to the military.

Much of the structure and systems of military logistics today can be traced to the methods and lessons of World War II, for example, the division in battle construct, the concepts of daily and automatic replenishment of combat supplies, and hierarchical lines of support. The implications of the technological age include globalisation and increased complexity of supply chains, escalating capital costs for equipment, technical and innovation advancements, the increasing demand for and complexity of supporting modern weapon and networked communication systems, and pressure on the deployability of heavily mechanised forces.

Definition and functions of logistics

Logistics derives from the French *maréchal de logis* in King Louis XVI's army, responsible for administration of camps, billets, marches, and later sometimes employed as Chief of Staff. The overarching term has evolved to describe force generation, force deployment and redeployment, and force sustainment. Logistics at the Australian Defence Force level is fundamentally joint in nature and is described in *Australian Defence Doctrine Publication 4.0, Defence Logistics*. Consequently, this publication is focused on Australian Army logistics.

In the Australian Defence Force the accepted definition of logistics, as provided in the Australian Defence Glossary, is the science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, it is those aspects of military operations which deal with the following functions^{2,3}:

- the design and development, acquisition, storage, movement, distribution, supply, maintenance, evacuation, and disposal of materiel
- the transport of personnel
- the acquisition or construction, maintenance, operation, and disposal of facilities
- the acquisition or furnishing of services
- medical and health service support and personnel services.

In practical terms, logistics is adapted within the Australian Army to suit the mission or activity, circumstances, force structure, and capability. The professional mastery of logisticians is essential in the application of skills, knowledge and attitudes to successfully execute their tasks. These skill sets are developed through the practice of knowledge building activities, study of doctrine and concepts, and conduct of education and training on an individual and collective basis. This fundamentally enables individuals to operate within the support dimensions in which logistics is conducted; planning and executing provision of support based on a number of enduring principles⁴.

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2. These functions have been adapted to include supply and personnel services (see *Australian Defence Doctrine Publication 4.0, Defence Logistics*).
 3. Contract Management is an implied action that inherently takes place in each of the functions listed.
 4. These principles have been utilised to reflect application to Army Logistics (see *Australian Defence Doctrine Publication 4.0, Defence Logistics*).

Principles of logistics

The following enduring logistic principles are applicable at all levels of command within Army and should be used to guide when planning logistic activities to achieve an effective outcome and enhance the resilience of our forces:

- *Responsiveness.* Responsiveness is the ability of the logistic system to provide the right support at the right time and place, and in the right condition, to meet the commander's needs. Responsiveness is the keystone principle in the sense that all else becomes irrelevant if the logistic system cannot support the operation.
- *Simplicity.* Simplicity reflects the need to reduce complexity and overcome friction to the greatest extent possible. It often fosters efficiency in both the planning and execution of logistic operations. Directive control and standardised procedures contribute to simplicity. The establishment of priorities and the pre-allocation of supplies and services in supported units may also simplify logistic support operations.
- *Economy.* Economy of both resources and effort must be a logistic goal and is achieved when effective support is provided using the fewest resources at the least cost and within acceptable levels of risk.
- *Flexibility.* Flexibility is the ability to adapt logistic structures and procedures to changing situations, missions, concepts of operations and requirements. This can be applied in logistic plans, operations and structures to meet a change in the commander's intent, priority of effort or circumstance. Positive command and control over logistic operations should set the foundation for flexibility in executing tasks.
- *Balance.* The logistic system must balance the need for economy with the requirement for redundancy and reserve capacity. It must balance the need to anticipate with the requirement to adapt and respond. It must also balance the need for efficiency with the need for effective support, often characterised by friction, uncertainty, fluidity and disorder.
- *Foresight.* Logistic commanders and staff must be able to anticipate and prepare for future events and the associated logistic requirements. Foresight rests on the ability to anticipate future operations and to identify, accumulate and maintain the assets, capabilities and information needed to support them.
- *Sustainability.* Sustainability refers to the measure of the ability to maintain logistic support to all users for the duration of the operation or the lifetime of a capability. Sustainability is about focusing on the long-term objectives and capabilities of supported forces and must achieve a balance between the factors of destination, demand, distance, duration and dependency⁵,

5. Destination, demand, distance, duration and dependency are commonly referred to as the 5Ds and will be discussed further in [Chapter 4](#).

resources, priority and risk. Sustainability derives from effective planning; accurate projections of requirements; careful application of the principles of economy, responsiveness and flexibility to provide the required support; and successful protection and maintenance of the lines of communication.

- *Survivability.* Survivability is the capacity of the logistic system to prevail in the face of interference, degradation or destruction. The ability of the logistic assets to continue to operate in support of the commander's plan is integral to the success of that plan. Logistic installations, units and information systems are high-value targets that must be safeguarded by both active and passive measures. Survivability requires planning for the dispersion and protection of critical nodes of the logistic infrastructure. A degree of decentralisation and redundancy is critical to the resilience of the logistic system. The allocation of reserves, development of alternative communication means and phasing of logistic support also contribute to survivability.
- *Integration.* Integration⁶ is combining all elements of Army logistics (tasks, functions, systems, processes and organisations) to assure unity of command, effort and prioritisation of competing resources. The Army logistics system should be interoperable with other Services, multinational and coalition force partners, civil organisations, emergency services, non-government organisations, and other government departments.⁷

Logistic context within Army

To contextualise, the functions and principles of Army logistics fall within two logistic support dimensions, these being capability support and operations support. The two dimensions of logistic support, shown diagrammatically in [Figure 1–1](#), are as follows:

- *Capability support.* This is fundamentally the logistics support provided to capability systems life cycles. The logistic considerations for the capability management and support required to ensure needs, requirements, acquisition, in-service management and sustainment capabilities, and disposal are met. There is a specific focus placed on capability in support of Army operations. This dimension of logistics operates over longer time frames and is focused on achieving designated levels of capability. Its success is measured by the degree of preparedness that is achieved compared to the level of resources that are applied. Capability support is further described in [Australian Defence Doctrine Publication 4.1, Logistic Support to Capability](#).

6. Referred to as cooperation in the current [Australian Defence Doctrine Publication 4-0, Defence Logistics](#).

7. Army proposal to the [Australian Defence Doctrine Publication 4-0, Defence Logistics](#) is to replace cooperation with integration terminology.

- Operations support.* This is the support needed to deploy and redeploy a tailored force and to sustain it for the duration of an operation or a designated deployment cycle. It sits within, and is enabled by, the capability support dimension. Operations support requires the establishment of a tailored logistic network which draws resources from the national support base (Australia) and/or international/coalition support base, and positions those resources at the appropriate time and place using support bases and nodes to meet the supported force’s needs. This dimension usually operates within shorter time frames and is focused on supporting forces that have been directed to achieve a specific outcome. Its measure of success is therefore its ability to support the achievement of specified missions. The provision of logistics in the operations support dimension is referred to as combat service support.

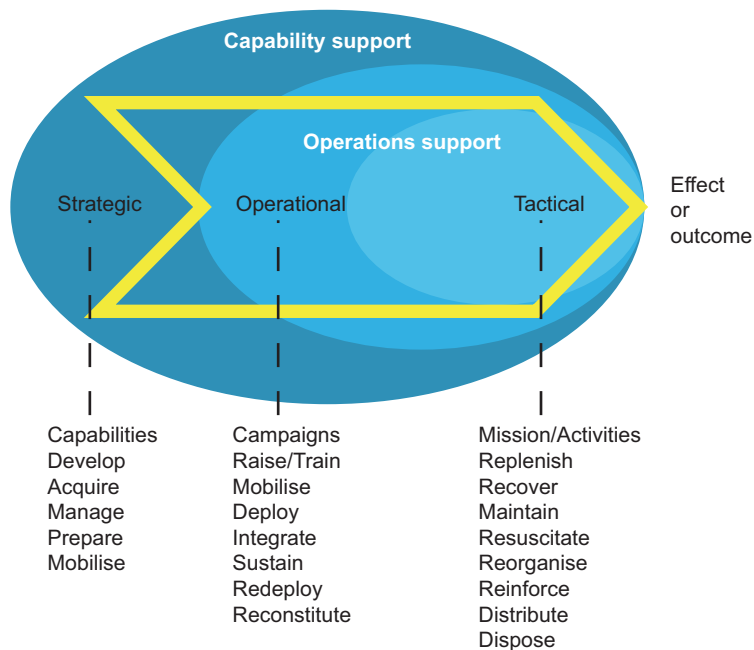


Figure 1–1: Logistic support dimensions

Within these support dimensions, logistics and combat service support actions provide the foundation of fighting power and a link between suppliers of materiel and services to the deployed forces. The two way flow of materiel and services between the strategic, operational and tactical levels of command is known as the logistic continuum.

Logistic continuum. Logistics components must be tightly integrated to create a continuum that extends across organisational and functional boundaries and across the three levels of command in order to provide combat elements with materiel in the right condition, and services of the required quality, on time and at

the right place. Supplies or services may be acquired at any point along the continuum, and a proportion of these resources will be consumed or used by the logistic services themselves. Additionally, there will be a reverse flow of casualties evacuated for treatment, and materiel backloaded for salvage or repair. The continuum, therefore, comprises a complex network of logistic processes, systems, installations and organisation, all of which must provide support in order to enhance fighting power. [Figure 1–2](#) shows a diagrammatic representation of the logistic continuum and how logistic activities are performed at the tactical, operational and strategic levels.

Army describes its physical warfighting capabilities by function, with combat service support being one of these. Combat service support exists within the logistic continuum, and sustains the land force at the operational and tactical levels of command via the following functions⁸:

- Supply support involves procurement, provisioning, warehousing, returns, salvage, disposal and supply control activities concerned with the distribution of all classes of supply and related services required to equip, operate and sustain the force.
- Maintenance support involves maintaining equipment at agreed levels of functionality, this includes equipment availability management, materiel maintenance engineering, recovery and configuration management to ensure that equipment within Army is in a fit condition for use.
- Transport and movement includes the provision of protected and unprotected movement of stores, equipment and personnel. Transport elements enable the other combat service support elements to provide support and operate along the multi-modal links between the various nominated support nodes. Consequently, the role of controlling the movement of allocated transport resources is also provided.
- Personnel services support is focused on the provision of support for individuals in the sustainment of human capacity and includes catering, pay, finance, postal, chaplaincy and legal services.
- Health support is the conservation of personnel to maintain capability and combat power through minimising the effects of injury, illness and disease.
- Engineer sustainability support provides specialist knowledge of the physical environment, including effects of terrain, climate and weather on military operations. Typical engineer's sustainment support tasks include constructing, repairing and maintaining infrastructure and services such as water and electric power.

[Figure 1–2](#) outlines the merging of logistic and combat service support functions.

8. Further information regarding combat service support, can be found in [Land Warfare Procedures - Combat Service Support 4-0-1, Combat Service Support in the Theatre](#).

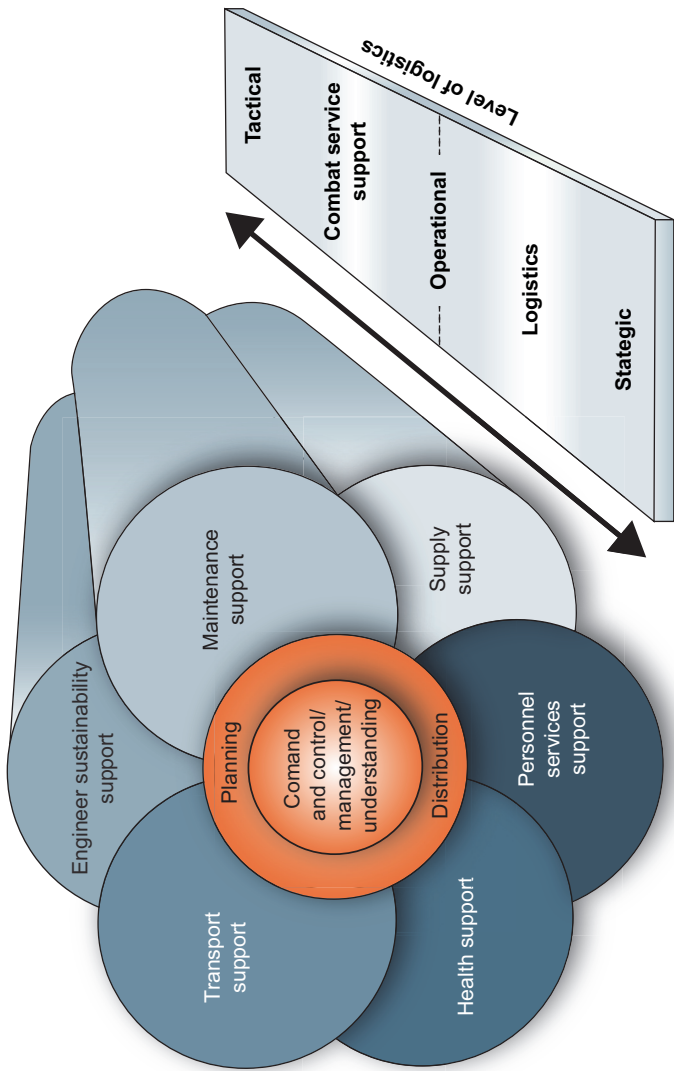


Figure 1-2: Functions of logistics and combat service support

Figure 1–2 visually depicts the relationship between combat service support’s role at the tactical and operational levels of planning, with the operational level providing a seam for functions of logistics. The consistent requirements of command, control, clear communication and management of the logistic system remain constant through all functions. Understanding of the system and the problem at hand is fundamental in the planning and execution of logistics and combat service support.

The operational process of synchronising all elements of the logistics system to provide the ‘right things or support action’ to the ‘right place’ at the ‘right time’ to the supported element is referred to in Figure 1–2 as the action of distribution.

Operating environment

Conflict is not decided on the battlefield alone; rather it is won in the minds of populations, using ideas as weapons. Therefore, major combat can no longer be seen as the only decisive phase of conflict. Australia takes a whole-of-government approach to resolving conflicts. This approach facilitates the use of joint interagency task forces that contain personnel and capabilities from a range of government departments working on the same and differing lines of operation to influence and shape the perceptions, allegiances and actions of a target population and control the overall environment in order to allow peaceful political discourse and a return to normalcy. The components of logistics must be scalable and prepared to respond to a broad spectrum of operational tasking, from humanitarian aid and disaster relief through to high-intensity complex warfighting.

Protection

Logistics comprises the support and services that allow land forces to conduct campaigns, ultimately providing the operational reach and endurance necessary to prevail within all spectrums of conflict. Logistic forces are focused on the provision of their own protection and firepower; however, in some circumstances protection is not able to be achieved organically by the logistic forces. The support required may take the form of rear area security from the onset of operations by other combat force elements. The requirement for protection of the logistic system must be clearly articulated as early in planning as possible and managed closely throughout the conduct of operations in accordance with the threat. Additionally, where military forces utilise unprotected civilian contractors within the battlespace, they must be provided with appropriate protection to ensure that sustainment of forces continues seamlessly in response to environmental threat.

