



Ministry
of Defence



Allied Joint Publication-3.2

Allied Joint Doctrine for Land Operations



Edition B Version 1

NATO STANDARD

AJP-3.2

ALLIED JOINT DOCTRINE FOR LAND OPERATIONS

Edition B, version 1

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Allied Joint Publication-3.2

Allied Joint Doctrine for Land Operations

Allied Joint Publication-3.2 (AJP-3.2), Edition B, Version 1,
dated February 2022,
is promulgated in the United Kingdom
as directed by the Chiefs of Staff

A handwritten signature in black ink, appearing to read 'J. J. Anderson', with a long horizontal line underneath it.

Director Development, Concepts and Doctrine Centre

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Record of specific reservations

[nation]	[detail of reservation]
CAN	<p>(1) The application of the continuum of competition - a strategic model - to the operational and tactical levels, along with the introduction of the threshold of armed conflict as a subjective indicator of the nature of campaigns creates conceptual understanding of the nature and intent of operations. Operations and tactical actions are guided by the strategic and operational objectives of the adversary and the friendly forces, not by a concept of competition and arbitrary designation of "armed conflict".</p> <p>(2) Removal of the spectrum of conflict will remove understanding of the role of military forces. The unique role of military forces is the legitimate application of violence and the spectrum of conflict is the measure of violence present at any given time. Thus, military forces operate on the spectrum of conflict. The spectrum is inherent in the continuum of competition and it is this fact that links the continuum of competition to the operational and tactical levels, and justifies the role played by military forces.</p>
FRA	<p>France considers that the responsibilities of the Land Component Commander mentioned in this document are incomplete, in particular with regard to the responsibilities of the other component commanders set out in the corresponding AJPs (responsibilities of the MCC in AJP-3.1, of the COM JFAC in AJP-3.3 and of the SOCC commander in AJP-3.5: there is no mention of the exercise of OPCON of the assets assigned to the LCC).</p> <p>For France, the Land Component Commander exercises operational control (OPCON), delegated by the Joint Force Commander, of the forces assigned to the LCC.</p> <p>In paragraph 2.27 c., France understands that the "air defence" mentioned consists exclusively of "army organic air defence assets" since this paragraph describes the "Elements of a land force".</p> <p>Paragraph 2.34 b. is not consistent with AJP-3.3(B): in accordance with the definition of AI ("The flexibility of AI allows it to be conducted in support of surface operations or as main effort against the adversary surface force without the presence of any friendly ground force..."), AI is not systematically conducted in support of land operations. Thus, France considers that the sentence "Within the role of attack, the air component can support land operations with counter-land operations, which fall under two mission types" reduces counter-land operations to operations in support of the land component. This sentence should be amended to read: "Within the role of attack, the air component can engage ground targets with counter-land operations, which fall under two mission types".</p>

NLD	<p>NLD disagrees with the statement in para 2.11 that the physical component of fighting power may be described as a force's combat power. NLD considers combat power to be the total means of force that a military unit and/or formation can apply at a given time. It is generated from all components of fighting power. Combat power is generated within the COA, which reflects the intent and conceptual component of fighting power. The moral component impacts on persistence, endurance, etc. The actual force that is applied will largely be generated from the physical component.</p>
USA	<p>Reservation 1. The United States does not support glossary/lexicon terms and definitions and shortened word forms (abbreviations, acronyms, initialisms) that are neither NATO Agreed, quoted verbatim from NATOTerm, correctly cited IAW AAP-47 Allied Joint Doctrine Development, correctly introduced/revised IAW AAP-77 NATO Terminology Manual, nor have terminology tracking forms submitted. This reservation will be lifted when the relevant terms, definitions, and shortened word forms are corrected (see matrix for any specificity with terms).</p> <p>Reservation 2. The United States uses the term “law of war” to describe that part of international law that regulates the resort to armed force; the conduct of hostilities and the protection of war victims in international and non-international armed conflict; belligerent occupation; and the relationships between belligerent, neutral, and non-belligerent States.</p> <p>Sometimes also called the law of armed conflict or international humanitarian law, the law of war is specifically intended to address the circumstances of armed conflict. The legal views of the Department of Defense (DoD) regarding the law of war applicable to the United States can be found in the DoD Law of War Manual available at https://dod.defense.gov/Portals/1/Documents/pubs/DoD%20Law%20of%20War%20Manual%20-%20June%202015%20Updated%20Dec%202016.pdf?ver=2016-12-13-172036-190.</p> <p>Reservation 3. The United States does not support content that is not harmonized with capstone and operations keystone AJPs. United States personnel are directed to use national joint doctrine to overcome variances. This reservation will be lifted when relevant frameworks and constructs are corrected [see matrix for specifics (ex. Creation of joint operation areas or domains)].</p>
<p>Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.</p>	

Summary of changes

Revision of Allied Joint Publication (AJP)-3.2, *Allied Joint Doctrine for Land Operations*, Edition B, version 1.

- Reduces redundancies and improves continuity between Allied Tactical Publication (ATP)-3.2.1, *Conduct of Land Tactical Operations* and ATP-3.2.1.1, *Conduct of Land Tactical Activities*.
- Updates with the changes to the NATO Command Structure and NATO force structure, including the land command structure.
- Updates principles and considerations to reflect latest policy and doctrine, including cyberspace operations and strategic communications.
- Updates the joint functions to reflect the use of information.
- Updates the operations themes in line with AJP-01(F).
- Updates the content on the comprehensive approach.
- Updates the conceptual frameworks.
- Updates the organization of land forces.
- Adds the orchestration of land operations.
- Adds the land operations hierarchy, including land tactical operations.
- Changes campaign themes and types of conflict to operations themes and types of operations.
- Adds an annex on operations in specific environments, including the urban environment.
- Adds an annex on the types of land forces and considerations for their employment.
- Updates terms and definitions to reflect the latest status of NATO Term and ongoing terminology changes.

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Related documents

PO(2018)0328-Rev1	<i>Brussels Summit Declaration</i>
MC 0324/3	<i>The NATO Command Structure</i>
MC 0628	<i>NATO Military Policy on Strategic Communications</i>
MC 0422/5	<i>NATO Military Policy for Information Operations</i>
MC 0665	<i>Military Vision and Strategy on Cyberspace as a Domain of Operations</i>
PO(2016)0407	<i>NATO Policy for the Protection of Civilians</i>
PO(2018)0227-AS1	<i>Military Committee Concept for the Protection of Civilians</i>
MCM-0053-2019 (INV)	<i>NATO Joint Military Operations in an Urban Environment</i>
MC 0411/2	<i>NATO Military Policy on Civil-Military Cooperation (CIMIC) and Civil-Military Interaction (CMI)</i>
MC 0362/1	<i>NATO Rules of Engagement</i>
MC 0458/2	<i>NATO Education Training Exercise and Evaluation Policy</i>
MC 0560/2	<i>NATO Policy for Military Engineering</i>
MCM-0009-2015	<i>Military Guidelines on the Prevention of, and response to, Conflict-Related Sexual and Gender-Based Violence</i>
PO(2019)0459	<i>NATO Policy on Preventing and Responding to Sexual Exploitation and Abuse</i>
NATO Bi-SC	<i>Conceptual Framework for Alliance Operations (CFAO)</i>

The key doctrinal publications are listed here. Further relevant publications are referred to in the text.

AJP-01	<i>Allied Joint Doctrine</i>
AJP-2	<i>Allied Joint Doctrine for Intelligence, Counter-Intelligence and Security</i>
AJP-3	<i>Allied Joint Doctrine for the Conduct of Operations</i>
AJP-5	<i>Allied Joint Doctrine for the Planning of Operations</i>
AJP-3.1	<i>Allied Joint Doctrine for Maritime Operations</i>
ATP-3.2.1	<i>Allied Tactical Doctrine Conduct of Land Tactical Operations</i>
ATP-3.2.1.1	<i>Allied Tactical Doctrine Conduct of Land Tactical Activities</i>
ATP-3.2.1.2	<i>Allied Tactical Doctrine Conduct of Land Tactical Operations in the Urban Environment</i>
ATP-3.2.2	<i>Command and Control of Allied Land Forces</i>
AJP-3.3	<i>Allied Joint Doctrine for Air and Space Operations</i>
AJP-3.4.1	<i>Allied Joint Doctrine for the Military Contribution to Peace Support Operations</i>
AJP-3.4.2	<i>Allied Joint Doctrine for Non-combatant Evacuation Operations</i>
AJP-3.4.3	<i>Allied Joint Doctrine for the Military Contribution to Humanitarian Assistance</i>
AJP-3.4.4	<i>Allied Joint Doctrine for Counter-insurgency</i>

AJP-3.4.5	<i>Allied Joint Doctrine for the Military Contribution to Stabilization and Reconstruction</i>
AJP-3.5	<i>Allied Joint Doctrine for Special Operations</i>
AJP-3.6	<i>Allied Joint Doctrine for Electronic Warfare</i>
ATP-3.6.2	<i>Electronic Warfare in the Land Battle</i>
AJP-3.8	<i>Allied Joint Doctrine for Comprehensive Chemical, Biological, Radiological, and Nuclear Defence</i>
AJP-3.9	<i>Allied Joint Doctrine for Joint Targeting</i>
AJP-3.10	<i>Allied Joint Doctrine for Information Operations</i>
AJP-3.12	<i>Allied Joint Publication for Military Engineering</i>
ATP 3.12.1	<i>Allied Tactical Doctrine for Military Engineering</i>
AJP-3.16	<i>Allied Joint Doctrine for Security Force Assistance</i>
AJP-3.18	<i>Allied Joint Doctrine for Explosive Ordnance Disposal Support to Operations</i>
ATP-3.18.1	<i>Allied Tactical Publication for Explosive Ordnance Disposal</i>
AJP-3.19	<i>Allied Joint Doctrine for Civil-Military Cooperation</i>
AJP-3.20	<i>Allied Joint Doctrine for Cyberspace Operations</i>
AJP-3.21	<i>Allied Joint Doctrine for Military Police</i>
AJP-3.22	<i>Allied Joint Doctrine for Stability Policing</i>
AJP-4	<i>Allied Joint Doctrine for Logistics</i>
AJP-4.6	<i>Allied Joint Doctrine for the Joint Logistic Support Group</i>
APP-28	<i>Allied Tactical Doctrine for Land Forces</i>
ALP-4.2	<i>Land Forces Logistic Doctrine</i>
ATP-08, Volume III	<i>Riverine Operations</i>
AJEPP-4	<i>Joint NATO Doctrine for Environmental Protection during NATO-led Military Activities</i>

Preface

Context

1. Allied Joint Publication (AJP)-3.2, *Allied Joint Doctrine for Land Operations* sits under the keystone publication AJP-3, *Allied Joint Doctrine for the Conduct of Operations* to provide specific guidance for the conduct of land operations within a joint operating environment. AJP-3.2 focuses on the unique characteristics and employment considerations for land forces in joint operations.

Scope

2. AJP-3.2 is the overarching NATO doctrine for land operations across the spectrum of conflict. Subordinate ATPs expand on the planning and execution of land tactical operations by land forces and the tactical activities that constitute such operations.

Purpose

3. The purpose of the document is to provide the philosophy, principles and guidance for land operations within a joint and multinational context.

Application

4. AJP-3.2 is written for commander joint force command when conducting land operations, the land component commander and their staffs, subordinate commanders and adjacent components. It describes the context of operating in the land environment and provides guidance on how Alliance land forces and its partners operate together to achieve success. AJP-3.2 also provides a reference for NATO civilian and non-NATO civilians operating with the land component.