Logistic influences and challenges

There are a number of internal influences that shape the Army’s logistic operating environment. These include resourcing and budgetary pressures, organisational change and reforms, operational tempo and complexity of equipment. Conflicting priorities, complex interoperability and communication requirements and

relationships between Services, other government agencies, host nation, foreign militaries and civil contractors should also be acknowledged.

Army logistics capability has often been shaped externally by global industrial, commercial and broader Defence practices. Logistic practices within Army have undergone significant change to provide improvements in sustainment through modernisation of equipment, adaptive training, and developments in information and communication systems. Emerging technologies such as additive manufacturing, alternate fuels, autonomous systems, power and energy generation are likely to fundamentally change the way Army logistics does business into the future.

The provision of logistics in future armed conflict will be increasingly challenging to successfully execute, with unwavering reliance placed on connectivity throughout the land force operating in future environments. Sustaining geographically dispersed forces over long distances in contested environments with forces invariably grouping and regrouping in response to changing circumstances, rapid information flow around the battlespace will be considered a norm, as it is now.

Logistic forces must innovate to close capability gaps in survivability, minimising the number of fixed nodes that demand protection and reducing the sustainment burden. Up-to-date 'live' information on the status of personnel movements, health, equipment and sustainment stocks will be provided on management systems from various operating environments on a global basis. Asset and operational visibility will continue to improve, along with automated supply chains in an integrated, highly complex enterprise network. Fuel and water demand requirements will continue to remain pressured, however resupply convoys will likely be autonomous, or semi-autonomous with 'leader-follower' constructs contributing to flexibility and capacity in the sustainment of forces.

Administratively, people will have their personal files and data loaded to a data bank that is readily accessible on the swipe of their personal identification card. Human capacity will continue to evolve. In the short term there may be an adjustment period of information overload and knowledge paralysis, however this will be overcome by targeted skill sets on a continual network-based short learning loop.

Ongoing data and network threats will exist in the logistics continuum, in both military and civil environments. Ensuring that individuals are routinely informed and aware of information management techniques in threat environments and appropriate information security measures in place to monitor data and network hacking, the risk is reduced within the logistics continuum.

Preparedness

Army systematically addresses preparedness requirements by committing force elements against specified operational roles and tasks in a designated response time, strength and capability. It is a combined outcome of readiness and sustainability of support elements. The sustainment portion of preparedness is

addressed to specified planning time frames to support a force on operations. The Army logistics continuum must therefore be flexible and responsive to be able to support all roles and tasks across the spectrum of operations at any given time. In the case of logistic capabilities not being adequately resourced to execute a function or task, after receiving advice, the commander must weigh up associated risk and implications of this in the execution of operations.

In response to the changing operating environment, the implications for logistic force elements are as follows:

- the requirement for all Army logisticians to be proficient in close combat
- the requirement to harden and protect all combat service support nodes/modes/means and clearly articulate additional resources required to achieve this, particularly in rear area security and civil contracting
- the matching of situational awareness and mobility to combat elements
- the broadening of contingency planning to support a broad range of dependencies, incorporated in a whole-of-government approach to operations
- the potential requirement to support the populace
- the requirement to integrate with joint and coalition systems
- the use of communication and management systems to call joint fires and provision of intelligence, surveillance and reconnaissance information, within the spectrum of support tasking, to inform command decision making
- an increased awareness of threats to data and information management systems.

Army logistic support to operations

Our warfighting philosophy ensures land power's strategic utility, operational adaptability and tactical superiority as an expeditionary capability within the Australian maritime strategy. To this end, the Army has embraced manoeuvre theory and the use of lines of operation to conduct campaign planning.

Lines of operation

Lines of operation describe how military force is applied in time and space through decisive events or decisive points which can undermine or defeat an enemy's centre of gravity. As the operations staff identify decisive events for each line of operation, combat service support staff will determine the associated critical logistic events that will occur before, during and after each decisive event.

In a campaign, the Army considers lines of operation as a philosophical framework for the land force contribution to conflict resolution, rather than a fixed campaign plan. Combat service support will be required along each line of operation in

accordance with specified roles and responsibilities. The generic lines of operation are as follows:

- Joint land combat encompasses all actions to secure the environment, remove organised resistance and set conditions for the other operations.
- Population protection provides protection and security to threatened populations in order to set the conditions for the re-establishment of law and order.
- Information dominance informs and shapes the perceptions, attitudes, behaviour and understanding of target population groups, thereby shaping the information and cognitive dimensions of conflict.
- Population support establishes, restores or temporarily replaces the necessary essential services in affected communities.
- Indigenous capacity building nurtures the establishment of civilian governance which may include local and central government, security, police, legal, financial and administrative systems.

Further information on the generic lines of operation can be found in [Land Warfare Doctrine 1, The Fundamentals of Land Power](#) [Chapter 2].

Increased integration

The success of any campaign requires cooperation between Services; coalition partners; and other government, non-government and international agencies. Integration seeks to achieve combined arms outcomes by bringing together combat, combat support, combat service support and command support elements from the three Services and capabilities from other agencies. When operations are conducted as part of a coalition, all levels can involve combined forces.

Combat service support elements may be integrated with joint or combined forces in order to provide support within a combined or joint interagency task force. This support may also be required across several lines of operation. For example, a combat service support element may transition from providing support to a combat team conducting joint land combat to distributing humanitarian aid and building supplies as part of population support.

Manoeuvre theory

The aim of manoeuvre theory is to defeat the enemy's will to fight by destroying their moral and physical cohesion rather than engaging in battles of attrition (see [Land Warfare Doctrine 1, The Fundamentals of Land Power](#) [Chapter 3]). Manoeuvre theory relies on a series of orchestrated actions which create a turbulent and rapidly deteriorating situation that the enemy cannot cope with. In this context, the intention of manoeuvre is to create an expectation of defeat in the enemy's mind.

The successful orchestration of tactical and supporting actions in the battlespace requires responsive and flexible combat service support, often on multiple lines of operation. Combat forces are grouped and regrouped for successive tasks.

Therefore, logistic planners and combat service support practitioners must understand the concept of operations for each line of operation in order to orchestrate the support actions required to facilitate success. Foresight is critical in planning and synchronising the critical logistic events and other support requirements before, during and after each phase of an operational mission.

Manoeuvre theory presents three particular problems to logistic and combat service support planners:

- Firstly, such warfare can demand high rates of fire and enhanced mobility and endurance, all of which are demanding in terms of the volume of support and speed of reaction required.
- Secondly, it not only assumes confusion on the battlefield to be inevitable but also actively encourages our commanders to impose it on the enemy, particularly where such action enhances the possibility of wrong-footing the enemy.
- Thirdly, the logistic staff at each level of command are required to satisfy the difficult task of producing an enduring, flexible and simple plan from the outset and to allocate adequate resources to sustain a designated operational tempo. Thus, prioritisation of logistic assets must be established from the outset.

Chapter 2

Types and functions of logistic support

Established to be relatively lean, task focused organised, 1st Combat Service Support Team consisted of 85 personnel and equipment including 43 vehicles were responsible for provision of combat service support operations, 24 hours a day to 5th/7th Battalion The Royal Australian Regiment deployed to East Timor in October 1999. Capabilities included 28,000L of water on wheels, 33,000L in bladders, 32,000L of fuel on wheels, a 10 bed medical facility, preventative medicine, a laboratory, dental pulse and an ambulance. Furthermore, the team provided vehicle and electronic maintenance as well as vehicle recovery. Shortly after arriving in Dili, the team's responsibilities and command relationship altered to provide support to not only Australian force elements but also force, formation, and unit level support to all contributing countries both within and outside Central Sector, including Kenyan and New Zealand force elements. Team members contributed to humanitarian aid and transportation of refugees returning home from West Timor. By the end of their deployment, the teams responsibility stretched from individual UN military observers to Units such as 5th Aviation Regiment and 5th/7th Battalion The Royal Australian Regiment and included all services, demonstrating the innate flexibility of Australian combat service support on operations.¹

Types of support

There is no direct or enduring relationship between command authority and the types of support. Command authority needs to be identified for combat service support elements in order to enable the combat service support commander to know exactly who they are responsive to for the allocation of tasking and resources. The allocation of command authority may change for the combat service support element throughout an operation. This is often triggered by a change in mission, operational phase, task or priority of effort. Command and control aspects for combat service support are provided in further detail in [Chapter 3](#).

1. Department of Defence, *The Australian Army in Profile 2000 (2001)*.

The type of support a combat service support organisation must provide also needs to be identified in order to define the architecture for support during operations and activities. This also enables the tailoring of support and the task-organising of combat service support elements to support specific missions and force elements.

Support arrangements enable commanders at all levels to establish the combat service support networks on a flexible, responsive, agile and balanced basis. Combat service support elements are assigned support responsibilities to establish an optimal level of operational viability for a designated period of time. This is based on mission factors derived from the assessed destination, demand, distance, duration and dependency². An analysis of these five factors as part of the military appreciation process will determine the size, shape, structure and balance of combat service support capabilities required for an operation or activity.

To successfully achieve assigned support responsibilities, combat service support capabilities can be arranged within types of support depending on the requirements of the mission and geography. The chief premise is the centralised control and decentralised execution of combat service support to optimise the use of scarce resources. The challenge is to achieve this without unduly sacrificing the flexibility required to support a broad spectrum of operations. To this end, there are four types of combat service support, as follows:

- *Integral support.* Integral support represents the logistic capabilities necessary to provide unit viability, that is, the support necessary to maintain a unit at its designated readiness level, regardless of the assigned mission. This type of support has a limited operational viability period and requires the other types of support to provide sustainment for an ongoing period of operations.
- *Close support.* Close support is the support provided by a unit or formation attached to or under the command of the supported unit or formation. This is a 'tailored' combat service support capability targeted to provide responsiveness and balance to link force elements to either general support or the national support base and to extend or supplement force element operational viability through the distribution of critical resources. This support is mission-specific and not allocated purely on a force element basis, nor should it become a 'close burden' by adding unnecessary logistic 'friction' to operations. It must provide immediate support to fighting units. It includes, for example, forward replenishment, forward repair and battlefield clearance. Such elements must have commensurate levels of mobility, protection, responsiveness and flexibility to those of the fighting units they support.
- *General support.* General support is the support provided to a supported force as a whole and includes combat service support activities carried out to greater depth where security and stability are needed to generate work

2. Commonly referred to as the 5Ds (see [Chapter 4](#)).

which is ultimately to benefit the fighting formation support. This is a tailored and unique capability designed for theatre level support basis. For example, general support may include theatre opening and gateway capabilities, postal support, financial services, unique transport capabilities and control measures, theatre warehouses and terminal support.

- *Mounting support.* Mounting support is where the projection and sustainment of a force requires a logistic bridge from the national and international support base to the theatre of operations. This is usually a joint capability and is planned and executed by organisations external to the theatre. It is usually a Defence Estate and Infrastructure Group and/or Joint Logistics Command responsibility.

Push and pull concepts of support

The key is for the supported force to derive the support benefit when and where required, using the appropriate command and control arrangements and division of responsibilities, rather than necessarily owning the capability just in case it is required. The two basic methods of providing the combat service support are via the push and pull concepts of support:

- *Push.* Push is when consumption of support is predictable and routine in nature or standard patterns of behaviour such as consumption of rations, provision of preventative health and equipment maintenance or there is a command decision to keep force elements 'topped up' to a prescribed level of supplies via automatic replenishment. Risk is minimised using a push concept however, a larger combat service support 'footprint' may be created and duplication of effort can occur.
- *Pull.* Pull reacts to the notification of a requirement (for example, operational demands, priority demands, maintenance demands, electrical and mechanical engineering repair and recovery request, and casualty evacuation) from a supported force element or dependency. Applying a 'just in time' principle, this method requires situational awareness and reliable communications for the logistic system to be highly responsive. This common practice reduces stockpiling and 'footprint' with short distribution bursts when operational situation allows or reaction to the requirement to evacuate equipment and personnel.

In reality, a combination of push and pull methods are utilised and will vary within phases of an operation or activity. The difficult nature of reacting to support demands are overcome by understanding the commander's intent and scheme of manoeuvre, continual information sharing between planning staff and use of information systems to manage combat service support functions to increase visibility and informed decision-making. Despite all of this, there is always a requirement for contingency planning and establishing reserves or alternative support options to provide the most robust and resilient support solutions available.

Logistic personnel need to be trained to prevail in close combat, with control devolved to individuals and small teams. All force elements, including logistic elements, must have mobility, firepower and protection appropriate to the battlespace threats and be capable of protecting and defending themselves. It is essential for logistic elements to be equipped with communication and management systems to enable situational awareness and informed decision-making in any operating environment, especially as threat levels increase.

The conduct of combat service support is tailored to the threat, concept of operations and sustainment needs of the force being supported. Combat services support functions, namely, supply, maintenance support, transport support, health support and personnel services, are integrated to sustain the land force at the operational and tactical levels of command.

Supply support

Supply support involves the provision of materiel and related supply services, an essential function of the distribution of sustainment resources to equip, operate and sustain a force. It is primarily concerned with the satisfaction of demands with the correct quantity issued to the correct person, at the correct location, at the correct time, in the correct condition, and in accordance with the assigned urgency for the demand.

The supply support activities³ consist of the following:

- Procurement is the entire process by which materiel and services are acquired to supply the demands of a force or capability. The process of procurement may include activities such as planning, design, requirements and standards determination, specification writing, tendering and selection of suppliers, financing, purchasing and contract management, and disposal. Procurement is the means by which resources enter the supply system, which in turn determines likely lead times for replenishment. The procurement function has a major impact on the other components of supply.
- Provisioning is the process of planning and controlling the necessary stockholding levels of all items of supply. The process of provisioning is mainly quantitative, involving computation and data analysis from a range of factors affecting supply and demand for a given item of supply. Effective provisioning is a core element of supply support, as stockholding requirements have a direct impact on the capacity of the distribution system, the warehousing infrastructure and systems required, the purchasing of stock and the entire management of inventory. It includes identification of current and anticipated usage rates, aiming to advise the

3. Further information can be found in *Land Warfare Doctrine 4-1, Supply Support*.

procurement process in the identification of the stores required to satisfy the requirements of Army.⁴

- Warehousing is the process of receiving, holding and issuing supplies in a suitable configuration and storage environment to ensure that stock is maintained in a fit condition and is readily available within a responsive time frame for use. The basic warehouse operations encompass all receipt, storage, maintenance, packaging, issue and consignment actions taken in respect to stockholdings. The term 'warehouse' is generally used to refer to a collective storage environment, location or facility.
- Returns is salvage and disposal, the retrograde supply support activities involving the processing of abandoned, damaged, discarded, captured, condemned, redundant, surplus or waste materiel. This process is concerned with maximising economy in the provision of supply support. The management of human remains are also included in the responsibility of supply personnel to evacuate as swiftly and safely as possible from an overseas area of operations to the appropriate civilian authorities in Australia.
- Supply control is the process of providing asset visibility and control of supply support as a total system. It involves the activities of inventory management and quality control. Inventory management is primarily about supply accounting and information management. This information, gathered from analysis of demand, procurement, warehousing and distribution activities, is used to inform provisioning plans and control the distribution of resources. Quality control is the process of ensuring that all supply items (and their related information) are maintained in a serviceable condition. An active quality control and inspection program will reduce waste through the identification of any defects or faults prior to the acceptance or subsequent issue of stock. Quality is also concerned with ensuring that effective supply management processes are in place and that supply operations are functioning in an optimal manner.

Classes of supply

The Australian Army divides its supplies into ten classes of supply, of which the first five classes are established from the North Atlantic Treaty Organization Standardisation Agreement:

- *Class 1.* This class includes subsistence items (foodstuffs, gratuitous health and welfare items, and packaged water).⁵

4. Further information on the provisioning processes can be found in *Land Warfare Procedures - Combat Service Support 4-1-6, Provisioning in Support of Land Operations*.

5. The supply system is responsible for the holding and distribution of packaged water. The winning of bulk water remains an engineer responsibility.

- *Class 2.* This class includes general stores (clothing, individual equipment, tentage, tool sets and kits, hand tools, stationery, other general administrative and housekeeping items).
- *Class 3.* This class includes petroleum, oils and lubricants.
- *Class 4.* This class includes construction items (construction materials, fortification and barrier materials excluding explosive devices).
- *Class 5.* This class includes all types of ammunition and explosive ordnance.
- *Class 6.* This class includes personal demand items (canteen supplies, non-scaled/allowanced military items).
- *Class 7.* This class includes principle items of equipment or a combination of end products which are ready to use including vehicles, weapons, and major technical equipment. These items will usually have a serial number for tracking and control purposes.
- *Class 8.* This class includes medical and dental stores such as pharmaceutical items, medical and dental equipment and associated repair parts.
- *Class 9.* This class includes repair parts for maintenance support. They are classified into two main groups – rotatable maintenance supply items, which are normally capable of being repaired or reworked an unlimited number of times; and repairable maintenance supply items, which are normally capable of being repaired a limited number of times or are consumable expense spares (for example, light globes or filters).
- *Class 10.* This class includes material to support non-military programs (Department of Foreign Affairs and Trade humanitarian aid/disaster relief stores).

Methods of replenishment of supplies

Replenishment may be either automatic or on demand but often involves a combination as follows:

- *Automatic.* This form of replenishment is scheduled periodically and requires supplies to be made available for units to draw from the distribution system based on anticipated usage rates and target stock levels, without raising a formal demand. The quantity issued is based on entitlements and scales of issue. Automatic replenishment is a 'push' method of distribution, which is best suited to the distribution of combat supplies in higher intensity conflict.
- *Demand.* With this form of replenishment, supplies are distributed to units only in response to a specific demand. The quantity issued is based on the

quantity demanded, subject to authorised entitlements or approval. Demand replenishment is a 'pull' method of distribution.

- *Directed.* The selection of the method of replenishment and the operation of the distribution system depends on the nature of the operation, the structure of the force and its combat service support, the characteristics of demand, stock levels and the requirements for specific commodities. For practical reasons, the method of replenishment may involve a combination of push and pull. The combination of automatic and demand replenishment requires more complex management arrangements and must be directed by the staff.

There are four methods by which supplies can be distributed:

- direct delivery
- unit collection
- a distribution point and/or exchange point
- dumping.

Further information regarding methods of delivery is included in [Land Warfare Doctrine 4-1, Supply Support](#) or [Land Warfare Procedures - Combat Service Support 4-0-1, Combat Service Support in the Theatre](#).

Supply support considerations

Supply support is concerned with the fundamental requirements of the allocated dependency. Factors affecting the supply support in meeting demands include force structure, environment, reach and intensity of fighting required to achieve the objective, rate of effort and level of attrition in battle. In addition to being guided by the principles of logistics, the following considerations are unique to the provision of supply support:

- *Priority (urgency).* The priority of supply is determined by the dependency utilising the approved priority system. Currently, the [electronic Supply Chain Manual](#) provides Defence with a means of expressing relative critical and importance of demands for materiel. Priority 1 is the highest priority and Priority 15 is the lowest. Combining two factors generates a priority. Priority of demands within standard operating procedures are classified into operational demands (within 6 hours), priority demands (within 18 hours) and maintenance demands (within 72 hours).
- *Accuracy.* All supply actions must be matched by demand requirements. The accuracy imperative is to deliver the right type of supplies in the right quantity to the right location in response to every demand. Where this is not possible, partial issues should be made, with the remainder of the demand satisfied at the earliest opportunity.

- *Condition of stores and equipment (correct condition)*. Reasonable priority should be placed on the packaging and transportation of stores in order to maintain their serviceability on receipt by the dependency. Staff may at times be required to choose between timeliness and condition, depending on the tactical situation.
- *Timeliness (correct time)*. The dependency normally places certain timing requirements on a demand for defined reasons. These reasons may be responsive to the dependency's own provisioning calculations or operational requirements such as pre-deployment, out-scaling or in-scaling. While the early consignment of supplies is desirable, this must be balanced by the operational requirements of the organisation and its ability to hold and maintain excess stock. Close liaison with transport force elements is essential to ensure that the demand is distributed to the correct place at the correct time.

Transport support

Transport support⁶ enhances mobility options for the commander by providing protected and unprotected movement of stores, equipment and personnel. Transport elements enable the other combat service support elements to provide support and operate along the multi-modal links between support nodes.

The components of transport support include:

- *Movement*. Movement is the science of planning, coordinating, organising and controlling transportation to achieve the required military end state. Movement staff ensure that personnel and materiel move within the priorities set by commanders for operations and exercises. Successful movement involves the art of communicating, coordinating and balancing priorities to achieve optimum utilisation of transport capacity within the limits of the resource infrastructure and the constraints imposed on its use.
- *Terminal activities*. Terminals are the major transshipment nodes used for the loading, unloading or cross-loading of stores, equipment and personnel. Terminal activities include:
 - the reception, processing and staging of personnel
 - the receipt, transit, storage and marshalling of cargo
 - the loading and unloading of modes of transport
 - the manifesting and forwarding of cargo and passengers to destinations.

6. Further information can be found in *Land Warfare Doctrine 4-3, Transport Support (Developing Doctrine)*.

- **Transportation.** Transportation involves the movement of stores, equipment and personnel between nodes (including units). Transportation can be achieved by various modes, including:
 - road (includes portage)
 - rail
 - water
 - sea
 - air (including air dispatch for air logistic support)
 - pipeline.

Transport support considerations

In addition to being guided by the principles of logistics, the following considerations are unique to the employment of transport capabilities:

- **Task organisation.** Transport elements are established using the 'capability brick' principle, which means that sub-elements may be added or taken away to suit the specific requirements for transport support. Appropriate task organisations will ensure that resources not required for tasking are grouped centrally, thereby providing flexibility for the commander. A commander can reinforce a logistic support effort by brigading⁷ assets.
- **Economy.** There are seldom sufficient transport resources to meet all demands. The available transport assets must be effectively and efficiently managed to ensure the most economical utilisation of vehicles and operators. This economical utilisation of assets requires a thorough understanding of modal capabilities, an appreciation of the flow of materiel in both directions and excellent communication between supporting elements for coordination purposes. Maximum use of back loading should also be encouraged.
- **Responsiveness.** Transport elements must be geographically placed and grouped so as to permit a rapid response to staff requirements. Clear and logical command structures and tasking authorities which are understood by both the transport provider and the dependency are important to ensuring responsiveness; they ensure that requirements and priorities are established quickly and with minimal fuss, thereby eliminating confusion and time wasting.
- **Centralised control.** The benefit of centralised control of transport resources is that it is more responsive to the highest priority task in the formation. The term brigading transport is associated.

7. Brigading is the change in command status of unit logistic or administrative assets to a brigade level, which is conducted for limited periods to meet a specific requirement.

Maintenance support

Maintenance support⁸ is responsible for the maintenance of equipment at agreed levels of functionality. Maintenance support utilises materiel maintenance, availability management, maintenance engineering, recovery, and configuration management to ensure that equipment within the Army is in a fit condition to be used by the operator.⁹

Maintenance support is concerned with the availability of equipment to the operator. This is done through the use of component repair, modular repair or the complete replacement of equipment. Action is taken to ensure that the time between the failure of an item and its return to the operator in an operable condition is minimal.

The components of maintenance support are as follows:

- *Maintenance engineering.* Maintenance engineering is the continuous application of engineering skills, techniques and knowledge to influence the design, development, selection and reliability of materiel in order to provide adequately for its effective and economic through-life maintenance. Maintenance engineering provides the basis for maintenance plans, technical manuals and the assessment of requirements for repair parts, technical manning and training, facilities, and support and test equipment. It is not confined to the design, development and acquisition phases of the equipment life cycle. It also focuses, through the modification and amendment of care and maintenance procedures, on solving problems, defects and failures that threaten the operational availability of equipment when in service.
- *Materiel maintenance.* Materiel maintenance is all action taken to retain materiel in a fully functional condition or to restore it to such a condition. It includes the non-technical and technical inspections of items, operator maintenance, correct handling and storage of items, servicing, and repair to agreed levels. The maintenance system must strike a balance between, on the one hand, repairing forward for speed of response and, on the other, concentrating resources further back, in more secure areas, thereby increasing overall productivity.
- *Configuration management.* Configuration management is a discipline that applies technical and administrative direction to the design, development, production, introduction into service and support of materiel. The objective of configuration management is to ensure the technical integrity of material throughout its life.

8. Further information can be found in [Land Warfare Doctrine 4-2, Maintenance Support \(Developing Doctrine\)](#).

9. At the strategic and operational levels, maintenance support also includes providing advice on capital procurement and through-life costing for in-service support of an item.

- *Engineering or technical assurance.* While it could be argued that this is an element of maintenance engineering, engineering assurance gives the chain of command confidence that maintenance support is constructed in a safe and professional manner in accordance with Service and statutory requirements, which are currently within the guidelines of the Army Technical Regulatory Framework.
- *Recovery.* Recovery is the movement of equipment or components to a location where repair or replacement action can take place. This can involve either dedicated assets or utilisation of the distribution system.

Maintenance support considerations

Maintenance and recovery elements are often required to strike a balance between the demands of providing maintenance support as far forward as possible and the need to comply with the tactical situation. Technical efficiency requires the concentration of resources, minimal redeployment and good working conditions, which include aspects such as light and shelter. Tactical requirements, on the other hand, may dictate the need for dispersion, mobility and concealment. In addition to being guided by the principles of logistics, the following considerations are unique to the provision of maintenance support, and their application to the tactical level, are described as follows:

- *Cooperation.* Cooperation requires close liaison with the units and staff at all levels to ensure that maintenance and recovery plans are compatible with and complement the overall operational and administrative plans. In addition, maintenance elements must ensure that they develop close working relationships with other maintenance organisations within the formation, allowing the expeditious cross-loading of repair parts and repair tasks.
- *Forward repair.* Forward repair should occur as far forward as practicable. Any reduction in the quantity of equipment being moved between units and maintenance support elements reduces the need for recovery and transport resources, road congestion, and the opportunity for enemy interference in relation to recovery vehicles and convoys. Forward repair is influenced by the effectiveness of the equipment casualty reporting system, in particular the communication and information systems network, the timely distribution of repair parts, modules and assemblies, the availability of special tools, test equipment and facilities, the battlefield situation at the casualty site and the ability of tradespeople to improvise and implement battle damage recovery and repair techniques. Forward repair is achieved by a combination of methods, including the allocation of maintenance support elements in direct support of a battle group deploying forward repair teams and detachments, and providing maintenance support elements to each major concentration of equipment.

- *Self-sufficiency.* Forward repair teams and groups should ensure that they remain self-sufficient for as long as possible while performing the repair task.
- *Security.* Security is the responsibility of maintenance and recovery organisations for their own integral protection; however, their primary role is to provide maintenance and recovery support. Elements should not be located in areas where they could be exposed to deliberate attack, as any necessary defence commitment would hinder the maintenance support task. If possible, the maintenance and recovery support organisations should be sited to gain protection advantage from the deployment of other force elements. It is usually necessary to provide protection for recovery crews and forward repair teams moving to and working in exposed locations, commensurate with the threat environment.
- *Crew support.* Crew support from the supported unit is an integral part of maintenance and provides the intimate knowledge of equipment necessary for the maintenance element to quickly identify the fault and complete the repair. Supported commanders must factor in the provision of crew support to aid with security and expedite repairs, particularly during forward repair tasks. The crew should also help with the repair and the operator's assessment of work completed, being able to judge whether the repaired equipment has been returned to a functional state, at the same level or better than its previous performance.

Personnel services support

The personnel services support function provides the fundamental human element to Army operations. This is the context of generation, preparation and reconstitution of a force and the services provided to a deployed force. Personnel support activities serve two major purposes, these being support for commanders and units (force generation), and support to soldiers (force sustainment).

Force generation ensures that a trained and ready force is available and deployable for operations, and that the deployed fighting force is maintained at the authorised personnel schedule by managing the placement and replacement of soldiers. Force generation includes the aspects of force preparation for deployments.

Force sustainment provides essential personnel services to Army members to sustain the human dimension of the force while on operations. This fundamentally includes:

- reinforcements
- pay and financial resource management
- postal services
- laundry and shower services

- catering services
- mortuary affairs
- amenities
- philanthropic support
- pastoral and chaplaincy support
- legal support.

Reinforcements

Reinforcements include the replacement management system (administration preparation, training, deployment and redeployment) for sustainment of operations.

Pay and financial resource management

Pay and financial resource management includes:

- the calculation and payment of allowances and leave auditing, the management of cash imprest
- advice on financial policy
- contract negotiation and monitoring
- supporting local procurement efforts
- financial delegations
- auditing
- accrual accounting
- statutory reporting
- developing cost sharing and recovery arrangements with foreign forces
- fraud control planning
- funding and tracking operational costs
- monitoring key indicators
- assistance with corporate governance and providing resource management information to support the commander's decision-making process.