Structure

5. The structure of AJP-3.2 has been revised to ensure consistency with linked publications, remove any duplication and to fill any gaps in information. AJP-3.2 continues to be the overarching land publication, while further detail is contained in the subordinate tactical publications. There are three chapters in AJP-3.2, which cover:

- Chapter 1 – The operating environment, which describes the nature and character of the land environment and the integration of land operations within a joint operation and comprehensive approach;
- Chapter 2 – The land component, which covers the foundations of fighting power, the types of forces used in land operations, and their integration; and
- Chapter 3 – Fundamentals, which introduces the philosophy, principles and guidance which underpin land operations.

Linkages

6. Allied Tactical Publication (ATP)-3.2.1, *Conduct of Land Tactical Operations* and ATP-3.2.1.1, *Conduct of Land Tactical Activities* have been concurrently revised in close coordination with AJP-3.2 to provide coherent and concise doctrine to commanders and their staff. These publications, together with ATP-3.2.2, *Command and Control of Allied Land Forces* provide the core doctrine for land operations at both the operational and tactical level. A summary of their related content is as follows.

- ATP-3.2.1 – *Conduct of Land Tactical Operations* describes how to plan and execute land operations.
- ATP-3.2.1.1 – *Conduct of Land Tactical Activities* describes how to plan and execute tactical activities within land operations.
- The series from ATP-3.2.1.2 to 3.2.1.7 describes requirements for operating in land-specific environments.
- ATP-3.2.2 – *Command and Control of Allied Land Forces* contains the procedures for decision-making and planning.

Chapter 1 – The operating environment

Section 1 – The land operating environment

1.1 Land forces are required to operate in dynamic, complex and increasingly urban environments. To be successful they must contend with a range of conditions, including the population, geography, terrain, climate, electromagnetic spectrum (EMS) and the availability (or lack) of infrastructure in their area of operations. Land forces also face a number of other challenges, such as being required to execute missions in areas that do not permit a permanent presence to be maintained due to their size or character. Another challenge is the potential for the intensity of operations to change abruptly. Therefore, land forces must have a broad spectrum of capabilities and assets at different echelons, which must be employed according to the particular context.

1.2 Land operations are normally conducted in permanent direct contact with the enemy, adversary, the local population¹ and other actors. Understanding the intents of actors (such as international, governmental and non-governmental organizations, and the local population) will have a key influence on land operations. It is often not possible to adequately predict how and where the enemy, adversary and the local population will react to land force's activities.

1.3 The operating environment is defined as: 'a composite of the conditions, circumstances and influences that affect the employment of capabilities and bear on the decisions of the commander.' The operating environment extends beyond the mere physical boundaries of a defined area. It includes a broad range of aspects, which affect actors differently. The operating environment may be affected by a range of actors activities, facilities, weather, terrain, natural disasters, the information environment, the electromagnetic environment (EME), and chemical, biological, radiological and nuclear (CBRN) threats and hazards, all of which have a bearing on land operations.² It can be visualized and assessed through political, military, economic, social, information and infrastructure (PMESII) aspects.³

1.4 A continuously evolving understanding of the land operating environment enables the commander to frame the problem, anticipate potential outcomes and risks, understand the effects of actions, and allocate appropriate resources. This section will focus on four elements of the land environment:

¹ Population encompasses women, men, boys and girls. People of different genders experience conflict differently, so integrating gender perspectives is critical to ensure a comprehensive understanding of the operating environment.

² See AJP-3.8, *Allied Joint Doctrine for Comprehensive Chemical, Biological, Radiological, and Nuclear Defence*.

³ The operating environment can be initially viewed through several conceptual models. The most common in NATO are the six listed PMESII elements, but modification or other models are admitted. PMESII + physical and time (PMESII-PT), geospatial + PMESII (GPMESII), PMESII + health (PMESIIH), or areas, structures, capabilities, organizations, people and events (ASCOPE) may fit to describe a certain operating environment or support a planning process.

- land operations occur amongst the people increasingly in urban areas;
- the importance of the information environment and the EMS and acoustic spectra;
- threats; and
- the impact of weather and terrain.

Among the people

1.5 The term 'environment' is used to describe the surroundings of activity. Unlike the air or maritime environments, the land environment is distinguished by the permanent presence of populations and key actors. Land force's interactions with populations and key actors can either negatively or positively affect the perceived legitimacy of a military commitment or campaign, thereby affecting the strategic narrative and the enduring attainment of strategic objectives. Land operations must deal with the complexity of an environment characterized by the presence of people and their culture, religions, applicable legal frameworks, societies, governments, economic centres and infrastructure. It is in the land environment that the roots of conflict are usually found, since conflict on land involves those things that people tend to value most: their lives, values, property and resources. Because of its significance, with only minor and partial exceptions, victory or defeat on land has been all but equivalent to victory or defeat in modern armed conflict.⁴

1.6 With urban populations continuing to grow, conflict is increasingly conducted in these areas. Furthermore, cities are significant drivers of development and economic activity and centres of strategic, political and symbolic power with great influence outside their immediate geographical area. Even operations in unpopulated areas can affect the population, particularly if they affect the supply of resources (for example, commodities or water⁵).

1.7 Successful planning, execution and assessment of land operations depends on understanding the population and on assessing the effects, both immediate and long term, of our actions on audiences. A human-centric approach to analysis through monitoring and assessment (of threats and opportunities to people) and civil-military interaction enables the interactions, behaviours and motivations of relevant actors as well as relevant dilemmas related to the protection of civilians, to be understood.⁶ Conducting operations in urban areas poses a greater risk to the civilian population and cultural property, and requires consideration of higher order effects of military actions. Land operations will have a significant effect on the population and might face extensive public scrutiny. Public perception and perceived legitimacy based on the cultural and social expectation of the local populace may be decisive elements in the conduct of operations and the achievement of enduring objectives.

⁴ Colin S. Gray, *Modern Strategy*, 1999.

⁵ See Allied Joint Environmental Protection Publication (AJEPP)-4, *Joint NATO Doctrine for Environmental Protection during NATO-led Military Activities*.

⁶ See Allied Joint Publication (AJP)-3.19, *Allied Joint Doctrine for Civil-Military Cooperation*.

The information environment

1.8 Most people live in towns, cities and villages, but all are connected by the information environment. The information environment is defined as: ‘an environment comprised of the information itself, the individuals, organizations and systems that receive, process and convey the information, and the cognitive, virtual and physical space in which this occurs.’ The information environment is heavily congested and contested. Information and news of events from around the world circulate, uncensored, out of context, or (worse) manipulated at the speed of the Internet. Any person able to send messages can shape political and public understanding of and consensus for (or against) a conflict, or to be influenced by others who can exploit these means and the biases of the audience.⁷

1.9 Commanders do not therefore merely conduct operations in a confined area of operations, but also in a global information environment without boundaries. The way military operations are perceived by the public has considerable repercussions on their success. The objective-driven handling of public perception is an integral, and sometimes decisive, element of the planning and conduct of operations. The information joint function is discussed further in Chapter 3.

1.10 Land operations must be designed so that actions, images and words send consistent messages to the intended audience and support the strategic narrative and messaging. This is in accordance with NATO’s approach to strategic communications (StratCom),⁸ which is defined as: ‘in the NATO military context, the integration of communication capabilities and information staff function with other military activities, in order to understand and shape the information environment, in support of NATO strategic aims and objectives.’ Land operations that are conducted in isolation of the strategic narrative, increase the risk of audiences’ misperception of NATO actions, which can degrade the credibility and legitimacy of NATO’s operations.

Operational domains

1.11 Technology has continued to evolve, which has resulted in NATO expanding the three joint domains to five operational domains: maritime, land, air, space and cyberspace. The multi-domain approach combines the domain actions in a manner that both amplifies and orchestrates the sum of its parts. The multi-domain approach is more than just extending the joint approach by simply adding space and cyberspace domains. Rather, it enhances the manoeuvrist approach’s requirement to gain and maintain the initiative. By combining actions in all five operational domains in a manner that both amplifies and orchestrates the sum of its parts to generate tempo, surprise, pre-emption, simultaneity and exploitation, which generates the freedom of manoeuvre in the battlespace to create physical, virtual and cognitive effects.⁹

⁷ See AJP-3.10, *Allied Joint Doctrine for Information Operations*.

⁸ See AJP-10, *Allied Joint Doctrine for Strategic Communications*, promulgation due December 2021.

⁹ For more information on operational domains and the multi-domain approach see AJP-01(F).

Electromagnetic and acoustic spectrum

1.12 Although the electromagnetic and acoustic spectrums make up an environment formed by physical laws, they do not constitute a domain. Both spectrums are strongly interconnected with the five recognized operational domains. The ability to use these spectrums within the laws of physics is crucial to effectively conduct activities in the operational domains.

1.13 The EMS affects land forces of all types and at all levels, from the lowest tactical grouping using networked, communication systems and 'position, navigation, and timing systems', to higher tactical formations resourced to orchestrate activities in cyberspace. Protection and exploitation of the EMS are, therefore, fundamental to all operations. Electronic warfare is the military action that exploits electromagnetic energy to provide situational awareness and create desired effects. In such a complex and potentially congested and contested EMS, forces must anticipate disruption of its use.¹⁰

Threats

Land operations may be conducted against a variety of threats.¹¹ Each threat has its own characteristics. However, as enemies and adversaries may employ all the military and non-military ways and means available to them to seek success, the threats and their characteristics may not be distinct. They may also choose a long-term strategy, using a combination of the instruments of national power to avoid defeat rather than seeking a purely military victory, to try to avoid crossing the threshold of armed conflict, or to outlast NATO's will and determination. Countering the diverse threats requires an understanding of the operating environment and a comprehensive approach using all diplomatic, informational, military and economic means. It also requires an understanding of the adversary's strategic aims and likely operational objectives. This understanding then drives NATO operations designs and the role of land forces in campaigns and operations (be it in peace, crisis or conflict).

Impact of weather and terrain

1.14 Weather (terrestrial and space), terrain and natural disasters affect every military operation, its activities, tasks and actions. Terrain in the land environment is varied and complex, with open grassland, cultivated land, forests, mountains, deserts, jungles, rivers, swamps, urban and littoral areas. Each terrain creates constraints and freedoms, placing different demands on forces and equipment that operate within them and guiding the choice of forces to be used for each task. Terrain and space weather can affect the EMS, thus limiting or reducing its accessibility to military users, provide cover from detection or attack, and obstruct or enable movement. Movement on land is impeded by obstacles that land forces must overcome. Land forces must be highly adaptable and resilient to operate in these

¹⁰ See AJP-3.6, *Allied Joint Doctrine for Electronic Warfare* and Allied Tactical Publication (ATP)-3.6.2, *Electronic Warfare in the Land Battle*.

¹¹ For more information see AJP-01(F) and AJP-02(B).

different conditions, which may vary over the course of each operation. Therefore, the size and characteristics of terrain and weather conditions in which forces are deployed have a significant influence on the planning of land operations and the employment options of available forces. In general, it is important for commanders to:

- understand the effect of the area on their own operations and those of the enemy and adversary;
- use the assigned area of operations efficiently;
- understand and integrate military engineering to shape the physical operating environment;
- consider the time required to prepare and conduct operations in relation to the terrain;
- consider the space required for the employment of their forces; and
- identify the appropriate forces for each specific environment.

1.15 Annex A expands on the characteristics and force employment considerations in seven specific environments (urban, wooded and forests, cold weather, deserts, mountainous, jungle and riverine).

Section 2 – Operational context

Audiences

1.16 The nature of conflict dictates that humans, assembled into audiences, are at the heart of how conflict is conducted and resolved. Therefore, the aim of planning and execution of activity to attain the end state are expressly aimed at achieving the desired attitudes and behaviour in approved audiences.

1.17 An audience is any individual, group or entity whose perception and interpretation of events, and subsequent beliefs and behaviour may affect attaining the end state. There are many types of state and non-state audiences, examples include, but are not restricted to, (host) nations, non-governmental organizations, international organizations, transnational organizations, interest groups, irregular groups and individual people. Audiences' objectives will vary: they may be shared but often they will be different and partially contradictory.¹²

Comprehensive approach

1.18 The operating environment has many challenges that the military instrument cannot solve alone, and the nature of the land environment means that the land component will always interact with multiple actors.¹³ Success requires a response involving diplomatic,

¹² For more information on audiences and the approach to planning to see AJP-01(F).

¹³ In some situations, a component commander may operate at the operational level.

informational, military and economic instruments of national power harmonized with efforts of civilian actors and coordinated through a unifying strategy. The comprehensive approach enables the staff, in coordination with their partners, to utilize and integrate the most appropriate mix of political, military and civilian actions to influence audiences and achieve a unified outcome. The comprehensive approach provides the commander with the full spectrum of capabilities required to operate successfully within the five operational domains. Furthermore, it provides complementary actions to achieve objectives by actors who are not part of the joint force but are working towards a common narrative. It is therefore vital that commanders at all levels have a sound understanding of NATO's comprehensive approach doctrine.¹⁴ The basics of the comprehensive approach require commanders and their staff to consider how to:

- involve all major actors, including agencies and non-military actors in the planning process;
- de-conflict, coordinate and synchronize tactical activities with the operations of these organizations; and
- apply military activities and resources to fulfil the others' functions when they are unavailable, consistent with existing legal authorities.

1.19 Levels of interaction. The comprehensive approach brings those actors who are directly involved in a task together to develop a common analysis and collective strategy in which mutual coordination, tasks, roles and responsibilities are established. While it is unlikely that absolute integration will be achieved between political, military and civilian activities, the comprehensive approach ensures optimum synchronization of capabilities and activities. A comprehensive approach necessitates an understanding of the extent to which interaction can be, and is, achieved. At all levels (strategic, operational and tactical), interaction varies with the situation. The following sub-paragraphs outline the types of interaction.

- a. **Coexistence.** Organizations have no interaction. Two or more actors are aware of each other's presence but will not directly interact.
- b. **Consultation.** Different organizations will seek the opinion or advice of other actors. While some information will be shared, decisions are made independently. At the very least, this will enable the military to provide security advice and de-conflict efforts and movements.
- c. **De-confliction.** Formal communication will take place and decisions are coordinated, but actions are conducted independently. This will help ensure that the best organization available will undertake the required tasks and that the military can advise on, and be prepared to provide, any specific security measurements.

¹⁴ For more information on the comprehensive approach to see AJP-01(F).

Organizations will avoid undesirable interference between actors, especially where they perform the same function or occupy the same space.

d. Coordination. This can be described as the process of bringing together different elements of a complex activity or organization into an efficient relationship. Organizations share information and frequent communication occurs. Some shared decision-making will take place fostered by shared objectives. The military and other agencies might help each other undertake their tasks. For example, the military may provide transportation to help deliver the humanitarian aid organized by a non-governmental organization or other government agency.

e. Cooperation. Organizations will work together for mutual benefit. A shared decision-making process may exist between organizations. Cooperation does not mean giving up authority or autonomy.

f. Coalition. Partners that operate within a formalized task and responsibilities structure. Coalition partners devolve a defined level of their authority and autonomy to a single authority to integrate decision-making and actions towards an agreed outcome.

Multinational operations

1.20 NATO's forces will always comprise multiple nationalities from the member states. This demands a willingness to understand different national perspectives, high levels of interoperability and the efficient use and apportionment of capabilities.¹⁵ NATO forces may also find themselves operating with forces from outside the Alliance, either in Alliance operations with third party nations, or in coalitions. In this regard, a coalition is an ad hoc arrangement between two or more nations for a specified period based on a common interest. Nations will create coalitions when they determine it is mutually advantageous. These partnerships can occur in both regional and worldwide contexts; in particular, cultural, psychological, economic, technological, and political factors all influence the formation and conduct of coalitions.

1.21 **Fundamental considerations.** Multinational land operations will be supported by the following considerations.

a. Interoperability. Interoperability is key to effective operations and deterrence. Interoperability is the ability of NATO, other political departments, agencies and, when appropriate, forces of partner nations to train, exercise and operate effectively together in executing assigned missions and tasks. This can be through a combination of technical, procedural and human interoperability.¹⁶

¹⁵ Also referred to as combined: 'Adjective used to describe activities, operations and organizations, in which elements of more than one nation participate.' NATOTerm.

¹⁶ Interoperability is explained in more detail in AJP-01(F).

b. Legitimacy. Operations must establish and maintain legal and moral authority in every aspect of a campaign. Legitimacy, which can be a critical factor in operations, centres on the actual and perceived legality, morality and rightness of the actions from the various perspectives of interested audiences.

c. Command and control. All forces operating in a multinational construct have two chains of command. The first is the chain of command constructed either by the Alliance or a coalition. The other is a national chain of command that extends back to the national government of each participating military. This requires commanders to be aware of, and take a flexible approach toward addressing, the challenges associated with command during multinational operations. A successful coalition land force commander will routinely have to accomplish the mission through coordination, communication and consensus, rather than by traditional concepts of command authority.

d. National sovereignty. National sovereignty can be a difficult issue for the commander of a coalition force to navigate. The role of each participating military force is a function of the laws and regulations that govern the conduct of their armed services. National caveats are restrictions placed on the use of national military elements contributing to a multinational operation. These caveats can often limit a coalition member's ability to perform certain tasks or missions. Commanders at every echelon should know their partners' caveats and how they can appropriately address these restrictions when it comes to mission planning. Success in this regard starts early, with commanders researching, recording and referencing the caveats of every country participating in the operation to optimize their employment on the battlefield.

e. National culture. The unique culture and cultural aspects of a force will differentiate it from other forces. It explains why two forces, with the same doctrine and same equipment (conceptual and physical components of fighting power) will approach the same problem in different ways. This may be particularly true in multinational forces. For example, a national culture will influence how a national element may practice mission command. Consideration of these differences, mutual understanding and trust are the key to cooperation. Creating an atmosphere of respect, solidarity, cooperation and trust takes time, effort and patience. A commander who understands the cultural differences and nuances of their force will be able to employ the most suitable force for each task.

f. Tenets. The tenets of multinational operations cannot guarantee success but ignoring them may lead to mission failure due to a lack of coherence. Early engagement and collective training can build unity of effort. The tenets are:

- respect;
- camaraderie;
- cultural awareness;

- patience;
- mission focus;
- team building;
- trust; and
- confidence.

Joint approach

1.22 NATO recognizes that military success relies on a joint force, with actions coordinated across multiple components brought together under a unified command structure. A fully developed joint task force (JTF) will usually have maritime, land, air, logistics and special operations components, supported by specialists such as space and cyberspace personnel. The complexity of the operation, the operations theme, the predominant environment and the type of threat will influence generation of forces and selection of headquarters. A JTF is a temporary organization for a single defined task or activity.

1.23 **Fundamental considerations.** A joint¹⁷ approach to land operations will be supported by the following considerations.

a. Understanding. A holistic understanding of the mutually supporting capabilities and the ability to orchestrate or coordinate with other components is essential. The basis of this form of interoperability is an understanding of the components' characteristics, roles, planning considerations, limitations and of the relationships, dependencies and mutual support between them and land forces. Other components will operate within the land environment and, depending on their mission, may require coordination.

b. Joint functions. Allied Joint Publication (AJP)-3, *Allied Joint Doctrine for the Conduct of Operations*, describes the joint functions. Their application to land operations is described in Chapter 3 of this publication. They provide a sound framework of related capabilities and activities grouped together to assist commanders to integrate, synchronize and direct various capabilities and activities in joint operations. They are designed to be a descriptive aide memoire or framework upon which the operation is visualized and planned by the commander and staff.

1.24 **Supported and supporting relationships.** During the conduct of operations, commander JTF details the relationship between the various operational-level Service or functional components. This relationship will normally take the form of supported and supporting responsibilities, which are discussed further in Chapter 2.

¹⁷ Adjective used to describe activities, operations and organizations in which elements of at least two services participate. NATO agreed

1.25 **Joint task force construct.** A JTF construct usually consists of three layers, as described below.¹⁸

a. JTF headquarters. Based on the strategic military direction, operations are planned and conducted at the operational level through a JTF headquarters (JTF HQ), which requires functional commands to sequence, synchronize and sustain military capabilities.

b. Subordinated component command headquarters. The four standard functional components that may be established are the: land component command (LCC); maritime component command; air component command; and special operations component command (SOCC). This structure should be complemented with a joint logistics support group (JLSG)¹⁹ to enable the responsive deployment and sustainment of NATO forces to support the JTF's operations, missions and activities. In addition, cyberspace operations could be planned and conducted either by the JTF HQ or by a specific element subordinated to the commander JTF, similar to the standard functional components. The Cyberspace Operations Centre (CyOC) could provide a cyberspace theatre component to coordinate cyberspace operations conducted by willing NATO nations since they are under national reservation. The role of the other components in land operations is described in Chapter 2.

c. Forces assigned for the operation. Finally, the JTF will encompass tactical task forces subordinated to the functional components. Some may be subordinated direct to commander JTF, such as a combined joint chemical, biological, radiological, and nuclear defence task force, a combined joint psychological operations task force, a combined joint countering improvised explosive devices task force, a combined civil-military cooperation (CIMIC) task force, and the force commander reserve.

Section 3 – Continuum of competition and the operations themes

Continuum of competition

1.26 The continuum of competition is a model depicting the attitude and behaviour of international relations. The continuum has four types of relationships: cooperation, rivalry, confrontation and armed conflict. The boundaries between cooperation, rivalry and confrontation, and the threshold between confrontation and armed conflict, are complex and dynamic; the progression between each is neither linear nor easily defined. Interstate relations are typically sectoral: two or more states may cooperate in one sector and be in confrontation in another, and potentially in armed conflict in a third. The continuum's key zones are described below and illustrated in Figure 1.1.²⁰

¹⁸ For small joint operations, the joint task force (JTF) can adopt a JTF integrated model, where the components are embedded, without subordinated component command headquarters.

¹⁹ For further details see AJP-4.6 *Allied Joint Doctrine for Joint Logistic Support Group*.

²⁰ See AJP-01(F) for more information.

a. Cooperation. Cooperation is when states or non-state actors work together to achieve the same objectives. NATO is an example of cooperation to protect and defend nations' security. Cooperation provides the ideal basis for enduring stability.

b. Rivalry. Rivalry is when two actors are in a state of peace but have conflicting aims or contradictions. The actors compete with an attitude or behaviour that is in accordance with the rules-based international order (RBIO). The RBIO is a shared commitment by all countries to conduct their activities in accordance with agreed rules that evolve over time through multinationally agreed processes. Rivalry is not necessarily negative, it is the normal state in international relations and, when done within the RBIO framework, it can be beneficial to all parties and the international system.

c. Confrontation. Confrontation is when differences can no longer be reconciled, and adversaries oppose each other with hostile intent to create a state of crisis. Actors use hostile behaviour or attitude in the form of posturing, threats and violence as a competitive tool to resolve an issue in their favour. There is no defined threshold that separates confrontation from armed conflict because many actors intentionally try to obscure or confuse exactly where this threshold lies. Actors will consciously strive to stretch or constrict the threshold in an effort to increase or restrict freedom of action. Proxy warfare, brinkmanship, terrorism and economic coercion are all examples of sub-threshold activity within the confrontation zone.²¹ In response, other states will conduct deterrence and defensive activities to reduce the confrontation or escalate the violence to armed conflict.

d. Armed conflict. Armed conflict is the final arbiter of competition and is when escalation cannot be prevented or contained, leading to one party primarily resorting to military force to compel their enemy to resolve the issue in their favour.²² Armed conflict is a special kind of competition because it is not enduring; its role is to set the conditions for other forms of competition. Since armed conflict includes acts of nationally directed violence, it invariably has an exponential effect on human emotions, uncertainty and friction. Moreover, armed conflict is an extreme trial of physical and moral strengths, and tests institutional and individual sources of endurance and resilience.