Postal services

Postal services process mail and provide official and private postal services during large scale operations. The postal service is able to provide the full range of postal facilities usually provided by Australia Post. It handles letter, newspaper, packet and parcel mail, and it may assist with official correspondence that is unclassified and of lower precedence than priority. When required, supplementary services such as remittance and savings facilities may be provided. Postal support is provided by the Australian Forces Post Office. Historically, the physical distribution

of postal support is a transport support function and may be executed by uniformed or contracted staff dependant on an operations support construct.

Laundry and shower services

Laundry and shower services is the provision of laundering and shower services via numerous options, including contracted services, disposal/replacement of uniforms, and locally employed civilians.

Catering services

Catering services maintain the morale and sustain fit and healthy forces through the provision of nutritious meals when and where possible. Caterers provide a feeding plan in accordance with the provision of fresh rations and combat rations as an alternative if fresh food is unavailable. A ration is the daily entitlement of food per person or forage per animal.

Mortuary affairs

Mortuary affairs is a command responsibility with personnel staff providing advice. This encompasses handling of personal effects and deceased personnel (including Defence civilians). It may include:

- search
- recovery
- evacuation
- identification
- processing of remains
- storage
- repatriation
- burial¹⁰.

The execution of mortuary affairs requires the contribution of numerous supporting functions. It may consist of search and recovery personnel, specialist mortuary staff and equipment to conduct victim identification and preparation of remains for movement, logistic and transport assets to store and transport remains, and mental health staff to support personnel and families, and to manage/arrange the final disposition of the remains.

The Australian Defence Force's limited organic specialist mortuary capability consists primarily of Reserve forensic odontologists, pathologists, anthropologists and mortuary managers. The specialist mortuary team can deploy to a site at short notice and is capable of assisting in search and recovery operations, identification, preparation of remains for movement, management of remains through the mortuary process and escorting duties to the point of disembarkation.

10. These functions may be provided by an Army or Australian Defence Force capability, coalition capability or specialist contractors.

Contact details for these Reserve specialists should be maintained by Director-General Health Policy and Headquarters Joint Operations Command in order for the capability to be activated promptly in the event of a requirement.

Amenities

Amenities facilities provide for rest and recreation time for deployed personnel. Support typically includes:

- unit recreation activities
- books
- magazines and periodicals
- audiovisual resources
- internet cafes
- sport facilities
- rest areas.

This support is invariably provided by Defence Community Organisation, voluntary organisations, Directorate of Personnel - Army, 39 Operational Support Battalion, National Welfare Coordination Centre (Joint).

Philanthropic support

Philanthropic support contributes to the morale of members and their families by providing services not normally available through official sources or public funding. The provision of these services is aimed at complementing the existing facilities and functions carried out by Australian Defence Force unit commanders, chaplains and welfare organisations.

Pastoral and chaplaincy support

Pastoral and chaplaincy support assists combat operations by promoting spiritual welfare, morale, personal stability, self-confidence and humanity. This includes:

- the provision of worship services
- an operational religious ministry
- teaching
- pastoral care
- counselling and advice to commanders at all levels on spiritual matters, ethical/moral issues, religion, culture and morale.

Legal support

The increase in the scrutiny of incidents, the requirement for legal advice and the preservation of incident sites significantly increases the potential involvement of legal support. Legal support is provided to commanders and to individuals via the

three main components of legal advice to commanders, legal assistance and legal aid to members.

Personnel management is also a component of personnel support, conducted in strategic and operation level planning and not specifically incorporated in provision of combat service support. The process of planning, organising, directing, recruitment and career development of personnel, the staffing of organisations, service conditions (including pay and allowances and honours and awards) and the administration of discipline. Further information on personnel management can be found in [Land Warfare Doctrine 1-0, Personnel](#).

Personnel services considerations

In addition to being guided by the principles of logistics, the following considerations are unique to personnel services:

- *Reliability*. This is to be applied in the provision of guidance and personnel support to all levels of command and types of operations. Personnel services providers must coordinate their advice and support with a large variety of Defence organisations, Services, chain of command orders and guidance, Government organisations to ensure the uniformity and clarity of information provided. For example, to provide reliable pay advice to members, it is essential to ensure a reliable and consistent adherence to organisational policy, in addition to correctly calculating payment of allowances, provision of limited banking services on operations, currency exchange support, payment of entitlements, and leave auditing.
- *Precision*. Precision of information management and advice to commanders and individuals is essential. This accuracy of advice has a knock on effect on morale, careers, compensation, retention, and general wellbeing of people.
- *Synchronisation*. This is the synchronisation of personnel services to ensure efficiency of service. For example, exchange or laundering of clothing should be synchronised with the provision of shower and catering services.
- *Sensitivity*. This is sensitivity to numerous policies and issues related to deployment on operations, and in the handling of personal information via the nature of tasks handled within personnel support functions.
- *Readiness*. Some elements of the personnel structure must be earmarked and kept at a high state of readiness to minimise delays in deployment of forces. They must be able to move themselves or support the relocation of forces to a desired area at short notice.

Health support

The objective of health support¹¹ is the conservation of personnel to maintain operational capability and combat power through minimising the effects of injury, illness and disease. The health services help prevent the loss of fit soldiers by providing health advice to commanders and personnel regarding adequate nutrition, shelter, clean water, clothing, sleep, immunisation, health education, dental health, environmental health and mental health support so that commanders have the maximum availability of their trained personnel.

Preventative health support

This consists of occupational health, environmental health, health and fitness promotion, health information, education and surveillance.

Occupational health

This relates to potential injury illness caused by the occupational conditions and surrounding environments military personnel operate within. In particular, it identifies and assists with the prevention and control of occupational illness and injury. Information gathered on occupational health conditions is essential as a source of identifying threats and developing countermeasures, considering health infrastructure needs and prioritising the use of health resources.

Environmental health deals with injury or illness caused by the environmental conditions military personnel operate within. In particular, it identifies and assists with the prevention and control of communicable disease, assessment of disease vectors and environmental threats such as temperature extremes and toxic substance detection and treatment.

Health and fitness promotion

Health and fitness promotion provides health information and education, as well as fitness and healthcare interventions designed to facilitate behavioural alterations that will improve or protect health. Immunisations and prophylaxis form a key part of the promotion of good health and preventative health.

Treatment and evacuation

Consistent with operational requirements, treatment and evacuation, assets are assigned and sited to ensure timely and effective health care for projected casualties. In the period immediately following wounding, casualty survival is directly related to the point of injury care, effective and timely evacuation (via surface, rotary or fixed-wing aeromedical or maritime platforms) and transfer to damage control surgical facilities. It is imperative that appropriate health planning is undertaken to ensure that effective casualty regulation, management of holding policies and communication occurs to supports positive treatment outcomes for personnel.

11. Further information can be found in [Land Warfare Doctrine 1-2, Health Support](#).

Treatment is a continuum ranging from self-aid to definitive care and consists of the following:

- *Resuscitation.* Resuscitation commences with immediate first aid, which includes self-aid, buddy aid or aid provided by a combat first aider or qualified health professional, and increases in complexity with subsequent roles of health support.
- *Primary health care.* Primary health care provides basic programs directed at the promotion of health, the prevention of disease and the early diagnosis and care of illness and injury. This includes:
 - *General medical care.* This is the provision of Role 1 integral health support such as those provided by a treatment team or primary health care team.
 - *General dental care.* This is the provision of dental care by a health facility providing close/general health support (for example, dental team attached to a brigade support platoon).
 - *Mental health support.* This is the provision of mental health support by health facilities providing general health support (for example, psychological support team attached to a brigade support platoon).
 - *Preventative health care.* This is the provision of preventative health advice and information designed to modify behaviour to reduce the risk of ill-health.
- *Surgery.* Surgery encompasses damage control surgery (resuscitative, initial wound surgery), delayed primary closure, wound and specialised surgery.
- *In-patient care.* In-patient care provides intensive, high, medium and low dependency care to injured or ill personnel admitted to a health facility.
- *Allied health care.* Allied health care provides the capability to provide diagnostic services (for example, pathology and imaging) and information required for the diagnosis, monitoring and treatment of conditions.
- *Rehabilitation services.* Rehabilitation services provide definitive care that is non-emergency in nature and restores normal function and/or minimises residual disability. Physiotherapists also work with physical training instructors to support return to duty of military members.
- *Specialist consultation.* Specialist consultation provides services that directly support the provision of advanced patient care. The requirement to deploy specialist health personnel and consultants on operations is integral to the development of effective combat health service support, with reserve force specialist health personnel being fundamental to providing Role 2, Role 2 Enhanced and Role 3 health support.

Health support considerations

In addition to being guided by the principles of logistics, the following considerations are unique to health support:

- *Readiness.* Reaction time is crucial in the provision of effective and efficient health support. There are aspects of an individual's clinical readiness that require consideration and planning as this will impact the readiness of health support elements deploying to, and during, operations.
- *Flexibility.* Being prepared and empowered to task resources as required to meet changing requirements and to support the tactical commander's scheme of manoeuvre, flexibility is required to rapidly transition from one task to the other across the range of operations. Closely monitoring valuable health assets to reallocate or recommend reallocation of medical skill to combat teams in contact with the enemy and where the highest rates of casualties will potentially require treatment for traumatic wounds and injuries.
- *Mobility.* Assets need to remain within supporting distance to support manoeuvre forces. Support must be responsive in an operational environment.
- *Continuity.* While patients are moved through the progressive evacuation and treatment process, care provided from the point of injury through to base hospital contributes to a measured and logical step appropriate to location, environment and capability.
- *Timeliness.* A primary determinant of all health planning is time. Health planners and commanders must understand the impact of time for preventative health measures, treatment, response and recovery of personnel. Support should consider time and associated risk and mitigations in planning phases of operations.

Engineer sustainability support

Engineer sustainability support¹² directly contributes to the force by providing specialist knowledge of the physical environment, which includes the effects of terrain, climate and weather on military operations. Combat service support elements rely on engineering support to enable them to carry out their functions, in particular, mobility and survivability effects for efficient activity (infrastructure such as roads, airfields, protective bunds, shelter and establishing essential services). Conversely, engineers rely on combat service support for both their own support and project stores to enable them to conduct engineering tasks.

12. Further information can be found in [Land Warfare Doctrine 3-6-1, Employment of Engineers](#).

Engineer support is the action taken to enable a force to maintain the necessary level of fighting power for the duration required to achieve its objectives. Typical engineer support tasks include:

- constructing, repairing and maintaining infrastructure and services such as water and electric power
- providing construction materials such as rock, sand, timber and non-potable water
- producing potable water
- disposing of waste materials.

Infrastructure

A wide range of infrastructure may be constructed, repaired or maintained during the initial stages of an operation, but the most likely types include:

- air and sea ports and their supporting facilities
- roads
- railheads, railways and their supporting facilities
- storage facilities and hardstands
- the enhancement of force protection for base facilities such as rocket screens
- working and living accommodation.

Services

Services (such as water, sewerage, electricity, gas) will be required for each of these types of facilities, and the use of civilian infrastructure will have to be coordinated with the recognised civilian authorities. Some construction materials may be won, salvaged or procured in a theatre. These materials include raw materials such as rock, sand and timber, as well as manufactured or prefabricated items. The force engineer will issue policy on what is permitted and the restrictions that apply, particularly in regard to environmental standards.

Water

One of the most important requirements of a force is an adequate supply of water, particularly potable water. Potable water is required for human consumption and washing, animal consumption, cooking, and chemical/biological/radiation personnel decontamination. Potable water may be transported into a theatre or won locally. Non-potable water can be used for equipment cooling systems, laundry services, mobile baths, equipment decontamination, construction tasks and firefighting. The prolonged use of non-potable water for these activities, however, can result in accelerated wear on equipment and materiel due to the impurities in the water.

Engineers are responsible for producing potable and non-potable water. To achieve this, they will have to establish and operate water points and perform field tests on the suitability of potable water. They may also have to filter out contamination. The packaging, distribution and testing of water is a combat service support responsibility.

Waste materials

In a theatre of operations, waste materials can be generated by own forces, the enemy, the local population or nature. Unless it begins to impact on the conduct of operations, the waste generated by the local population will generally not be accepted as a responsibility of the force. Waste materials pose a risk to the force as well as the environment, and therefore need to be managed. Management and disposal actions including assessing the risk posed by waste materials, preventing contamination, collecting and disposing waste materials, and refurbishing any damage to the environment.

All units are responsible for the maintenance of hygiene within their organisations. This responsibility includes the local collection and storage of waste materials. Units are also responsible for requesting advice and assistance either to further backload or to deal with waste materials in their areas of responsibility. The physical execution of waste removal is conducted by a range of combat service support personnel, engineering personnel and contractors. In some instances, such as for medical or chemical/biological waste material, disposal action may be best achieved in the force's troop-contributing nations or in another, nearby country.

Engineer sustainability support considerations

In addition to being guided by the principles of logistics, the following considerations are unique to engineer sustainability support:

- *Reliability.* This is to be applied in the provision of sustainability guidance and support to all levels of command and types of operations in differing terrains, climates and weather. The crucial nature of support provided to combat service support elements deems reliability a necessary aspect in the execution of tasks.
- *Flexibility.* Being prepared and empowered to task resources as required to meet changing requirements and to support the tactical commander's scheme of manoeuvre, flexibility is required to rapidly transition from one task to the other across the range of operations.
- *Mobility.* Engineer sustainability assets need to remain within supporting distance to support manoeuvre forces and combat service support tasking. Support must be responsive in an operational environment.

- *Accuracy.* All engineer support actions must be precise in execution. The accuracy imperative is to deliver support in the right location, time, and quantity in response to the demand requirement.

Chapter 3

Command and control

Centralised planning creates the screen through which ideas, good and bad, can be filtered. Equally important is decentralised execution. It has been said, and I firmly believe, that everybody is an expert within their own twenty-five square feet. In order to draw on that expertise, the organisation has to download as much authority as possible. People need to be given a vision and plan, trained and then turned loose. Clearly, task specified planning has to occur at every level of the organisation (not just at the top).

William G Pagonis¹

The principle of unity of command applies equally to logistics as it does to operations. Within any military organisation, at any level, there should be a single authority responsible for logistic support. Ultimately the operational commander is the authority responsible for logistic support in the theatre. Effective command and control of logistics helps ensure the effective employment of resources in the face of competing demands raised by forces engaged in operations. Logistics command and control enables staff to monitor unfolding events, make sound and timely decisions on resource allocation, and implement decisions quickly, facilitating the generation and maintenance of tempo, hence enabling decisive action.