²¹ For more information on these examples see Royal United Services Institute, *The Future Conflict Operating Environment Out to 2030*.

²² The term 'armed conflict', rather than 'war', is preferred today because it is wider in scope than the term 'war', which was, and indeed still is, a technical term with certain legal implications, which is rarely declared.



Figure 1.1 – The continuum of competition

1.27 Military instrument and the continuum of competition. The military instrument generally plays a supporting role to other instruments of national power and agencies below the threshold of armed conflict. However, the military instrument is required to increase the threat or application of violence as its activity progresses through the continuum of competition, to encourage cooperation or rivalry rather than confrontation or armed conflict. Ultimately, it is the ability of the military instrument to win high intensity, combat operations from which all military advantage across the continuum of competition is derived. The context for how the military instrument is employed across the continuum of competition is expressed in the operations themes.

Operations themes

1.28 The operations themes are warfighting, security, peace support and peacetime military engagement, which can be linked to the continuum of competition. The selected themes reflect the political context and strategic narrative that guides the ends, ways and means requirements, which in turn supports the development of the operational objectives and the conduct of tactical operations. Competition's campaign mindset requires NATO to contribute to NATO's strategic objectives by persistently delivering peacetime military engagement, peace support and security-themed operations to attract and coerce actors. This constrains

our adversaries and prevents competition escalating. Warfighting themes are targeted responses to the operating environment to compel an actor's behaviour before returning to non-violent competition. The most common linkages between operations themes and the continuum of competition is shown in Figure 1.2.

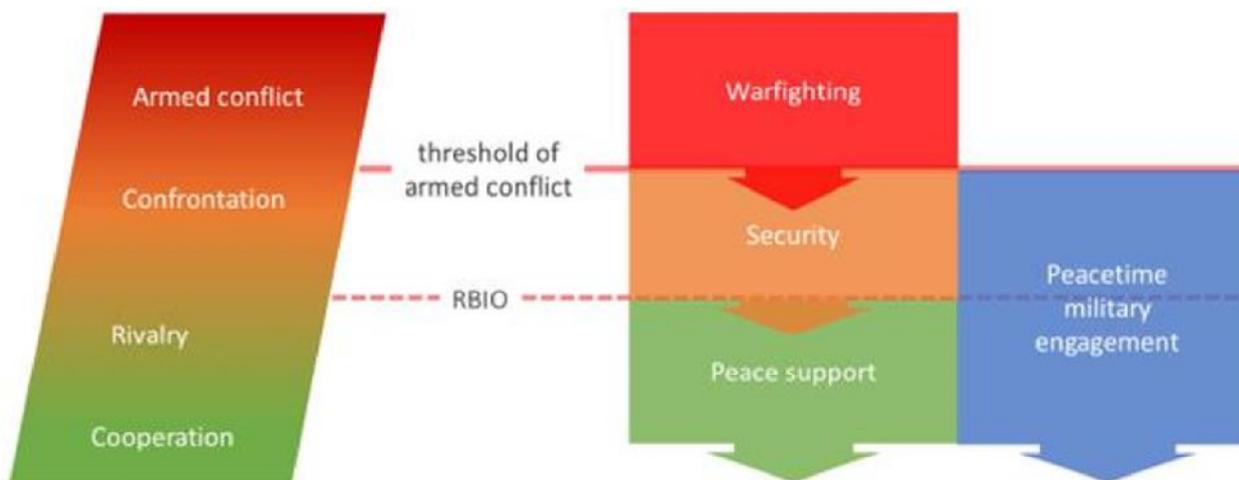


Figure 1.2 – Operations themes and the continuum of competition

1.29 The next paragraphs describe the operations themes. Although they appear in succession, they can overlap with different prevalence throughout a campaign.

1.30 **Warfighting.** Warfighting occurs above the threshold of armed conflict and encompasses more than just an Article 5 response. It includes operations under NATO's core policies of defence, projecting stability and fight against terrorism. Warfighting is when the conflict has reached a point that the only way to change behaviour, attitude or resolve an issue is primarily through armed force. Activity is usually a series of high-intensity engagements in one or more operational domains against a significant form of armed aggression perpetrated between one or more states or a well-organized and resourced non-state actor. There are two types of warfighting operations: combat and major crisis response.

a. Combat operations. Combat operations are characterized as a contest between the armed forces of states and/or action against large-scale irregular forces. Examples of combat are major joint operations and the International Security Assistance Force (Afghanistan).

b. Major crisis response operations. Major crisis response operations use a significant form of armed aggression to prevent a crisis from escalating and spreading.²³ The aim is to intervene with armed force to contain instability by providing the security for other actors to resolve the dispute and attitudes that constitute the more deep-seated causes of conflict.

²³ See AJP-3, *Allied Joint Doctrine for the Conduct of Operations* for more information.

1.31 Warfighting is not enduring; its role is to set the conditions for other operations themes and types of competition. Armed conflict's destruction of government and societal institutions can create conditions for intense rivalry and confrontation among internal, regional and global actors seeking to retain, re-establish or gain power, status or strategic advantage within a new order. Global or regional rivals and adversaries can exploit these conditions by supporting these groups as proxies or surrogates to continue or pursue their aims in other ways. Therefore, the joint force must plan for the transition to other forms of competition through security or peace support operations themes.

1.32 For land forces the warfighting theme usually involve large numbers of troops organized traditionally in corps and divisions. When combat occurs, fighting will be intense with extremely high logistic consumption rates and conducted at a high tempo usually over contiguous battlespace with relatively well defined deep, close and rear areas. Land tactical operations will be conducted predominantly using offensive and defensive operations but will include the whole range of tactical activities.

1.33 **Security.** The security theme applies to the confrontation zone of the continuum of competition. The theme implies the Alliance will detect, deter and respond to emerging threats, or compel compliance with the RBIO,²⁴ including accepted resolutions or sanctions. The theme demonstrates control, capacity and commitment to defend and contest multiple domain and regional threats to the Alliance and its partners. It therefore requires an agile and adaptable posture, speed of recognition and decision-making, supported by suitable policies, permissions, capabilities and readiness to enable the agility to transition and respond to threats, and, if necessary, the warfighting theme.

a. The theme deters and constrains through amplifying credible overt military capability, home base resilience, and discreet employment of multi-domain activity. The theme encourages restraint of malign activities by affecting the decision calculus of an adversary before they act.

b. If the adversary's malign activities are not contained, the theme responds through offensive, defensive and stability activities to impose a cost and deny any benefit to the aggressor for their malign activities through crisis response operations. It is the intensity or regularity of engagements, or strategic narrative that separates this theme's security and warfighting's major crisis response activities.

²⁴ The rules-based international order (RBIO) is described as a shared commitment by countries to conduct their activities in accordance with agreed rules that evolve over time. The RBIO relies on enforcement (implementing or applying) of standards and laws covering a range of activities and behaviour, such as international law, regional security, United Nations (UN) Charter, international human rights conventions, the Geneva Conventions and the UN Convention on the Law of the Sea and unfettered access to the global commons arrangements.

1.34 Examples of security and assurance themed activities include enhanced forward presence, Operation Active Endeavor in the Mediterranean Sea, enforcing no-fly zones, support to sanctions, and the Implementation Force in Bosnia and Herzegovina.

1.35 For land forces, the security theme may require relatively large forces usually acting at divisional (or equivalent) and brigade levels in a predominantly non-permissive (but occasionally hostile) environment. Activity will be predominantly associated with counter-irregular activity over a wide non-contiguous battlespace. When offensive action occurs, fighting will be intense over relatively short periods, interspersed with a steady tempo of operational activity. Sustainment rates will be relatively light but may require to be locally high. Land tactical operations will be a balance of short offensive operations but with a greater emphasis on defensive and stability operations. The whole range of tactical activities may be employed but with a greater use of stability and enabling activities (especially reconnaissance and security activities).

1.36 **Peace support.** This theme supports the RIBO within the rivalry zone. The theme seeks to preserve peace or intervene within a potential conflict to maintain stability and prosperity, underpinned by the rule of law. Activities guided by this theme contribute to a range of civilian tasks to redress the causes of a conflict, including: maintaining public order, security sector reform; disarmament, demobilization and reintegration; transitional justice; infrastructure reconstruction; and national reconciliation. Peace support includes peacekeeping and peace building.

a. Peacekeeping. Peacekeeping relies on consent and impartiality, which allows the implementation of a permanent peace settlement. Activities range from supervising ceasefires, monitoring and reporting on developments in conflict areas, or acting as a buffer or an interposition force between rival factions. It is the narrative and the risk to force that separates a peace support's peacekeeping from warfighting and security's peace enforcement.

b. Peacebuilding. Peacebuilding seeks early engagement and partnership with a host nation to forestall confrontation or continue engagement post peacekeeping to lay the foundations for sustainable peace. The Alliance integrates with other actors to alleviate the issue and ameliorate attitudes and behaviour to prevent the dispute from escalating into confrontation.

1.37 The character of peace support theme operations has evolved since the relative period of hegemony in the early 2000. Strategic competition increases the number and intensity of internal, regional and global rivals competing to retain, re-establish or gain power, status or strategic advantage through instability or creating new governmental or social institutions. In some cases, the global or regional rivals' proxies or surrogates are replaced by rival peace support actors pursuing different aims. Therefore, peace support often operates in geostrategic 'zones' of strategic competition in which rival actors aims diverge. This often results in incoherent and competing approaches to development and resolving issues. Therefore, success requires the comprehensive approach over a long period of time.

Examples of peace support and stability activities include counter-piracy in the Gulf of Aden and around the Horn of Africa, NATO in North Macedonia, and the Stabilization Force in Bosnia and Herzegovina.

1.38 For land forces, the peace support theme is predominantly aimed at monitoring and preserving the peace. The operating environment will range from permissive through non-permissive, but locally hostile and will involve relatively small numbers of troops usually over a non-contiguous battlespace. Operations will be conducted at a relatively low tempo but may be interspersed with short sharp engagements. Logistic consumption rates will be steady, occasionally high locally. Land tactical operations will be conducted predominantly by stability and enabling activities, especially reconnaissance and security, but may require short-term offensive activities when required.

1.39 Peacetime military engagement. Military engagement applies to those military activities that are intended to shape the operating environment in the medium to long term. Military engagement acknowledges that the Alliance cannot address all risks on its own, and therefore makes developing relationships with allies and partners central to what it does. Military engagements apply to the levels below the threshold of armed conflict and implies a supporting role to other instruments of national power. Activities include a wide range of tasks, from multinational training exercises, capacity building to humanitarian operations. The aspects of peacetime military engagement are as follows.

- a. Long-term, persistent engagement with our partners and allies to build stability, bring prosperity and increase cooperation. It demonstrates political unity, preserving local and regional security structure and supports the denial of the expansion, connections and proliferation of instability.
- b. Humanitarian relief activities to reduce the results of complex emergencies involving natural or human-made disasters or other endemic conditions such as disease, hunger or privation.

1.40 Examples of peacetime military engagement include the African Union Mission in Somalia, Euro-Atlantic Disaster Response Coordination Centre's COVID-19 response, Pakistan earthquake relief assistance support, as well as expert training support to the African Standby Force.

1.41 Land forces activities under this theme require relatively low numbers of troops (occasionally large numbers when major exercises are planned) operating in a permissive environment (locally non-permissive). The activities range from major training exercises to training an allied or partner force or conducting humanitarian and disaster relief. All land tactical operations may be practiced along with all tactical activities.

Chapter 2 – The land component

Section 1 – Fighting power

Introduction

2.1 The concept of fighting power describes the operational effectiveness and capability of armed forces: either of our own or of an adversarial force. The ability of any actor to use, or threaten to use, force to achieve a desired outcome is dependent on three interrelated components: moral, conceptual and physical. None of the components can claim precedence and each mutually supports and informs the other, as illustrated in Figure 2.1. Training is the essential system by which the three components of fighting power are prepared, cohered and integrated.

- a. Moral component.** The moral component is the ability to get people to fight and operate and to do so appropriately. It comprises the force's morale, leadership and ethical conduct, along with the unique culture of that force.
- b. Conceptual component.** The conceptual component is the force's knowledge, understanding and application of doctrine, and its continuous learning and adaptation. It includes understanding the situation and the operating environment. For a multinational force, this component will also include doctrinal aspects of interoperability.
- c. Physical component.** The physical component consists of the correct mix of personnel, equipment, training, sustainment and readiness. It is very much a quantitative, measurable component.

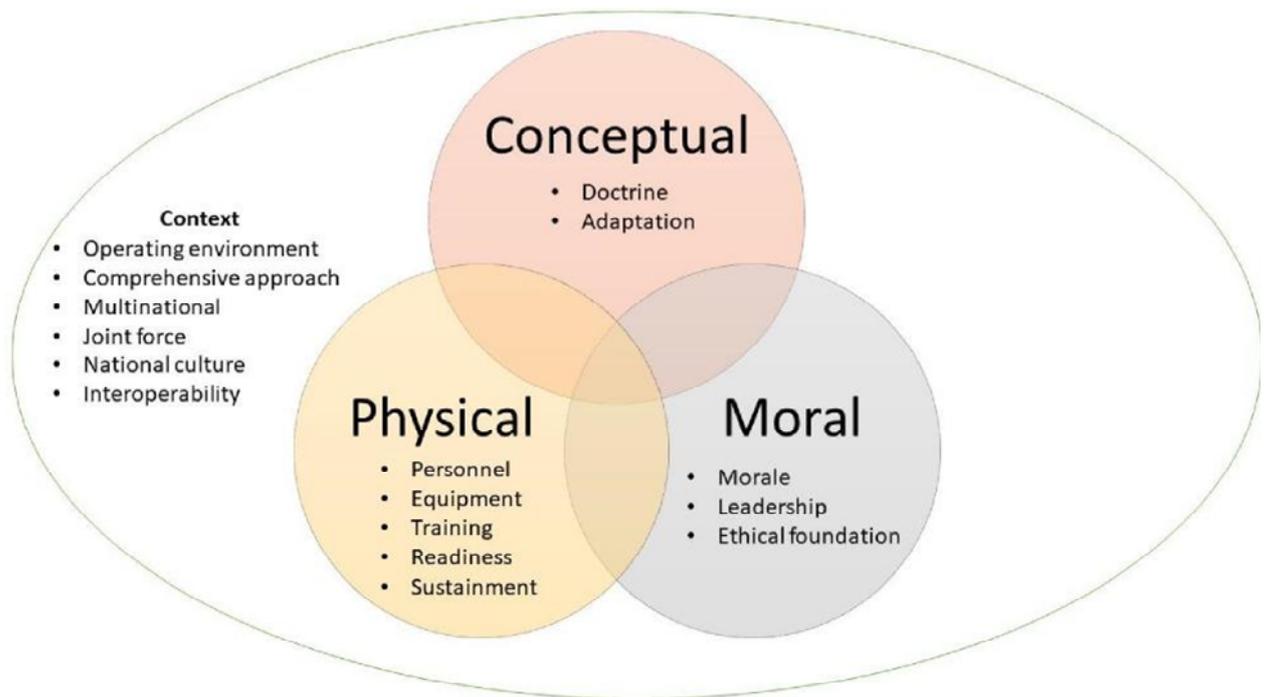


Figure 2.1 – The components of fighting power

2.2 Fighting power is measured by combat effectiveness, which is defined as: ‘the ability of a unit or formation, or equipment to perform assigned missions or functions. Note: this should consider leadership, personnel strength, the state or repair of the equipment, logistics, training and morale and may be expressed as a percentage.’ The physical component can more easily be measured quantitatively, whereas the moral and conceptual components tend more to subjective, qualitative assessment. Assessment of fighting power across all three components includes collective performance. Collective performance is characterized by the high levels of cohesion, confidence and proficiency achieved by headquarters and units that have trained or operated together. Collective performance is optimized when it integrates partners and contractors within the force and is exercised through training.

2.3 A multinational joint force’s fighting power is also dependent on the interoperability of its force elements and the ability of commanders to draw the different national elements together. Commanders must understand the differences and nuances between the national elements, which will inform how missions are assigned to the various national forces, within the constraints of any given situation.

The moral component

2.4 **Description.** The moral component emphasises the importance of people to land operations. The moral component focuses on the force's morale, leadership and ethical foundation. Its expression will vary in relation to national cultural, organizational, task and operational factors.

2.5 **Morale.** The maintenance of morale is essential for successful operations due to the human element and the intensity and violence of land operations. It includes both the enthusiasm and conviction to fight. A force's morale is strengthened by its moral integrity and legitimacy. Discipline is essential to a fighting spirit and is part of the ethical foundation and unique culture of the force. It provides unit cohesion and is the best counter to fear. When a unit is well-disciplined, commanders can be sure that their orders will be carried out in an appropriate manner.

2.6 **Leadership.** High morale depends on good leadership, which instils courage, energy, determination, respect, an inclusive environment, and care both for, and among, the personnel under command. It is for leaders who shape and control the conduct of the force, for good or ill. Land operations rely on the strength of leadership at all levels. Multinational command and leadership require consideration and practice, and are described further in Allied Joint Publication (AJP)-3, *Allied Joint Doctrine for the Conduct of Operations*.

2.7 **Ethical foundation and ethos.** The moral component depends on the conviction that the force's purpose and the manner in which it conducts operations are morally and ethically sound. This stems from ethos – that collection of values and beliefs that guides the application of force and conduct of operations – and helps ensure the legitimacy of those operations and campaign. This includes belief in the justness of the cause and the ability to maintain the support of the nations. The way an operation is conducted is determined by a force's ethos and ethical foundations. To be effective, a force's actions must reflect a sound and appropriate, ethical and moral foundation. The force's ethos also helps build the cognitive resilience of the troops when they face fear and violence.

The conceptual component

2.8 **Description.** The conceptual component reflects accumulated experience (contained in doctrine and validated in training), improvements to existing practice (gained through operations, lessons and experimentation) and enables analysis of new operational and tactical situations. It provides commanders with a common ability to understand the context within which they operate and serves as the foundation upon which creativity, ingenuity and initiative may be exercised in complex situations, with a multinational force. The conceptual component comprises of two components: doctrine and adaptation.

2.9 **Doctrine.** Doctrine is defined as: 'fundamental principles by which military forces guide their actions in support of objectives. It is authoritative but requires judgment in application.' It enhances the operational effectiveness of the Alliance by providing authoritative guidance relevant to preparing and employing military forces. It promotes a

common perspective from which to plan, train and conduct operations and represents what is taught, believed and advocated as best practice. It also provides insights gained from lessons learned and employing the military instrument of power on operations and exercises to achieve Alliance objectives. Education is based on existing doctrine and it is subsequently applied in training. Education is a core function for preparing headquarters and forces for current and future operations. Applied doctrine provides the foundation for adaptation, which, in turn, is essential for operational success.

2.10 Adaptation. The second essential component of the conceptual component is the ability to adapt to a complex and changing operating environment against a dynamic adversary or enemy. Doctrine provides commanders with the ability to understand the context within which they operate and so enables adaptation. Adaptation spans all components of fighting power but is guided by the conceptual component. A flexible force that orientates, innovates and adapts more quickly than their adversary in conflict is more likely to achieve their operational objectives. Therefore, the conceptual component is also relative to the adversary.

The physical component

2.11 Description. The physical component concerns the physical means to fight. It may be described as a force's combat power. The physical component is the combination of five elements:

- personnel;
- equipment;
- training;
- readiness; and
- sustainment.

2.12 Personnel. The right mix of trained and motivated personnel is fundamental to land operations. The personnel element is interrelated to the moral component and motivation and legitimacy, and their conceptual preparation. In accordance with the comprehensive approach, the right mix of personnel might include military, civilians, contractors, and other agencies or actors. Including non-uniformed personnel (for example, civilians, contractors, and other agencies or actors) in land operations may have certain legal and policy implications. The commander should consult the component's legal advisor regarding their status.

2.13 Equipment. Land forces require sufficient and effective equipment, which must be properly maintained. Equipment's characteristics must be adequate to face either the enemy or the adversary and the operating environment in which forces are employed. Wherever possible equipment must be designed to be technically interoperable across NATO.

2.14 **Training.** Training is the essential mechanism through which all three components of fighting power are developed, preparing individuals and forces for each operation. A crucial part of effective training is the lessons learned process and the ability to adapt.

2.15 **Readiness.** The physical component of fighting power must be sufficiently responsive to the operating environment to achieve their mission. Troop-contributing nations are responsible for providing trained, equipped and certified forces at appropriate readiness to meet the minimum military requirements. Readiness includes all components of fighting power: the physical readiness of the force; their conceptual readiness; and a strong moral component, ready in time to complete their operational task.

2.16 **Sustainment.** Sustainment relates to the joint function, which is the comprehensive approach of personnel, logistics, medical, military engineering, finance and budget support necessary to maintain combat power throughout all phases of operation. The capability to sustain a land operation is essential to both the physical and moral components.

Section 2 – Roles and characteristics of land forces

Roles

2.17 Land forces' roles normally entail seizing and holding terrain, neutralizing enemy forces, regaining lost territory and influencing the audience relevant to the attainment of NATO objectives. They are able to conduct simultaneous activities, utilizing fires, manoeuvre and information to apply overwhelming combat power, create decisive effects, protect the force, and facilitate future operations. Land forces may execute a wide variety of missions, ranging from security tasks in support of stabilization activities and reconstruction efforts to combat operations often concurrently or in close succession to each other. They utilize fires, manoeuvre, information and civil-military cooperation (CIMIC) to apply overwhelming combat power.

2.18 Rarely will one component alone be capable of attaining the end state. However, land forces usually provide the major contribution to the joint forces requirement to impose its will forcibly on any enemy.

Characteristics

2.19 The key characteristics of land forces, which affect their employment are as follows.

- a. **Land forces are generally required to defeat enemy land forces.** Although maritime, air and special operations forces can do substantial damage to land forces, adaptive enemies can adopt techniques to survive their attacks. Therefore, it usually needs either direct engagement by land forces or the threat of using land forces to defeat the enemy.
- b. **Land forces can seize and secure terrain.** Remotely delivered fires, even on a massive scale, has rarely proved capable of ejecting determined troops from the

terrain they occupy. Such terrain may be a strategic or operational objective, and forces physically occupying an area is the only certain means of attaining long-term security. This is especially true for urban areas and other infrastructure.

c. Land forces can seize and secure adversary's and enemy's critical capabilities. Land forces can bring combat operations to their conclusion by seizing and securing an enemy's critical capabilities, such as command and control, chemical, biological, radiological and nuclear (CBRN) offensive capabilities, mobile rocket systems or high value targets.

d. Land forces have significant influence on civil populations. Land forces are suitable to ensure the protection of civilians. They are perceived as a strong commitment to, and guarantee of, security. Land forces can interact at all levels with the population, which is essential to influence actors in support of attaining the strategic end state. Conversely, a failure to incorporate the cross-cutting topics²⁵ can considerably harm the civilian population, with direct negative effects on the legitimacy of the mission, attainment of the end state and long-term stabilization.

e. Land forces enable other actors to operate. Long-term stability is likely to depend on other governmental and non-governmental organizations dealing with issues such as stabilization and reconstruction, humanitarian disaster, and socio-political tensions. Land forces can assist in attaining and maintaining a secure environment, thus enabling these non-military actors to operate.

f. Land forces represent strong evidence of political commitment. Committing land forces is potentially costly, both financially and in human lives. Deploying land forces is therefore a very strong political signal stating a nation's or Alliance's will to the international community and other parties.

g. Land forces contribute to the deterrent effect of the joint force. Deterrence is the responsibility of the strategic level and of the joint force. Through its ability to influence a target audience, land forces contribute to deterrence.