Joint land operations acknowledges that strategic success requires fully integrating Australian military operations with the efforts of interagency and multinational partners. The sustainment of joint land operations requires a seamless link between the strategic, operational, and tactical levels. It also requires close coordination and collaboration with other Services, allies, the host nation, and other governmental organisations. The Australian Defence Force employs greater centralised control at the strategic and operational levels of logistics and seeks to decentralise the conduct of tactical logistics functions to the maximum extent possible.

1. Pagonis, WG and Cruickshank, JL, 1992, *Moving Mountains: Lessons in Leadership from the Gulf War*, Harvard Business School Press, Boston, pp. 199–229.

Command and control of logistics at the strategic level

The Chief of Defence Force commands the Australian Defence Force and is the principal military adviser to the Minister for Defence and Government.² As logistics is a function of command, responsibility for the provision of logistic support rests with the Chief of Defence Force. In practice, the Chief of Defence Force appoints the Commander Joint Logistics as the strategic J4 and the principal staff officer responsible for strategic logistic matters, comprising:

- setting the strategic logistics direction, providing best possible logistics advice and steering logistics policy, standards and practices
- coordinating the generation and sustainment of all logistics activities
- directing logistic governance and assurance compliance within the Australian Defence Force
- conducting strategic logistics engagement and capability advice to Chief of Defence Force and the Secretary, including logistics support agreements, arrangements and relationships with relevant militaries, governments and non-government organisations
- managing and coordinating the delivery of support to an agreed point³ during operations
- logistics support in the national support base, including point of embarkation and mounting base support
- manage the effectiveness of the supply chain
- technical control of all deployed and non-deployed logistic assets assigned in support of operations
- liaison with national support base agencies to coordinate support across the theatre, joint movement control and the planning of support for future operations.

Owing to the complex and technical nature of health support, the Chief of Defence Force divests strategic management of Australian Defence Force health capability with Commander Joint Health. As the Defence process owner for Joint Health and the Surgeon General for the Australian Defence Force, Commander Joint Health is:

- responsible for the coordination and oversight of health services within Defence

2. Further information on the Chief of Defence Force and Commander Joint Operations command and control can be found in *Australian Defence Doctrine Publication 00.1, Command and Control*.

3. The agreed point is the location where the responsibility for materiel in the supply chain transfers to a subordinate or in the case of retrograde activity to a superior, network manager.

- responsible for the integration of functions that are delivered by the Joint Health Command to ensure the affordable delivery of agreed service levels and functions
- responsible for the provision of effective garrison health and health-related support services for Defence operations, exercises and preparedness
- capability coordinator for all aspects of health materiel capability management for Defence operations, exercises and preparedness
- responsible for providing leadership and effective health capability coordination to enable the delivery of health and health-related support services to Defence operations and exercises
- responsible for participating in, developing and managing health inclusive agreements, arrangements and relationships with relevant militaries, governments and non-government organisations
- responsible for the development and management of strategic and operational level health policy
- responsible for technical control of Defence health service governance, compliance, assurance and reporting that maintain alignment with Australian healthcare standards and regulatory frameworks.⁴

Commander Joint Logistics and Commander Joint Health work together at the strategic level to provide the bridge of seamless support between the national support base and the deployed forces within an operational theatre.

Further information can be found in [Australian Defence Doctrine Publication 1.2, Health Support to Operations](#).

Command and control of combat service support at the operational level

Once assigned responsibility for a joint operation, Commander Joint Operations executes the provision of logistics via the Director General Support⁵ and the J4 on the Joint Task Force headquarters. While these staff officers may not have direct command and control over all logistic assets, they are responsible for logistic outcomes from the point of origin to the destination. The Joint Task Force commander exercises command in the theatre of operations including over assigned logistic assets, and control over processes and assets in support of operations, such as contractors.

The J4 is responsible to the Joint Task Force commander for the delivery of combat service support in theatre, forward of the agreed point. The J4 is

4. *Joint Health Command Strategic Plan 2014–2016*.

5. The Director General Support is the principle staff officer within the Joint Operations Command (Brigadier [or equivalent]).

responsible for establishing the logistic priorities in response to the operational commander's plan and will exercise control over assigned theatre combat service support assets and processes.

Command of deployed combat service support

In some cases, such as during the initial build-up in theatre or when the number of allocated logistic assets is too great for an existing logistic commander, the Commander Joint Operations may appoint a dedicated Logistic Component Commander. When appointed, the Logistic Component Commander exercises command of all assigned logistic assets in theatre. A Logistic Component Commander will work closely with the J4 to exercise control of the logistic effort. The focus of the Logistic Component Commander is the delivery of logistic support to the Joint Task Force in theatre and the provision of logistics information back to Commander Joint Operations, Commander Joint Logistics and Commander Joint Health.

Command and control of combat service support at the tactical level

Combat service support at the tactical level is the responsibility of the deployed land force component commander. The commander must plan and coordinate tactical combat service support within the land force and coordinate with higher headquarters for the operational-level combat service support necessary to sustain land operations. Subordinate commanders are responsible for the efficient employment of integral combat service support capabilities, while the combat service support force element commander is also responsible for executing combat service support operations in support of the entire land force.

All elements of the land force execute tactical combat service support by employing integral capabilities. The combat service support force element, possessing capability beyond those found in combat and combat support units, provides additional capability to sustain land force operations as required. This could be achieved through the allocation of combat service support capability bricks in direct support of commanders, or through centralised control of combat service support force elements supporting multiple units concurrently.

Staff relationships

A close and continuous relationship between operations and combat service support staff is critical for mission success. The operations staff must be kept informed of combat service support capabilities and limitations, just as the combat service support staff maintain awareness of the proposed employment of the force. Scheduled events to synchronise staff effort ensure that coordination and cooperation are maintained.

Within the combat service support staff there is a clear division of effort between those responsible for future planning and those concerned with current

operations. While it is necessary for their responsibilities to overlap to ensure seamless transition from one to the other, it is important that combat service support staff with longer term planning horizons remain at arm's length from the current provision of combat service support. Future planning staff are concerned with the incorporation of combat service support considerations into military planning, including the determination of requirements, and allocation and disposition of resources. Current operations staff translate a plan into orders, allocating tasks and coordinating instructions to combat service support force elements. Ideally, the same staff should not be responsible for both.

Command relationships

Command authority needs to be identified to allow commanders to know who they are responsive to for the allocation of tasking, resources and advice. The term 'supporting' describes an organisation whose sole mission is to provide directed logistic support to listed dependencies. Again, this will be described by what support will be provided (fuel, postal, movements and so on). The term 'supported' describes the dependency receiving support from a supporting organisation. This will be listed by what support they will receive (for example, postal, fuel, medical support and so on). This supported arrangement could be provided from multiple supporting organisations. The reference made to either supporting or supported force is a transition from the former lines of support (first, second, third, fourth) used to describe from where the support has been provided and the command authority.

Types of support

The ability to generate fighting power through a combination of firepower, mobility and protection will be facilitated through the tailoring of logistic support at all levels to ensure that operations can be mounted and sustained. This optimal level of operational viability will be based on an irreducible level of integral support within each combat and combat support unit and the allocation of additional capability based on mission factors derived from the assessed destination, demand, distance, duration and dependency. To achieve this, combat service support capabilities can be arranged within types depending on the requirements of the mission (described in [Chapter 2](#) as being integral, close, general, and mounting). The chief premise is the centralised control and decentralised execution of logistic support to optimise the use of scarce logistic resources. The challenge is to achieve this without unduly sacrificing the flexibility required to support a broad spectrum of operations. As combat forces are tailored for their mission and the geography, so too are logistic forces.

These types of support should not be linked to specific organisations or geographical areas but should rather be flexibly tailored with appropriate capabilities to suit the operation, mission and environment. The key is for the supported force to derive the support benefit when and where required, using the appropriate command and control arrangements, rather than necessarily owning

the capability just in case it is required. The relationship between the types of support and the levels of war is shown diagrammatically in Figure 3–1.

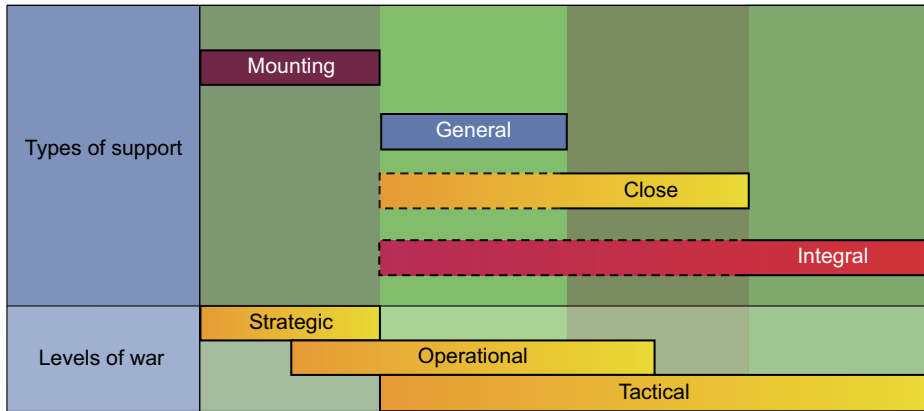


Figure 3–1: Types of support and their relationship to the levels of war

Support arrangements

The allocation of non-organic combat service support force elements to a manoeuvre commander with any degree of permanency may induce latency, inhibit the flexibility of the combat service support system, and reduce the higher commander’s freedom of action. Noting the relative scarcity of combat service support assets – in particular those specialised and niche capabilities requiring centralised control – and the requirement to be flexible and responsive to the needs of more than one manoeuvre unit simultaneously, appropriate command and control relationships must be established. Conforming to the premise that combat service support effects are governed by time and space, non-organic combat service support force elements are best assigned to manoeuvre commanders under support arrangements, as follows:

- Direct support.* A combat service support force element in direct support of a manoeuvre unit is primarily concerned with the provision of close support to that unit, at a given location and for a given period of time. The supporting combat service support commander plans the support required in consultation with the supported manoeuvre unit, and retains the authority to reallocate forces and effort elsewhere if the need arises. Where possible, combat service support force elements should habitually support the same manoeuvre unit to enhance coordination and training, however not at the expense of remaining flexible in the provision of support. In the context of an Australian combat brigade, the allocation of combat service support force elements via direct support to a manoeuvre unit invests maximum flexibility in the combat service support battalion commanding officer, enabling them to prioritise support when and where it is required.

- *In support.* A combat service support force element assisting another formation, unit or organisation while remaining under the initial command arrangement.
- *Reinforcing.* Reinforcing involves a combat service support force element augmenting the effect of another. When a direct support combat service support force element requires additional capacity to meet the support requirements of a manoeuvre force, another combat service support force may be assigned the reinforcing mission.
- *Priority for combat service support.* This is a method that allows the priority of combat service support to be specified for a period of time or for a specific event. In this context, a combat unit designated as the priority for combat service support would be afforded absolute priority of all combat service support – not just a direct support combat service support force element – over other manoeuvre elements, in accordance with the higher commander's priorities.

An example of the use of support arrangements could be: a beach landing team from the force support group (general combat service support) may be allocated reinforcing to a direct support combat service support team (close combat service support) for the provision of a manoeuvre unit amphibious lodgement. Once this operation is complete, the reinforcing beach landing team would be returned to the force support group, and the direct support combat service support team may be retained, reallocated to another manoeuvre unit, or reabsorbed into the combat service support battalion depending on priority.

Technical control

Technical control may be used where necessary to designate the specialised and professional operating procedures essential to the appropriate management and operation of forces. Technical control of logistic processes or sub-processes is vested in the appropriate technical authority. Any issues regarding technical control and technical processes in the theatre of operations are the responsibility of the theatre commander. Regardless of where technical control is vested, technical regulation must occur at all levels. At the strategic level, some technical control will span the responsibilities of both the Commander Joint Logistics, Commander Joint Health Command and the theatre commander and will be negotiated on a case-by-case basis.

Support networks

Modularity/Task organisation

The successful application of combat service support requires a philosophy that allows support capabilities to be tailored, scaled, versatile and adaptable, and able to be rapidly reorganised and customised for specific missions and

environments.⁶ This implies the requirement for a corresponding modular force structure for supporting capabilities. Modular combat service support assets will enable the effective positioning of support and service capabilities throughout the battlespace, effectively matching resources to demand and facilitating freedom of manoeuvre.

Links and nodes

Combat service support is provided through a network of support links and nodes. These include the support bases, distribution hubs and exchange points required to position resources and services to meet operational requirements.⁷ The system used for the provision of combat service support is dynamic and made up of a series of links and nodes which can be best described as follows:

- *Nodes.* Nodes are the geographical locations where combat service support activity is conducted, and could include:
 - the receipting, staging, storing, configuring and issuing of stores
 - the treatment of casualties
 - the repair of equipment
 - the exchange of stores, personnel and equipment.
- *Links.* Nodes are interconnected by multi-modal support links (example, road, rail, water, sea, air and pipeline) enabling the transfer of resources through the system in a timely manner. The ability to bypass or cross-level between nodes is critical to enhancing responsiveness and robustness. The links are effectively routes between each of the geographical locations.

This system of links and nodes forms a dynamic integrated support network (see [Figure 3–2](#)). The system is dynamic because links and nodes in and around the battlespace need to exist only for the duration required to deliver the support or services required for that mission. The system operates on a tempo which is responsive to operational surges and reduces logistic friction. The basis of this system is that nodes are established when and where required in order to meet the critical logistic events for the line of operation.

6. A further description of the logistic support framework can be found in [Australian Defence Doctrine Publication 4.2, Logistics Support to Operations](#).

7. Readers should be cognisant of the fact that a number of concepts endorse other processes for the provision of combat service support. These processes are reach-back and operational sea-basing.