Section 3 – Land command structure

Introduction

2.20 The land command structure is the generic command structure for the conduct of land operations. The current operating environment, characterized in part by the risk of a rapid transition from peacetime to conflict with a well prepared and technological advanced

²⁵ Protection of civilians; children and armed conflict; cultural property protection; women, peace and security; conflict-related sexual gender-based violence; trafficking in human beings; sexual exploitation and abuse; and building integrity. See Allied Joint Publication (AJP)-01(F), *Allied Joint Doctrine* for more details.

adversary, necessitates predetermined command structures capable of commanding major joint operations.

Headquarters Allied Land Command

2.21 The single Service commands are responsible for their Service's development, transformation, engagement and liaison. Headquarters Allied Land Command (HQ LANDCOM) provides land competency for the Alliance and acts as NATO's principal land advisor. HQ LANDCOM is the NATO theatre land component (TLC) and land advocate, responsible for coordinating and synchronizing NATO and partners land forces by enabling land domain readiness, interoperability, standardization and competence. On order, LANDCOM is able to deploy at high readiness tailored headquarter elements such as: deployable land elements (DLE), capabilities force integration team (CFIT) and land domain advisory team to provide a planning and coordination capability to the receiving headquarters. HQ LANDCOM elements are detached temporarily from the TLC to facilitate the transition of land command and control at the beginning and end of conflict as required in each joint operations area (JOA).²⁶

Theatre land component

2.22 The TLC's main functions are to support Supreme Headquarters Allied Powers Europe (SHAPE) and to provide support to land and joint forces. The TLC has two main tasks.

a. **Support SHAPE.** This task comprises five main roles.

- (1) Act as the land advisor to Supreme Allied Commander Europe (SACEUR).
- (2) Enable land forces' readiness, interoperability, standardization and competency.
- (3) Coordinate sustainment in conjunction with the joint support enabling command (JSEC) and joint logistic support group (JLSG).
- (4) Coordinate and guide the regeneration and reconstitution of land elements.
- (5) Manage the successful transition from conflict to peacetime by ensuring the continued consolidation of gains in SACEUR's area of responsibility (AOR).

²⁶ This paragraph refers to the theatre land component (TLC) concept that is being implemented as part of NATO's adaptation.

b. **Support the land and joint force.** The TLC's second task is to support land and joint forces across SACEUR's area of interest (AOI) through the CFIT and DLEs. Its generic responsibilities are as follows.

- (1) The CFIT supports the rapid integration of NATO force structure (NFS) forces and capabilities and enhances situational awareness by liaising between these entities and the NATO Command Structure (NCS).
- (2) The DLE assists with battlespace management and coordination with troop-contributing nations.
- (3) Through a DLE, manage risk when command relationships may change in the build-up to a maximum level of effort operation, by establishing a land component command (LCC).
- (4) Through a DLE, support the transition of command and control during a change of command.
- (5) Support the joint force command's (JFC) planning activity.
- (6) Support the exchange of information within the receiving commands.

2.23 A diagram showing the NATO land command structure on operations is depicted in Figure 2.2.

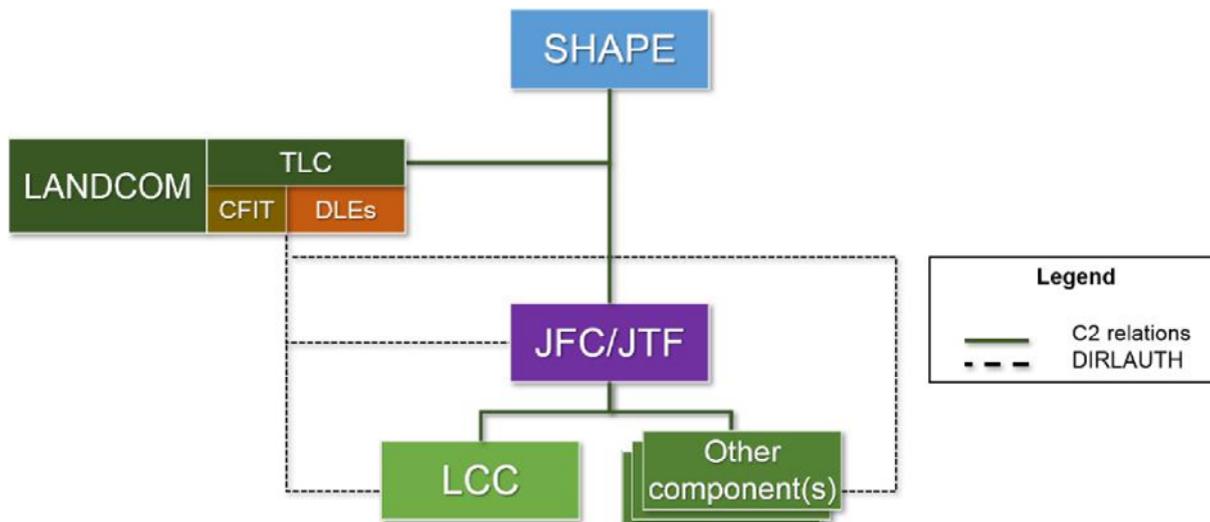


Figure. 2.2 – An example of the NATO land command structure²⁷

²⁷ The multi-corps land component command is the echelon of command and control multiple corps in a high-intensity joint operations area (JOA), underneath the command of a joint force command (JFC). This

Land component command

2.24 The land component commander plans and executes tactical-level operations in support of a commander joint force command (COM JFC) providing the interface between the tactical and operational level. Operational-level objectives are translated into tactical-level plans through the operations planning process. Planning may be conducted collaboratively with advice from the other component commands and their staff, which ensures that tactical-level commanders understand the operational context in which their actions occur.

2.25 The main functions of LCC are performed by the highest land tactical headquarters in the JOA. The size of the LCC will depend on the nature of the operation. Therefore, the main functions of an LCC are as follows.

- Act as the principal land adviser to the joint commander on the appropriate role of land forces and contribute to joint planning.
- Transfer joint coordination orders into tactical operation orders.
- Integrate land operations into the joint operation.
- Coordinate land operations with operations of other components.
- Allocate support from other components to subordinate formations.
- Prepare follow-on land operations.

Section 4 – Organization of forces

Combined arms grouping

2.26 Land forces are normally organized as a combined arms force. Combined arms grouping is the synchronized or simultaneous application of several arms to create an effect on the adversary that is greater than if each arm were used against an adversary separately. Forces are combined to mitigate their weaknesses and exploit their strengths to achieve their objective. This is described further in Allied Tactical Publication (ATP)-3.2.1, *Conduct of Land Tactical Operations*.

Elements of a land force

2.27 In general, a land force consists of a headquarters, combat, combat support and combat service support. This is defined by the role they perform. The proportion of each within a land component will vary between operations and each element may be embedded within another.

echelon of command frees the corps commanders to focus on tactical warfighting while the JFC is concentrating on the operational activities.

- a. Headquarters.**²⁸ Headquarters elements consist of those elements that support the commander in mission planning, preparation and execution. It includes communication and information systems (CIS), which provide the means for commanders and their staff to access information, and all the J1–10²⁹ staff functions.³⁰ All headquarters should be modular and adapted to the requirements of the operation with the ability to operate within three overlapping levels: military strategic, operational and tactical.
- b. Combat elements.** Combat elements consist of those elements that engage the enemy directly. They fight and typically employ direct fire weapons. They include armoured, infantry and reconnaissance units as well as aviation units equipped with attack helicopters. They manoeuvre by combining movement with fire or fire potential.
- c. Combat support elements.** Combat support (CS) elements are those that provide fire support, protection and operational assistance to combat elements. CS elements include: fire support; CIMIC elements; psychological operations elements; air defence; joint intelligence, surveillance and reconnaissance (JISR) elements; combat and military engineering elements; military police elements;³¹ CBRN defence capabilities and assets; cyber elements; electronic warfare capabilities; and manoeuvre and transport army aviation assets.
- d. Combat service support elements.** The purpose of combat service support (CSS) is to provide the necessary resources to sustain land forces for the duration of an operation. Those responsible for CSS are tasked to ensure that combat and combat support forces are supplied in a timely manner with what they need to accomplish the mission. It is important that the supplies, services and facilities needed are provided in the right quantity, at the right time, at the right place and in a serviceable condition.

Types of land forces

2.28 Land forces can also be classified into three types depending on their key characteristics: heavy, medium and light. The inherent characteristics of each type make a force more suited to certain missions, tactical situations or environments. The key characteristics used to classify the types of forces are protection, firepower and mobility. Although the classifications of heavy, medium and light apply mostly to the combat elements

²⁸ Some nations have an additional category of command support elements, which assist commanders in the exercise of command. This would include functions such as staff of all types, communications, intelligence and information systems.

²⁹ J10-StratCom is a new function being introduced by StratCom.

³⁰ Which are described further in AJP-3, *Allied Joint Doctrine for Conduct of Operations*.

³¹ Member states have a different perspective on whether the military police are combat support or combat service support elements. Notwithstanding this, the military police role is fulfilled through the five military police doctrinal functions and their respective activities. These functions are: mobility support, security, detention, police and stability policing. Only the first four are related to combat support (for more details see, AJP-3.21, *Allied Joint Doctrine for Military Police* and ATP-3.7.2, *NATO Military Police Guidance and Procedures*).

of a force, the supporting elements (combat support and combat service support) should have complementary characteristics to those of the supported combat elements, to be employed most effectively. Annex B contains further details.

Hierarchy of land forces

2.29 In general, the tactical hierarchy is built on the following echelons, which are described further in ATP-3.2.1, *Conduct of Land Tactical Operations*. Each echelon can serve as a tactical command level.

- a. Land component command.** Able to command up to five corps and enablers in one or more area of operations (AOO) in one JOA.
- b. Corps.** Able to command up to five divisions and supporting elements in its assigned AOR.
- c. Division.** Able to command up to five brigades and supporting elements in its assigned AOR.
- d. Brigade.** Able to command up to five battalions and supporting elements in its assigned AOR.
- e. Battalion.** Able to command up to five companies in its AOR.

Section 5 – Interaction with other components

Supported and supporting relationships

2.30 During the planning of operations, COM JTF details the relationship between the various subordinate component commands. This relationship will normally take the form of supported and supporting responsibilities.

2.31 At the component level, each supported and supporting relationship established by COM JTF enables the supported commander to set requirements and gives the supporting commander flexibility to determine methods and tactics. The degree, type and priority of support must be established and agreed upon. The higher commander must clearly define support relationship parameters. Coordinating and de-conflicting between components are always critical considerations for commanders before and during an operation. This will ensure that the proper capabilities are provided at the correct place and time. It will also maintain the desired tempo of the operation.

Air component³²

2.32 **Attributes.** Gaining, maintaining and exploiting control of the air is critical to success in most operations in the land environment. The core attributes of air power, whether drawn from air, maritime or land components, are speed, reach and height.

- a. **Speed.** Air power's speed gives it tactical agility and operational flexibility to create multiple effects over distance and in a short period of time. This generates tempo and surprise giving commanders substantial operational and tactical advantage. Speed enables rapid deployments when a swift response is required to attack sensitive or strategic targets rapidly, while reducing air power's time over hostile territory.
- b. **Reach.** Reach, combined with persistence, gives the commander the ability to create effects in multiple locations at same time. Air power's reach provides the opportunity to observe and influence operations in the whole JOA.
- c. **Height.** Air power's height provides military advantage by facilitating observation out of the range of many surface weapons thereby supporting operations within the land domain.