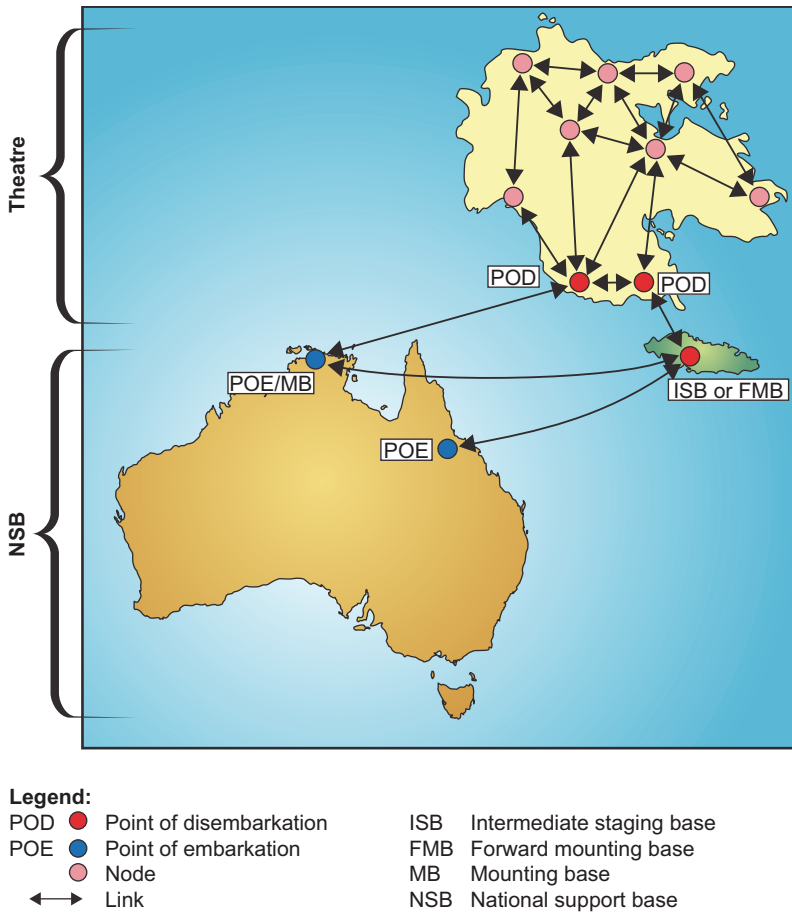


Figure 3–2: Integrated support network

Network of support nodes

The logistic network connects the national support base, through a mounting base near the point of embarkation (a mounting support node) to an intermediate staging base or to a forward mounting base when required, to a point of disembarkation (general support node) in a theatre of operations. A general support node will be tailored to provide appropriate force endurance across the range of general and close support tasks to sustain a nominated dependency, which might be the entire deployed force. In addition, the provision of close support enables further links to be established external to a point of disembarkation in order to provide specific support to brigade or smaller tactical operations. Like the manoeuvre forces, combat service support is tailored to meet operational sustainment and geographic situations. This requires a balanced,

modular approach to structuring the necessary capabilities across the support network.⁸

Mounting base. A mounting base is normally located in the national support base and acts as the focal point for the mounting and sustainment of a deployed force. Normally Headquarters 1st Division provides the command, control and coordination functions of the mounting base, including the conduct of certification of force elements and pre-deployment training requirements prior to formal handover of force elements to Headquarters Joint Operations Command.

Intermediate staging base. An intermediate staging base is a temporary location used to stage forces prior to inserting them into the operational theatre. It will not always be necessary but may be used when deployment distances are large and/or deploying force elements need to be regrouped. In some instances, it may be necessary to utilise an intermediate staging base for the temporary staging of forces prior to the insertion of the force and can conduct reception, staging, on-forwarding and integration activities.

Forward mounting base. A forward mounting base is a secure base, port or airfield from which an operation may be launched. It should have the capacity for an insertion force to form up within it, for acclimatisation and training to occur, and subsequently to handle reinforcements and reserves. The forward mounting base may be the focal point for reception, staging, on-forwarding and integration activities.

General support node. For other than minor operations, most general support will be grouped into a force support group. It maximises the utility of the proposed modular approach to structuring support capabilities and is capable of incorporating joint, combined and host nation support capabilities. The concept is designed to create unity of support command and control, better aligned logistic priorities and execution with the operational commander's requirements, improved utilisation of scarce logistic capabilities, and enhanced support flexibility. The duration, intensity, scale and location of an operation and the availability of in-theatre commercial and allied support will determine the range and depth of capabilities required in theatre. A general support node, also referred to as a 'force support area' or 'force maintenance area', will normally be co-located with air and/or sea points of disembarkation.

Forward operating base. The complex nature of the operating environment will often result in combat teams and battlegroups operating from a secure forward operating base. These nodes will normally include the unit's integral support elements or echelons. These integral elements could be reinforced by the temporary or permanent allocation of close or general support elements depending on the size and complexity of the force elements and the duration and geographical layout of the battlespace.

8. This is inclusive of number, location, capacity and size of support nodes.

Grouping of support

In land-centric operations, combat service support elements can be task organised into the following groups and placed as support nodes throughout an area of operations:

- *Combat service support team.* A combat service support team is a task-organised combat service support capability of up to sub-unit size, typically configured to provide combat service support up to a battalion-sized organisation or battle group. A combat service support team would normally have mobility and communications commensurate with the manoeuvre element that it is supporting.
- *Brigade support group.* A brigade support group is an organisation comprising the combat service support battalion and a number of different units or elements thereof. It is task organised to support a brigade-sized formation. A brigade support group should have mobility and communications commensurate with the brigade it is supporting.
- *Force support group.* A task-organised formation of specialised combat service support units, usually consisting of a composite force support battalion, a general health battalion and a signals squadron, tailored to provide combat service support to a deployed force.
- *Collection point.* A geographic location designated for the assembly of personnel casualties, prisoners of war, stragglers, disabled materiel and salvage for further movement back through the distribution system. This point can also be referred to as an equipment collection point or casualty collection point.
- *Distribution point.* A geographic location at which combat supplies can be collected by the supported unit from the supporting unit. They are normally established to reduce the distance between the dependency and the support node. Distribution points can be composite, carrying Class 1, Class 3 and Class 5 or can be a single commodity such as at ammunition point or petrol, oils and lubricants point. In mobile operations, the establishment of a collection point or distribution point will generally be only for a defined window of time before it relocates to ensure responsiveness to the supported force.

Governance and assurance

Australian Defence Doctrine Publication 4.0, Defence Logistics describes Governance as the people, policies and processes that provide the framework within which commanders and managers make decisions and take actions to optimise outcomes related to their spheres of responsibility. The principles of good corporate governance are accountability, transparency, integrity, stewardship, leadership and efficiency.

Strategic-level input

Strategic guidance is provided to Army through the Vice Chief of Defence Force as part of the decisions and actions developed through the Defence Logistics Committee. This committee is a key element of the Defence logistics governance framework and is responsible for managing whole-of-Defence agenda for strategic logistic issues via the following outputs:

- providing strategic guidance and policy direction for logistics issues to support the whole-of-Defence agenda
- facilitating the provision of effective logistics support to Australian Defence Force operations
- approving logistic policy and doctrine that applies to joint and coalition situations
- reviewing the logistic Performance Management Framework to identify any shortcomings in logistic performance
- providing advice to Commander Joint Logistics, as the Defence Strategic J4 and joint logistics capability manager.

One of the other principal contributors to Defence logistics corporate governance is Joint Logistics Command. This organisation contributes to the governance areas of Army by:

- leading the coordinated delivery of effective and efficient logistics to enable Defence to train and conduct operations
- managing supply chains to the operations agreed points
- establishing temporary support infrastructure
- establishing and managing contractor support to operations
- providing logistics compliance and assurance oversight, and technical regulation of explosives storage and distribution
- developing logistics policy, processes, procedures and future plans
- managing the national and international logistics support arrangements and agreements
- sponsoring joint logistics capability and integrating new logistics support capabilities into Defence.

Managing the supply chain

Managing the supply chain is a vital aspect of military operations. Defence logistics corporate governance is also supported by Joint Health Command. This organisation contributes to the governance areas of Army by:

- optimising garrison health services to the Australian Defence Force

- reviewing and developing health policy, advice and programs to ensure that they remain evidence-based and current
- managing, coordinating and undertaking research to improve the health of Australian Defence Force members
- developing and maturing the Joint Health Command Health Information System capability
- maturing, implementing and managing the health capability coordination and governance system
- developing and maintaining strategic partnerships with relevant Australian and international (including military) organisations
- developing enhanced command, leadership, management, and governance arrangements.

Detailed and specific methodology for components of logistics governance and assurance is outlined in the *Defence Inventory Assurance Strategy Financial Year 2016–2017*, *Defence Radiation Safety Manual*, *Defence Logistics Manual* [Part 2 and Part 3], and the *Logistics Assurance Branch Strategic Plan 2015–2020*.

Army input

Outside of Army's legal responsibilities as an organisation, there is a need to maintain a consistent governance framework and assurance system to enable Army to meet its logistics preparedness and operational requirements. This provides logistic personnel with a controlled and carefully regulated operating environment which in turn provides a level of confidence in the logistic support provided to the force.

As an example the Technical Regulatory Authority - Land was appointed to establish and manage the compliance monitoring, assurance and accreditation system for the land Technical Regulatory Framework. Engineering and maintenance organisations are subject to Technical Regulatory Framework compliance monitoring, assurance and accreditation processes.⁹

9. Further information on the compliance and assurance activities within maintenance can be found in the *Technical Regulation of Australian Defence Force Materiel Manual-Land* [Section 1, Chapter 4].

Chapter 4

Logistics planning

Logistics considerations belong not only in the highest echelons of military planning during the process of preparation for war and for specific wartime operations, but may well become the controlling element with relation to timing and successful operation.

Vice Admiral Oscar C Badger, United States Navy¹

Thorough logistic planning is fundamental to operational success at all levels of war. The quality of planning, and the flexibility this planning offers the combat force, is a function of the general and technical planning considerations. Although logistic planning is based upon a firm grasp of doctrine, logistic plans must be based on an understanding of the supported commander's intent and operational plan and an assessment of likely risks as discussed in [Chapter 1](#).

In the context of the Australian Defence Force's logistics system as a whole, logistic plans effectively unify the generation of capability at the Defence level, and their eventual employment on operations. Planning for logistics focuses on integrating the logistics core capabilities with all combat operating systems at all levels in order to get to the fight, to sustain the fight, and to prepare for the next fight.

Strategic level

Strategic planning is based on the generation of military options to achieve the Government's national objectives. The Chief of Defence Force, with support from the Strategic Command Group, has responsibility for strategic-level planning. Strategic planning is governed by the time available between the recognition of a requirement for a military response to a situation and the implementation of that response. Defence logistics must be responsive to support a diverse range of contingencies, and therefore a range of support arrangements are pre-planned and ready to execute at short notice.

While the Chief of the Defence Force directly commands the Australian Defence Force and is therefore responsible for logistics outcomes, they are supported at the strategic level by key advisers and subordinate commanders. Logistics planning at this level is broken into distinct command components, being the Defence Strategic J4 (Commander Joint Logistics), the Surgeon General

1. Vice Admiral Oscar C Badger, address given to the Naval War College 1954, Newport Rhode Island.

Australian Defence Force (Commander Joint Health), and joint logistic staff located in Joint Operations Command.

The Commander Joint Health coordinates the delivery of Australian Defence Force health care, provides evidence-based strategic advice and serves as the Australian Defence Force Health Capability Coordinator, develops and maintains strategic partnerships to enhance Australian Defence Force capability, and develops and maintains strong organisational governance to plan, manage and continually improve the delivery of health capability. Army provides specific health planning advice to the joint planning construct when focusing on operational capacity.

Under the stewardship of the Defence Strategic J4, and in the context of the Defence logistics enterprise², strategic logistics planning seeks to harness the full potential of Defence's logistics capability in support of military operations.³ This planning has incorporated consideration of direction provided by the release of key strategic guidance documents⁴ along with the development of a Performance Management Framework by the Defence Strategic J4. The Performance Management Framework monitors the planning and execution of strategic logistics effort through nine key work streams⁵ and a series of associated performance milestones which directly impact on Army's logistic capability and development, more specifically by Army being a member of the Defence logistics enterprise (see the *Defence Logistics Enterprise Strategy 2016-2021*).

The Capability Life Cycle is the core business process of Defence and is critical in enabling Defence to perform its primary role of defending Australia and contributing to the protection of its national interests. The Capability Life Cycle operates within the government's decision-making framework and seeks to align strategic policy, capability and resources to provide options for government on the design of future Defence capability, in particular the future force structure, including Army-specific capability. Consequently the logistic staff within Army Headquarters and subordinate headquarters are required to analyse and plan for the implications of the Capability Life Cycle so Army is enabled to continue to provide relevant, considered and timely logistics contribution to Army-specific capabilities. Army logistic planning staff must understand and adapt to this program-centric approach to ensure alignment of logistics systems at all levels

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2. The Defence logistics enterprise comprises an array of Defence organisations (including the Services, Joint Operations Command and Enabling Groups) that contribute in different ways across a multitude of functions in support of Defence capability.
 3. Although health services are a component of logistics, the Strategic J4 is not responsible for health other than delivery of health-related items of supply and principle items assisting Australian Defence Force health capability.
 4. 016 Defence White Paper, Integrated Investment Program, Defence Industry Policy Statement, Defence Planning Guide, Australia's Military Strategy, Australia's Joint and Future Joint Operating Concepts Framework.
 5. Key work streams include logistic support to military operations, Defence Logistic Information Systems, Defence supply chain, engineering and maintenance, logistics engagement, capability development, logistic research and development, governance and assurance, Workforce Planning and Development.

and through all phases of the Capability Life Cycle. The Capability Life Cycle is detailed in the *Interim Capability Life Cycle Manual*.

Logistic planning within Army and at the strategic level can be complex as the provision of logistics is not only generated from organic assets. There is a continued reliance upon wider, external to Defence, logistic providers for supplemental logistics support to Defence capability. This includes coordinated support from other Government departments, foreign militaries, global and national defence industry and academia. In order to optimise resources, manage risk and plan effectively, Army logistic staff must remain fully engaged with the broader Defence logistics domain in a collaborative and inter-operative manner.⁶ It is this network of relationships and linkages between the elements of the Defence logistics enterprise and wider logistics domain that enables and assures support to Army capability and operations. The logistics functions and effects and their relationship to the enterprise and domain are detailed in *Australian Defence Doctrine Publication 4.0, Defence Logistics*.

Operational level

Operational planning focuses on the design, organisation and execution of operations and major exercises. The Commander Joint Operations has the responsibility for planning at the operational level and is supported by Headquarters Joint Operations Command staff members. Planning at the operational level also incorporates contribution of planning effort from Service Headquarters, Headquarters 1st Division and subject matter experts from within the three Services to generate the required output within the designated time, resource and geographical restrictions.⁷ A joint logistics planning group will be generated by Headquarters Joint Operations Command staff triggered by a Warning Order when a decision is made to initiate operations.⁸

Planning is a continuous and interactive process, with regular exchange of ideas, concepts and planning data between the logistics planning staff to produce a support order, sustainability statement, a health support plan and other pertinent logistic planning guidance and direction for circulation to the Service logistic planners and lower levels of command. The output and ideas produced at this level of planning will invariably generate into strategic concepts and tailoring plans of the higher level to fit the means available and required to be made available to the lower levels of command.

6. The notion of a coherent Defence logistics enterprise within the logistics domain is further detailed in the *Future Logistics Concept 2035* and *Australian Defence Doctrine Publication 4.0, Defence Logistics*.

7. Planning at the operational level is also covered in greater detail in *Australian Defence Doctrine Publication 5.0, Joint Planning*.