2.33 These core attributes enable and enhance additional characteristics. For example, air power can rapidly switch from intelligence gathering to fires in different parts of the battlespace. Speed and reach also mean that effects can be quickly concentrated in time and space, maximized by precision technology. As a result, it can be employed at the operational level to take offensive action against a specific target to achieve a strategic objective (referred to as strategic attack). Air power also has inherent constraints. The most significant are its relative impermanence, limited payload and vulnerability. The latter includes the fragility of aircraft, the effects of weather and the requirement for well-found and secure basing, logistic and equipment support.

2.34 **Roles.** The four air power roles are as follows.

- a. **Control of the air.** Control of the air enables land operations to proceed at the optimum place and time without prohibitive air interference, while providing force protection. The required degree of control of the air is achieved through counter-air operations.³³
- b. **Attack.** Air operations may be used to defeat enemies' forces, destroy their supporting infrastructure, or create cognitive effects to shatter their cohesion or will to

³² See AJP-3.3, *Allied Joint Doctrine for Air and Space Operations* for more information.

³³ There are three levels of air control: air supremacy (opposing air force incapable of effective interference); air superiority (a degree of dominance in the air battle of one force over another which permits the conduct of operations by the former and its related land, maritime and air forces at a given time and place without prohibitive interference by the opposing force); and air parity (where no force enjoys decisive control of the air in either time or space). AJP-3.3, *Allied Joint Doctrine for Air and Space Operations*.

fight. Within the role of attack, the air component can support land operations with counter-land operations, which fall under two mission types.

(1) **Air interdiction.** Air interdiction operations are those conducted to dislocate, disrupt, delay, degrade or destroy an enemy's military potential before it can be brought to bear effectively. Their distance from friendly forces is such that detailed battlespace de-confliction with the land component is not required. The flexibility of air interdiction allows it to be conducted in support of land operations with or without the presence of any friendly land forces. It may offer the potential to reduce the requirement for ground combat. (See the geographic framework in Chapter 3).

(2) **Close air support.** Close air support are air actions against hostile targets that are in close proximity or in contact with friendly ground forces.

c. Mobility. Air mobility enables the deployment, sustainment and recovery of personnel and materiel by air. At the operational level air mobility operations fall into two fundamental categories: air transport (sometimes referred to as airlift) and air-to-air refuelling.

d. Intelligence surveillance and reconnaissance. The speed, reach and height of air enables observation of an adversary's actions and dispositions (including battle damage assessment), thereby enabling commanders to identify dependencies, vulnerabilities and strengths.

2.35 Air-land coordination. The air-land coordination is established by an air liaison element (ALE) and an air operations coordination centre (AOCC), as well as a land liaison element (LLE) and battlefield coordination element (BCE). The ALE (respectively the LLE) is collocated within the LCC (respectively the Joint Force Air Component Headquarters (JFAC HQ)) and provides effective component-to-component liaison and is the primary conduit for information flow between the component commands. The ALE is normally organized with expertise in plans, operations, intelligence, airspace management and air transport. The AOCC Land provides an air entity, functionally subordinate to the JFAC HQ, normally collocated with and an integral part of corps headquarters. The AOCC provides air expertise and integrates liaison and coordination functions relating to air operations. At the same time, common and assured procedures between air and ground forces are essential and air and land component staff must be embedded within the other component's core planning teams from the outset with sufficient air and land-minded personnel. The BCE is collocated with the combat operations division of the JFAC HQ. It provides coordination between the JFAC HQ and (various) army headquarters at the tactical level and provides expertise and liaison on army matters relevant to tactical air planning, tasking and execution.

2.36 The supported and supporting relationships between land and air components are collaborative. The land component can provide critical support to, and enhance the

effectiveness of, air operations, or the air component can provide critical support to, and enhance the effectiveness of, land operations as follows.

- a. Land forces can support air forces by contributing to the security of airfields, supplying essential logistics, and effectively integrating their organic air defence assets into the integrated air and missile defence system. They can also suppress or destroy enemy air defences.
- b. Land forces can seize and hold terrain from which adversary air assets can be engaged, or which might be used as forward operating bases or airfields.

Maritime component³⁴

2.37 Attributes. The attributes of maritime forces are: access, mobility, lift capacity, posture, versatility and availability, sustained reach, resilience and leverage. Maritime forces can also remain poised at sea for extended periods as an act of coercion, with limited political liability, and then take direct action against targets ashore. These attributes are applied through forward presence, freedom of movement, power projection and maritime safe and secure environment.

2.38 The most powerful attribute of maritime forces is the ability to operate in the littoral environment, through the five amphibious activities of raid, assault, withdrawal, demonstration and support to other operations. The ability to dominate the littoral environment, often combining maritime and land forces in a joint effort, will confront an opponent with a complex threat in time and space.

2.39 Roles. Maritime forces can perform a range of roles supporting the land component. These roles include:

- sea control³⁵ and sea denial;³⁶
- (first) entry;
- strike;
- counter irregular;
- maritime security operations;³⁷
- counter-weapons of mass destruction;

³⁴ See AJP-3.1, *Allied Joint Doctrine for Maritime Operations* for more information.

³⁵ Sea control is a temporary condition that exists when one has freedom of action within a maritime area for one's own purposes in the subsurface, surface, and above-water environments and, if necessary, deny its use to an opponent. At the lower end of the conflict spectrum, maritime forces may be used to ensure freedom of navigation.

³⁶ Sea denial is exercised when one party prevents an adversary from using a maritime area.

³⁷ Maritime security operations are conducted to establish the conditions for security and protection of sovereignty in the maritime domain and can occur across the continuum of competition.

- humanitarian assistance;
- peace support; and
- contribution to stability and reconstruction.

2.40 These roles are operationalized through performing the following activities:

- offensive activities like strike warfare, amphibious raid and assault, riverine and special operations;
- defensive activities like anti-air warfare, ballistic missile defence, naval-mine warfare and electronic warfare;
- enabling activities like amphibious demonstration, reconnaissance, freedom of navigation, sea basing and extraction; and
- stability activities like maritime interdiction operations,³⁸ non-combatant evacuation operations, disaster relief operations and security capacity building.

2.41 Maritime capabilities can create a broad range of effects and influence from the maritime into the land environment. These include demonstration of political intent, early theatre entry, enduring littoral operations, long-term sustainment and support to operations, and the application, or the threat of, maritime strike. Close air support, fires and air mobility are significant enablers to inland activity, especially in the early stages of an operation, before a land foothold has been established. Maritime platforms contribute intelligence, area surveillance and communications capabilities to land forces. They can provide: air defence over littoral areas; logistic support; clean facilities for deep maintenance and casualty treatment; and locations from which to exercise command. Maritime forces can also protect land forces by providing a sea-based defensive barrier or by preventing adversary manoeuvre from the sea.

2.42 **Maritime-land coordination.** Similar to the air-land coordination, the maritime-land coordination can be necessary to ensure a supported/supporting relationship between the LCC and the maritime component commander, which will be usually be provided by a maritime liaison element or a maritime liaison officer. Beyond the direct exchange of liaison officers, the LCC may wish to have a liaison officer in the maritime air operations centre. There must be very clear delineation of ownership of areas for air operations, particularly as the speed of maritime operations means that not all maritime aviation will appear in the air tasking order. The logistic chains should have their own liaison officers. There may also be a need for naval fire support cells to be collocated with the LCC to management naval fires, and surface-based air and missile defence teams should keep a 24-hour watch on the anti-air warfare coordination net.

³⁸ An operations conducted to enforce prohibition on the maritime movement of specified persons or material within a defined geographic area.

2.43 Operational theatres with coastlines present both opportunities and challenges for land forces. Complex coastlines with navigable inlets, estuaries and offshore islands may require land and maritime forces to operate in very close proximity, thus presenting battlespace management challenges. It is in this littoral environment that amphibious operations are conducted. Amphibious forces may establish command and control before the land command is established ashore, and subsequently carry on commanding the operation inland until a command and control handover takes place. Land and maritime forces may also operate jointly in the riverine environment, which is discussed further at Annex A.

2.44 Three-quarters of all large cities, and many megacities, are in low-lying coastal areas. Furthermore, half of the world's population lives within 60 kilometres of the sea, increasing the likelihood that land and maritime operations will need to be coordinated.³⁹ There is potential for tactical synergy between land and maritime components beyond amphibious operations.

- Land forces can neutralize threats to maritime forces from the shore, undermining adversary anti-access and area denial efforts.
- Land forces can seize, and guard onshore infrastructure required by maritime forces and provide landing forces and fires for amphibious operations.
- Land forces might exploit along a coastline, supporting and supported by maritime forces.
- Simultaneous but separate maritime and land operations can also be used by the joint command to present the adversary with concurrent problems.

Special operations component⁴⁰

2.45 Special operations are defined as: 'military activities conducted by specially designated, organized, trained, and equipped forces using distinct techniques and modes of employment.' These activities may be conducted across the full range of military operations, independently or with conventional forces. Politico-military considerations may require clandestine operations and the acceptance of a degree of political or military risk not associated with operations by conventional forces. Special operations are executed where significant political risk exists. When properly synchronized during planning, conventional forces and special operations forces (SOF) can capitalize on their inherent strengths to achieve the operational-level commander's objectives. Successful conventional force and SOF synchronization should ideally begin during the early planning stages. Ignoring conventional force and SOF synchronization issues in planning may introduce operational complexities that either increase risk or diminish potential complementary effects.

³⁹ For more information, see *NATO Strategic Foresight Analysis Report*, 2017.

⁴⁰ See AJP-3.5, *Allied Joint Doctrine for Special Operations* for more information.

2.46 **Special operations-land coordination.** When SOF operate directly in the AOO of the LCC, or when the likelihood of integrated or converging operations with land forces is probable in a JOA, a special operations command and control element is collocated with the LCC, or the most appropriate LCC element, in order to plan, synchronize, de-conflict, and coordinate operations with the land forces. When the level of interaction with land forces is considered in a lower level, the coordination is established by a special operations liaison officer.

Joint logistic support group⁴¹

2.47 A JLSG is a joint, force generated, deployable logistics capability which is responsible for the coordination and execution of theatre-level logistic support within the designated joint logistic support network. The JLSG headquarters interacts with the components providing common services and support to meet their individual requirements through use of its assigned forces, host-nation support and contracts. The JLSG's capabilities consist of those that are detached by troop-contributing nations or that which can be contracted by the JLSG; it is not a standing force element that exists in its own right.

Space domain

2.48 Land operations must be cognizant of vulnerabilities and dependencies on space-based capabilities as well as how the joint or land component commander can integrate and coordinate space-based capabilities in support of land operations.

2.49 The use of space-based capabilities is a significant force multiplier when properly integrated within a joint operation. NATO operations depend on space activity for land, air, maritime, SOF, and cyberspace operations, and thus must be protected, coordinated and synchronized effectively. Hence, capabilities whose effects are enabled by space-based capabilities must be integrated into the planning and execution cycle of any military campaign.

a. Joint intelligence, surveillance and reconnaissance. Space-based sensors can provide long-term, wide or narrow area surveillance, covering a wide range of resolutions and spectra in support of planning. However, the time-consuming process of production, exploitation, dissemination of space-based JISR results will most likely not enable support of current operations. They are also likely to be strategic assets supporting several theatres of operations limiting their availability. Space-based intelligence, surveillance and reconnaissance results are coordinated and provided through the established JISR processes.

b. Shared early warning. Space assets can provide early warning of ballistic missile launches to support the identification of threats and to enable force protection and follow-on decision-making.