8. The decision is commonly made by the Chief of Defence Force in consultation with Minister of Defence and the Australian Prime Minister depending on the scale of operation.

Regardless of whether the planning is undertaken for deliberate⁹ or immediate¹⁰ outcomes, a number of concurrent and sequential activities are conducted by logistic staff following the commonly applied planning tools of the staff military appreciation process or joint military appreciation process to assist in quantifying the requirement and producing a logistic plan at the operational level.¹¹ It is important to remember that the military appreciation process is a holistic process for commanders to analyse their mission and identify the optimum plan. It is erroneous to consider any element separately, therefore logistic staff are intimately engaged with planning staff from across the planning configuration to ensure that the optimum support plan is produced to support the Commander's intent and to achieve the mission at hand.

Quantifying the requirement

The 5Ds that need to be addressed, if logistic requirements are to be assessed, fundamentally come down to destination, demand, distance, duration, and dependency, as mentioned in [Chapter 2](#). Detailed staff checks must be conducted to ensure that the operational plan is viable. Consideration of the 5Ds are the start point of all logistics and combat service support planning.¹²

Destination. Consideration of destination factors defines the overall environment in which the operation is to take place. The operating environment determines the conditions for the pattern of wear and tear on equipment, the variety of supplies and the physiological demands on troops. The destination will define the strategic lines of communication, the overall size and shape of the regeneration loop, the resources needed, the timing and the speed of deployment. The length of time and difficulty involved in maintaining the lines of communication or reach, and the ability of the enemy to interdict it, will determine the need, or otherwise, for intermediate bases and the extent to which non-military sources may be used to provide logistic support to forces.

Demand. Demand for supplies and services are not simply the gross mathematical consumption, but also its pattern, its rate of change and its variability. Demand stems directly from the commander's intent and the tempo of operations. It is the sum of the steady state, cyclical and surge demands. The key is for the supported force to derive the support benefit when and where required, using the appropriate command and control arrangements and articulation of responsibilities, rather than necessarily owning the capability just in case it is required. The two basic methods of providing the logistics or combat service support are via the push and pull system, as discussed in [Chapter 2](#).

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9. Planning for the possible and used to determine military actions that could be undertaken in a contingency or well in advance of a specific operation.
 10. Immediate refers to planning for the likely or certain and is the staff process of determining military actions in response to an actual situation.
 11. For more detail regarding specific steps of the staff military appreciation process, refer to [Land Warfare Doctrine 5-1-4, The Military Appreciation Process](#).
 12. This is applicable to all logistic aspects (health, supply, personnel services, transport, maintenance, engineer support).

Dependency. Analysing the type and quantity of forces requiring combat service support will enable logistic planners to quantify logistic requirements to mobilise and sustain the force and plan for any specialist or contractual requirements in addition to defence logistic capabilities. Logistic planners will need to understand the dependencies equipment fleets, personnel numbers and likely operating characteristics.

Distance. Distance requires consideration not only of the strategic lines of communication but also distances between likely nodes within the theatre. The length, capacity and topography of the lines of communication will determine the size, shape, structure and balance of the distribution resources committed to it. Distance factors will also determine the volume of resources committed for operating stocks within the regeneration loop, and the time in transit and the requirement for forward bases or intermediary staging posts.

Duration. The length of operations and rate of demand will determine the overall volume of materiel necessary or the size of the logistic problem. It will specify the endurance requirements, the need to rotate or replace equipment and personnel, and medical holding policies. The commander will need to assess the risks involved in a short, sharp, lightly supported operation against those of a fully resourced, more deliberate and possibly better prepared operation, which takes longer to mount. Consideration of duration should also account for the time available for preparation and how long the force may be required to act independently.

The period of contingency is the term given to the planning time frame which should be used to assess and determine the period for which operational resource requirements will be required. The period of contingency encompasses three time periods: the work-up period, the operational viability period and the sustainability period. The periods are explained, in detail, as follows:

- *Work-up period.* The work-up period is the period in which force elements are required to raise their levels of capability in accordance with their specified readiness notice that is set by the Chief of Army. The resources used in this period are termed work-up resources. *The Chief of Defence Force Preparedness Directive* provides direction on the readiness posture of force elements – this document lists logistic units and what supplies they should be holding. This generically refers to combat supplies (Class 1, Class 3 and Class 5).
- *Operational viability period.* The operational viability period is the period immediately following deployment on operations, during which forces must maintain self-sufficiency until the logistic resupply system is in place to conduct replenishment. The operational viability period is set by operational and logistic needs and considerations, and it will include a short-term degree of self-sufficiency for each force element. The subsequent requirement for operational viability resources will be set, in accordance with the length of the operational viability period and the anticipated resource usage rates for the level of conflict envisaged. The length of this

period is dependent on the operation (intensity, level of conflict, environmental, geographical, and length of lines of communication between the national support base and the area of operations). It can be difficult to establish the quantity of stock held for the operational viability period in accordance with operational requirements due to the inconsistent quality of consumption data for all classes of supplies, particularly Class 9 (repair parts). Joint Logistics Command will provide regular advice to logistic planners as to how the forces are currently postured to hold their specified 'days' of supplies to meet the operational viability period and will assist in setting the length of operational viability on an operational level.

- *Sustainability period.* The sustainability period is the ability of a force to maintain the necessary level of combat power, for the duration required, to achieve its objectives. This is the period force elements are to be sustained on operations after the operational viability period. In order for the Army to plan for the long-term sustainment of forces during operations, a sustainability period needs to be set. The sustainability period is determined in accordance with strategic guidance. It enables:
 - health and personnel rotational planning
 - the establishment of stockholding and distribution policies
 - procurement and maintenance planning including:
 - inspection
 - testing
 - servicing
 - classification as to serviceability
 - repair
 - rebuilding
 - reclamation.

Tactical level

Consideration of planning factors

Following the commander's preliminary analysis and mission analysis, the operations and logistic staff start to consider the factors that impinge on the mission. Initially, it is possible that logistic staff, while considering generally the same factors as the operations staff, will examine them from a different perspective.

For example, when analysing the enemy forces, logistic staff will be particularly interested in the enemy's deep battle assets, in terms of both reconnaissance and strike. This will dictate how much dispersal of combat service support capabilities

is required, whether movement should be restricted and how much rear area protection will be required. Such considerations are obviously made in conjunction with the operations staff and derived from the same continual intelligence preparation and monitoring of the battlespace.

Through consideration of the 5Ds and associated factors, deductions can be drawn and a summary of tasks can be produced.

Decisive event planning. The operations staff planning process will determine decisive events along each line of operation. The logistics planning staff must work collaboratively and analyse each decisive event to define the corresponding critical logistics event and determine the range and scope of tasks that must occur before, during and after each decisive event. This understanding of the timing of each task will be essential to determine concurrent requirements and to synchronise combat service support effects with the supported commander's plan.

Some of the tasks will fall directly from the operations staff planning process and some tasks will need to be considered further in depth by the relevant personnel or logistic staff branch. The tasks identified should be matched with the appropriate type and size of combat service support unit required to complete them. Others tasks may be noted simply as the responsibility of a particular commander or staff branch. It is important to remember that the detail required in the summary of tasks will vary according to the level at which the staff planning is being conducted, and identification and selection of specific courses of action, and concepts of logistics support.

Logistic considerations

Commanders use intelligence products to devise workable, flexible plans; make sound and timely decisions; monitor events to ensure proper execution; and modify decisions quickly in response to changing situations or to exploit fleeting opportunities.

Logistic intelligence requirements focus on the study of roads, rail, bridges, tunnels, fords, chokepoints, ports, airfields and other infrastructure and as a network they link together in support of logistic operations. The majority of logistic intelligence preparation is done using open-source historical and current data.

The following are some of the items a logistic infrastructure study helps to identify possible means of establishing and sustaining the provision of combat service support during operations:

- likely points of disembarkation (typically air and/or sea) and their capacity or restrictions for use
- possible points and methods for in-loading of personnel, stores and equipment¹³

13. This is inclusive of methods such as logistics over the shore operations.

- existing infrastructure that could be used to support the force elements (including local sources for provision of classes of supply, food distribution networks and health facilities, if any)
- sources of potable and non-potable water
- local communications systems
- transportation means and systems
- bridges, roads and tunnel restrictions (number and types, including surface transport networks)
- inland and coastal waterway capabilities
- medical risks, and possible assistance programs for personnel
- the location and type of power production facilities
- real estate availability (for both placement of combat service support elements, and possible shelter and care of displaced persons and morgues)
- host nation capacity (both civil and military options and access to third nation contractor support).

Logistic preparation and monitoring of the battlespace

This is the process of identifying and assessing those factors that facilitate, inhibit or deny support to combat forces. It is the start point for the identification of risk and is continually revised to manage risks throughout the planning process.

Logistics planners must have an intimate understanding of the requirements to sustain the force, as well as the means of sustainment at their disposal. Just as it is essential for commanders and planners to understand and interpret basic information regarding the enemy and the environment, they must also consider the sustainment impacts derived from an 'own force analysis'. For logistic staff to identify constraints and freedoms satisfactorily and then draw pertinent deductions, the logistic preparation and monitoring of the battlespace is devised to provide a clear guide to the enemy¹⁴ and environmental factors and distils a number of estimates into a collection of meaningful logistic and combat service support capabilities. This provides the commander, the operations planner and the logistic planner with a feel for the combat service support and logistic constraints and freedoms. It can provide, at the simplest level, an indication of the risk of a particular course of action.

14. Information regarding enemy picture is provided invariably on a second-hand basis circulated by intelligence gathering and reporting. The logistics preparation and monitoring of the battlespace integrates with the intelligence preparation of the battlespace during the staff military appreciation process.

At the strategic level, it can be referred to as logistic intelligence or the logistic preparation of the theatre.¹⁵ It is at this level that the process is first conducted. However, the product must be produced in summary and passed down to the deploying force for their preparation and planning, together with other baseline data such as the sustainability statement.

By way of example, as stocks are depleted and replenished and casualties taken and attended to (both medical and equipment), the ability of the force or formation to operate will change. Therefore, the logistic planning staff will monitor the situation constantly and provides essential planning information while being an important element of the review process of the mission analysis by asking, 'Has the situation changed?'

The number of logistic planning estimates being prepared in order to identify the support capability of a force within a given environment must be presented to the commander in meaningful terms by estimating the endurance of each element given their predicted rate of effort and likely level of opposition. The staff checks should identify limitations such as how far a combat unit can manoeuvre before it needs resupply; how long it can operate before the level of breakdowns/battle damage reduce below the minimum percentage of combat effectiveness; and for how long personnel can work, and at what rates, under the specific conditions. Similarly, given the stockholdings of the formation, the logistic planner can furnish the commander with a guide to how long a battle can be sustained at a certain level of intensity.

Models

In order to ensure the complete integration of logistics into the staff planning process, a model may be used to facilitate the rapid staff checking of the feasibility of a possible course of action, both operationally and logistically. The model may be purely arithmetic in the form of staff tables or graphically displayed as a series of map overlays. In either case, it should have the flexibility not merely to give a 'go, no-go' answer, but also to identify areas of logistic risk.

Fundamental to the use of a model is the requirement for a thorough understanding of the operational environment, as this will set the parameters of distance, demand and duration. The boundaries of the model can then be set for the type of formation required to fight the next operation. This is analogous to determining the 'reach and fight' of a formation, but the model should be adaptable to any situation.

A logistic or combat service support model provides the means for quick and straightforward staff checking of a possible course of action. It can highlight areas of logistic risk or requirement and allows commanders to identify easily their envelope of operations.

15. A portion of this is prepared by Joint Logistics Command and members of the Defence logistics enterprise with the remainder of input provided by the Defence intelligence community.

Characteristics of combat service support plans

Integration of operations and combat service support staff

Planning is an iterative process, regardless of staff cell and information is continually gathered and assessed throughout planning processes, requiring planners to be updated with intelligence and information on a regular basis. The logistic staff planners identify and assess the factors which facilitate, inhibit or limit logistic support to the force at the tactical and operational levels, facilitated by a continuous two-way passage of information with the operations staff. As a result, the logistic staff are able to develop combat service support options for each operations course of action before they are presented to the commander. Once the commander has made a decision on the preferred course of action, the combat service support order is issued with the operations order and the planning for subsequent operations continue.

Leading staff branches

In the staff planning process, one branch should take the lead in coordinating the planning process. Normally this is the plans or operations branch however, should the plan being developed involve mounting, deployment into theatre or an operational pause for reconstitution, the logistic staff may be best suited to lead the process. Assignment of leadership during planning will be a factor of circumstance, experience and practice within the headquarters concerned and will ultimately be determined by the commander or chief of staff.

Logistic risk

The more I see of war, the more I realise how it all depends on administration and transportation. It takes little skill or imagination to see where you would like your army to be and when; it takes much knowledge and hard work to know where you can place your forces and whether you can maintain them there. A real knowledge of supply and movement factors must be the basis of every leader's plan; only then can he know how and when to take risks with those factors, and battles are won only by taking risks.

Field Marshall Archibald Wavell¹⁶

Risk management involves an assessment of the likelihood of adverse events occurring and identifying their likely consequences. Together these considerations lead to an assessment of the level of logistic or combat service

16. Wavell, AP 1946, *Speaking generally: broadcasts, orders and addresses in time of war (1939–43)*, Macmillan, London.

support risk. Where this is significant, strategies to treat the risk need to be included in the support plan.

Expressing risk to the commander

Probably the most difficult aspect of logistic risk assessment is to quantify the risk to the operational commander. The following are three key factors that might be used to quantify risk to the operational commander:

- *Culminating point.* The culminating point is the point at which a force is able to sustain its current posture but is not able to undertake further offensive operations or risk losing the initiative. It is important that planners are able to quantify the culminating point in combat service support terms to the operational commander.
- *Tempo of operations.* The operational commander will always seek to maintain a desired level of tempo for a designated period of time unconstrained by logistic or combat service support limitations.
- *Mission-essential items.* The operational commander's plan will always be predicated on the specified level of availability of mission-essential items.

It is important to ensure that logistic staff describe the likelihood and impact of a risk, and quantify the calculations or factors by which they have determined that risk to the commander.

Sustainability statements

Sustainability is 'the ability of a force to maintain the necessary level of combat power for the duration required to achieve its objectives'.¹⁷ This requires the balancing of demand and supply, as well as the integration of strategic, operational and tactical logistics efforts. The end result is to ensure sustainability and create freedom for the commander to exercise suitable operational options.

Sustainability influences the tempo and duration of operations. It is affected by a number of interdependent factors which must be assessed in combination, as follows:

- combat effectiveness of personnel and material
- availability of equipment
- availability of resources
- ability of the force to regenerate itself
- command support.

The more accurately demand for support can be quantified, the more economical, effective and efficient the system that can be constructed. To provide sustainability for an operation, the anticipated demand must be deduced by an iterative analysis. The purpose of this analysis is to derive a sustainability statement. The

17. *Allied Administrative Publication 6, North Atlantic Treaty Organization Glossary of Terms and Definitions.*

more accurate the analysis during the initial estimate and planning stages, the better the baseline will be for operational sustainability.

Sustainability statements are issued at the strategic level of command and by the commander, they fulfil two key purposes:

- The statement informs the staff planners and those responsible for the allocation of the resources what has to be achieved with their use; the amount of resources available is finite and determined by the outcome of the logistic planning process.
- The sustainability statement defines the resources provided for the operation.

Statements may be modified as the operation progresses, and individual operations or phases within the operation may need their own statement. However, long lead times are often involved in the manufacture of materiel, and the momentum gained from the initial statement will make significant changes in direction difficult to accommodate. The time spent on analysis and prediction during the early stages of an operation will be time well spent.

Developing the sustainability statement must be a fully integrated element of the operational planning process. An example of a sustainability statement is provided in [Annex A](#). Statements will normally include:

- expected duration of the operation
- mission-essential equipment and availability requirements
- level of self-sustainment and availability requirements
- level of self-sustainment required in theatre
- predicted casualty rate for personnel, either from battle or disease and non-battle injuries, and for equipment
- anticipated tempo, with the high and low levels of utilisation of materiel
- theatre climatic, environmental, topographical and human factors which influence logistic requirements.

Summary of key planning considerations

Commanders should integrate logistic and combat service support requirements with existing plans and annexes in the following ways:

- determining broad mobilisation, deployment and sustainment requirements
- determining theatre organisation and conducting logistic preliminary planning
- considering theatre geometry, facility and occupation requirements, movement control, and battlefield circulation
- synchronising critical logistic events before, during and after decisive events

- determining critical and vital supplies
- apportioning and allocating resources (providing instructions or guidance for redistributing assets from low to high priority organisations within the command)
- adopting a simplistic approach to provision of support
- sourcing known requirements and anticipating unidentified requirements
- determining size and location of combat service support facilities and units
- providing efficient means to retrograde, repair and redistribute critical items.

Provision of health support services during operations will be determined on the health threat to deployed personnel. The deployed health capability will be tailored to suit the operational requirements and will be determined by a number of considerations which include:

- the size of the force
- the environment for the operation
- casualty estimates based on anticipated operational tempo.

Health planning staff will review a range of measures and tailor the health support for the force. This will include:

- provision of preventative health capabilities
- psychological and critical incident mental health support teams
- close and general health capabilities
- surface and air evacuation capabilities.

Health support options may include contributions from coalition partners and/or the host nation and may require consideration of the treatment of coalition partners, foreign nationals and indigenous elements and support to specific lines of operation.

Reconstitution planning

Reconstitution. Reconstitution is an action, planned and implemented by a commander, to restore units to a desired level of combat effectiveness commensurate with mission requirements and available resources. Reconstitution transcends normal day-to-day sustainment actions but uses existing systems and units to do so. No resources exist solely to perform reconstitution. Commanders have two reconstitution options: reorganisation and regeneration. The commander can execute them separately, but will most often execute them sequentially, depending on the current and anticipated situation, command priorities, resources and time available.

Reorganisation. Reorganisation is the action to shift resources within a degraded unit to increase its combat effectiveness, conducted by commanders of all types of units at each echelon. Commanders reorganise before considering regeneration, which may include the following measures:

- cross-levelling personnel through the reallocation or reassignment of personnel, or
- forming composite units (joining two or more units with high attrition rates to form a single mission-capable unit).

Regeneration. Regeneration is the rebuilding of a unit, requiring large-scale replacement of personnel, equipment and supplies. Regeneration may involve re-establishing or replacing the chain of command, and it includes conducting mission-essential training to raise the regenerated unit up to the defined operational standard with its new personnel and equipment. Because of the intensive nature of regeneration, it occurs at a regeneration site after the unit disengages and requires assistance from higher echelons.

Reinforcement. Reinforcement can be individuals, small groups or units scheduled to replace personnel within the theatre. Reinforcements may be scheduled in accordance with the rotation plan, requested by a reinforcement demand, or may take the form of first-line reinforcements that accompany units to the theatre. The reinforcement system coordinates the replacement of individuals and provides for the training of reinforcements so that the individuals are operationally ready.

Annex:

- A. [Example sustainability statement](#)

Annex A to Chapter 4

Example sustainability statement

- 1. General Sustainability.** Sustainability parameters are given in the HQ JOC Support Order. These are to be used for planning guidance. However, the specific national logistic planning concept and sustainability requirements, as given in this directive, are to be applied. Except where indicated, the general level of sustainability to be achieved is 30 DOS within theatre.
- 2. Rations.** Contracts for fresh rations are to be established within theatre as early as possible. The transitional situation for the handover of existing fresh ration contracts, as the force deploys into theatre, is likely to be complex. In order to ensure a smooth and continual supply of fresh rations, the FSG should ensure that there is a reserve of fresh and dry rations, with supply through host nation support if appropriate. Contracts are to be established for 'reefers' (refrigerated units) to enable units to hold fresh rations in their location. A reserve of 15 days combat ration packs is to be held within theatre ready for use in support of operations. The brigade is to hold five DOS of combat ration packs.
- 3. Water.** Fresh water sources are to be established in theatre at the earliest opportunity. A reserve of five DOS is to be held in bulk and 30 DOS of bottled water by the FSG. The brigade is to hold five DOS of bottled water.
- 4. Petrol, Oils and Lubricants.** Contracts for the supply of POL are to be established at the earliest opportunity within theatre. A reserve of 15 DOS of aviation turbine fuel and diesel is to be held in bulk by the FSG. The brigade is to hold five DOS of diesel.
- 5. Ammunition.** Fifteen days of ammunition (at medium intensity rates) is to be held available within theatre. Five DOS of ammunition is to be held within the brigade, with the 10 DOS balance held by the FSG. A further 15 DOS (the balance of a total of 30 days) is to be available, with outload plans for deployment from the NSB.
- 6. Equipment.** Certain equipment is assessed to be particularly decisive for the successful achievement of the mission. Priority should be given to the equipment (see paragraph 13) for repair. Anticipated equipment utilisation levels are shown in the following paragraphs. National sustainability planning has been based on these parameters. The mission-essential items are listed in paragraph 13.

7. **Supply.** In general, a minimum of 30 DOS of technical spares and materiel (at operational levels) are to be held in theatre. The FSG is to hold 25 DOS, with the brigade to hold five DOS. A distribution system for urgent and routine spares and supplies is to be established by HQ FSG and the DMO, both by land and air as appropriate. A mechanism for the monitoring of the performance of the supply chain is to be established, based on clearly defined target 'pipeline' times and demand priorities. Particular attention is to be paid to the distribution of high-priority items to ensure that the appropriate priority is applied at all stages of the distribution chain.
8. **Accommodation.** All Australian forces will be accommodated for the long term in protected accommodation facilities, which are currently being staffed to DMO. Such accommodation may not be available within theatre within two months of the contract being let. Commanders should therefore plan on deploying units into field conditions for up to three months.
9. **Engineer Resources.** Where possible, all engineer resources are to be procured in theatre, through the host nation support contracting arrangements. Should this prove to be not possible, engineer resources will be obtained through the DMO.
10. **Clothing.** Sufficient special hot weather clothing and equipment has been procured for issue to all Australian forces deployed. Nevertheless, a clear policy directive is to be issued to cover the priority and criteria for issue of this special clothing and equipment. The aim of the policy is to ensure that those individuals with the greatest need receive it first and that only those with an operational requirement receive it. Further action should be initiated in due course as requested for other special clothing and equipment if required. A policy directive is also to be issued for the recovery of this clothing and equipment in order that it can be inspected, cleaned and accounted for and then used in other subsequent operations.

Sustainability Planning Parameters

11. **Environment.** The terrain is expected to be predominantly hilly, with a seasonal temperature range of 15 to 45 °C. Forces and equipment should be prepared for survival at temperatures above 30 °C during the summer months.

- 12. Duration and Activity Level.** The operation is expected to last for no longer than 12 months. The rotation of personnel and some equipment, as considered necessary, should be planned to occur after six months. This may be achieved in some cases by unit rotation, but in others it will need to be achieved through individual trickle changeover. The profile of vehicle and equipment activity is expected to be relatively high during the first 30 days. This level is then expected to reduce progressively through the next 30 days to a relatively consistent level subsequently.
- 13. Mission-essential Equipment.** The following are to be considered as mission-essential items and plans made to ensure that priority repair support is provided for them:

 - a. satellite communications equipment
 - b. medical equipment
 - c. helicopters
 - d. water purification equipment
 - e. engineer plant and bridging equipment
 - f. IFVs
 - g. recovery vehicles
 - h. bulk fuel carrying vehicles
 - i. field mechanical handling equipment
 - j. general service Unimog vehicles.
- 14. Equipment Availability.** The minimum equipment availability targets are as follows:

 - a. mission-essential items – 80 per cent (helicopters 75 per cent)
 - b. remainder – 70 per cent.
- 15. Utilisation.** The profile of activity is expected to be relatively high during the first 30 days (hours use per 24-hour period ratio of 12:24). This level is then expected to reduce progressively during the next 30 days (ratio of 6:24) and thereafter assuming a consistent level throughout the subsequent months (ratio of 3:24). The average utilisation over the 12-month deployment period is anticipated to be as follows:

 - a. A vehicles:
 - (1) infantry fighting vehicles – 30 km per day
 - (2) fighting systems – 2.5 hours per day
 - (3) others – 30 km per day

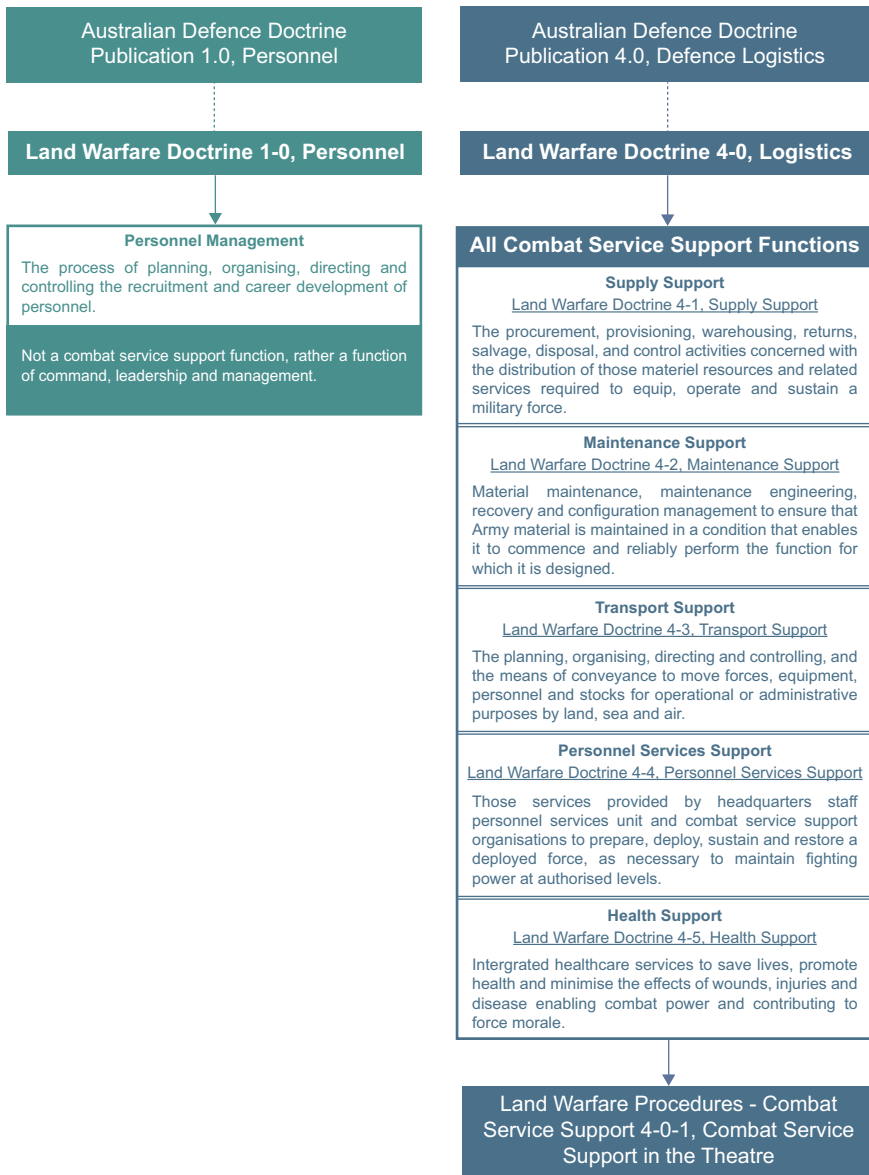
- b. B vehicles:
 - (1) logistic task vehicles – 100 km per day
 - (2) others – 10 km per day
 - c. generators and static equipment – 20 hours per day
 - d. engineer plant – 14 hours per day
 - e. helicopters – 3 hours per day (surge of up to 6 hours per day for up to four days).
- 16. Maintenance Supply Item Turnaround Time.** Planning for engine and major assemblies is based on a turnaround time of 14 days from, to and within theatre.
- 17. Vehicle and Equipment Attrition.** Equipment and vehicles in particular are likely to suffer from attrition as a result of the local conditions and accidents. A pool of the vehicles and equipment that are considered to be most vulnerable to such attrition is to be established in theatre by the FSG, and arrangements made for the recovery of damaged equipment to the NSB.

Conclusion

This work has tackled the challenging and sometimes contentious subject of logistics which has long resided at the heart of success in all levels of conflict. Combat service support has been assessed, and described, as the integration of logistic functions in support of operations at both the operational and tactical levels of command.

Effective logistics planning and the optimal employment of Army's combat service support elements is a vital ingredient in the achievement of operational success. On more than a few occasions, it has been a defining key to such outcomes.

Land Warfare Doctrine 4-0, Logistics provides an overview of all combat service support functions. The positioning of *Land Warfare Doctrine 4-0, Logistics* in the logistic and personnel doctrine hierarchy is represented in the following schematic:



Logistics and Personnel Doctrine Hierarchy

Finally, and of note, each combat service support function has been assigned a dedicated application level publication, with the primary reference for logistic planning being *Land Warfare Procedures - Combat Service Support 4-0-1, Combat Service Support in the Theatre*.

References

- Allied Administrative Publication 6, North Atlantic Treaty Organization Glossary of Terms and Definitions*
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Endmatter

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