⁴¹ For further details see AJP-4.6, *Allied Joint Doctrine for Joint Logistic Support Group*.

c. Environmental monitoring. Environmental monitoring capabilities can provide current, multi-spectral information on subsurface, surface, airspace and space conditions (for example, traffic capability, beach conditions, vegetation, land use and terrestrial and space weather).

d. Satellite communications. Satellite communications (SATCOM) includes military, governmental and commercial satellite-based communication systems and applications, which can support command.

e. Position, navigation and timing. Position, navigation and timing information is vital to military operations and a key enabler for a host of mission types, command, control, information and weapon systems and platforms.

Cyberspace domain

2.50 Land forces operate in an increasingly complex operating environment, where information technologies continue to transform how land forces operate with, among and against others. Cyberspace is formed by all information technology systems interconnected on a global scale,⁴² and is defined as: ‘the global domain consisting of all interconnected communication, information technology and other electronic systems, networks and their data, including those which are separated or independent, which process, store or transmit data.’ Many aspects of land operations rely in part on cyberspace, which make up networks, including, critical national infrastructure, industrial control systems, weapon systems, command and control systems and logistics systems. These must be highly resilient to threats from cyberspace both in peacetime and during armed conflict.

2.51 Although today’s dependency on cyberspace brings associated risks, it provides military opportunities as well. An adversary will similarly rely on parts of cyberspace, such as computers, computerized networks, mobile devices and the electromagnetic spectrum and, therefore, may exhibit similar vulnerabilities. Joint action, described in Chapter 3, is enhanced by cyberspace’s ubiquitous, interconnected and dynamic nature.

2.52 **Roles.** In general, cyberspace operations can take two forms.

a. Defensive cyberspace operations. Defensive cyberspace operations (DCO) are the measures taken to preserve the freedom of action to use cyberspace and to protect the force. DCOs involve activities taken to mitigate known risks and defend against adversaries who are executing or are about to execute offensive actions. The ability to conduct offensive cyberspace operations (OCO) is widely held and is not the preserve of the military alone. Therefore, commanders should anticipate the need to conduct DCO when countering all types of threats.

b. Offensive cyberspace operations. OCOs are activities in or through cyberspace that create effects to achieve military objectives. OCOs seek to achieve

⁴² See AJP-3.20, *Allied Joint Doctrine for Cyberspace Operations*.

temporary or permanent effects on an adversary through the following: deny, degrade, destroy or disrupt the use of cyberspace or by manipulating the associated systems, services, or information.

2.53 NATO's cyber capabilities are developing with the formation of the SHAPE Cyberspace Operations Centre and Cyber Mission Assurance Working Group, but as an organization it is still in its infancy as a cyber component. Some cyberspace operations will be conducted by forces not in the theatre of operations. Therefore, the responsibility for integrating cyberspace domain activities to create effects will most likely be retained by COM JTF. However, all commanders must to the maximum extent possible, de-conflict, synchronize and coordinate cyberspace operations with land operations.

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Chapter 3 – The fundamentals

Section 1 – The manoeuvrist approach

Introduction

3.1 The manoeuvrist approach is the land component's operational philosophy, in which shattering the enemy's overall cohesion and will to fight, rather than their forces and equipment, is paramount.⁴³ The manoeuvrist approach is an indirect approach which emphasises targeting the enemy's moral component of fighting power rather than the physical. Central to the concept is the need to seize, retain and exploit the initiative. Just as tactical manoeuvre seeks to gain a physical position of advantage over the enemy through a combination of fire and movement, the manoeuvrist approach seeks to gain a position of psychological advantage over the enemy by attacking vulnerabilities and avoiding strengths. This approach is most effective when it is used in conjunction with mission command.

3.2 The manoeuvrist approach involves a combination of all available means to attack the enemy's understanding, undermine their will and shatter their cohesion. The manoeuvrist approach aims to attack the enemy's critical vulnerabilities to induce shock. This is done through surprise, shock action and destruction, which leads to an enemy's collapse and friendly force exploitation. It also seeks to build our partners' strengths and reduce and protect our own weaknesses and vulnerabilities.

3.3 It calls for an attitude of mind in which doing the unexpected, using initiative and seeking originality is combined with a relentless determination to succeed. It is applied to all types of military operations across the continuum of competition. It emphasizes defeat and disruption of the enemy rather than, for example, taking ground for its own sake, and depends on precisely applying force against identified points of weakness. It also aims to defeat the enemy's will and desire to continue by seizing the initiative and applying constant and unexpected pressure at times and places that the enemy least expects.

3.4 Land combat is complex, dynamic and unpredictable. It is conducted by opposing, and not necessarily symmetric, forces that are themselves highly complex. An enemy's perception of the situation affects its will; if it thinks that it is being beaten, it tends to be demoralized. An action that demoralizes an enemy commander reduces their effectiveness, thereby lowering cohesion of the overall enemy force. Similarly, an attack on the physical cohesion of the force, perhaps by destroying key elements, also demoralizes. A prioritized and integrated approach to attacking an enemy's understanding, will and cohesion is required, since they are intimately linked. When analyzing threats, the commander should expand their analysis of the entire audience to identify the enemy's weaknesses and consider the moral and physical support upon which they rely.

⁴³ The manoeuvrist approach is synonymous with the term manoeuvre warfare, which is used by some nations.

3.5 In combat, the manoeuvrist approach invariably includes elements of movement, fires and defence. There will almost always be a need to fix the enemy, deny them access to routes and objectives, and secure vital ground and key points. However, any such defensive measures should only be seen as part of the means to the end, which is the enemy's defeat. The forces employed in applying the manoeuvrist approach should normally be combined arms and joint. The principles of the manoeuvrist approach are as follows.

- a. **Application of mission command.** Only by applying mission command are commanders and their subordinates able to take advantage of fleeting opportunities that allow exploitation.
- b. **Focus on enemy's vulnerabilities.** By focusing on critical enemy vulnerabilities, commanders can better understand how to attack cohesion and will, as well as creating the appropriate effects by using joint action.
- c. **Exploit opportunities.** The exploitation of fleeting opportunities allows commanders to take the maximum advantage of success and follow-up any initial gains, especially those caused by shock and surprise.
- d. **Bold and decisive action.** Commanders who take bold and decisive action are more likely to seize and maintain the initiative.
- e. **Agility.** Being agile provides commanders with the ability to switch their emphasis, either by using a change in main effort or a switch in resourcing an activity to take advantage of a fleeting opportunity.

3.6 **Application of manoeuvrist approach.** In line with the principles above, the manoeuvrist approach is applied by using a combination of two techniques: seizing and holding the initiative; and attacking the enemy's understanding, will and cohesion.

Seizing and holding the initiative

3.7 The initiative is the ability to dictate the course of events, to decide and act before our opponents and so gain an advantage. In contact with an enemy, gaining, regaining and retaining the initiative requires the application of several factors.

- a. **Tempo.** Tempo is the rate of activity of military action relative to the enemy. It is about acting more quickly than the enemy. The side which consistently decides and acts fastest should gain and hold an advantage. Speed and quality of decision-making, while necessary to gain and hold the initiative, is not enough. Action must follow swiftly, enabled by mission command and good battle procedure.
- b. **Surprise.** Surprise is a principle of operations and is one of the most significant contributors to military success at all levels. It must be central to the design of all operations and be sought by commanders at all levels. Surprise is an important way of seizing and retaining the initiative. It must be central to the design of all combat

operations and be sought by commanders at all levels. Surprise is a potent psychological weapon, causing shock through unexpected action in time, space and method.

c. Pre-emption. Pre-emption is to seize an opportunity, which may itself be fleeting, to deny the enemy an advantage before they act. It denies them the initiative and frustrates their plan. Its success lies in the speed with which the situation can be subsequently exploited.

d. Momentum. Maintaining momentum keeps an enemy off-balance and enables a commander to retain the initiative. Exploitation of momentum creates the bridge from seizing the initiative to achieving success.

e. Simultaneity. Simultaneity seeks to disrupt the decision-making process of opponents by confronting them with several concurrent problems. By attacking or threatening enemies in many ways, in different methods and from many directions at once, they cannot concentrate on any one attack, nor establish priorities between them.

f. Exploitation. Exploitation is defined as: 'taking full advantage of success in battle and following up initial gains.' If not exploited, the effects of surprise and shock, pre-emption, tempo, momentum and simultaneity are likely to be local and temporary. Exploitation can be planned or opportunistic. Planned exploitation is designed in advance to follow anticipated success and may require fresh, echeloned forces. Opportunistic exploitation is a way of building on local success. It should be carried out with the resources at hand and should be initiated as soon as an opportunity is recognized, particularly at lower tactical levels. Exploitation is enabled by mission command, effective understanding and balanced, mobile and flexible reserve or echeloned forces, which can be deployed rapidly to take advantage of the opportunities presented.

g. Avoiding culmination. Avoiding culmination is also key and must be constantly balanced with the advantages presented by exploitation. The culminating point is defined as: 'the point in time and the location at which a force no longer has the capability to continue an operation under current conditions.' Anticipation of when or where a force might reach a culminating point requires detailed understanding of the environment as well as of friendly and enemy forces. Implementation of an operational pause at a place and time to the advantage of friendly forces allows the initiative to be maintained.

3.8 These factors cannot be applied in isolation but are mutually reinforcing. Gaining the initiative is important to success and, once gained, should be retained as a matter of priority. Gaining the initiative requires a high tempo of operations to continuously force an opponent to react, making it difficult for them to initiate actions. This requires land forces to be thoroughly integrated (and trained) to ensure a high tempo of operations can be maintained.

The factors are described in more detail in Allied Tactical Publication (ATP)-3.2.1, *Conduct of Land Tactical Operations*.

Attacking the enemy's understanding, will and cohesion

3.9 The manoeuvrist approach seeks to manipulate an enemy's understanding to produce behavioural outcomes favourable to the friendly force. The perception of failure is the best mechanism by which to promote actual failure, convincing the enemy of the futility of their actions. The shock induced by surprise and an enemy's loss of initiative all contribute to this perception of failure. The integration through information operations of security, deception, electronic warfare and cyberspace operations which disrupt their command and control, and supported with other information activities to amplify their effects are therefore central to the manoeuvrist approach. However, shaping the enemy's understanding conclusively is rarely achievable without the application or threat of force.

3.10 The will and cohesion of a force are not indivisible. Will is the determination to persist in the face of adversity. It has two aspects: intent and resolve. Both can be influenced, attacked and undermined. The enemy's intent is thwarted when they believe that their aim is no longer achievable, and so desist from their course of action. The enemy's resolve is their strength of will. It is overcome when they are demoralized and no longer have the desire to continue. It is intimately linked to the cohesion of the force. The same principle applies to our own force; we must protect our own will and cohesion from the actions of enemies and adversaries.

3.11 The contemporary manoeuvrist approach is behaviour-centric. In the contest of wills and cohesion between the Alliance and its enemy, effective operations target all the audiences to change perceptions, beliefs and behaviour to dismantle support for the enemy and extinguish its will and cohesion. At the same time this will reinforce and energise support for the Alliance and its partners to protect its integrity.

3.12 Troops who have moral cohesion continue to fight despite adversity and local reverses. It relies on leadership, perception of success, confidence and trust that forces will be supported and sustained. It cannot, therefore, be separated from the physical cohesion that gives a force its potential to mass forces and effects at the time and place of its choosing. Physical cohesion relies on sustainment, freedom of movement, and effective command systems of leaders, command posts and communications.

3.13 Physical capability is also a feature of cohesion. If key combat forces, combat service support or command nodes are lost or threatened, then both the moral and physical cohesion of the enemy are reduced, while the freedom of action and initiative of friendly forces are enhanced. Attacking and often destroying physical capabilities is therefore required by the manoeuvrist approach as a means to an end of defeating the enemy's will to fight.

3.14 Ultimately, without moral and physical cohesion, a force becomes less than the sum of its parts and readily susceptible to shock. As well as using surprise and pre-emption, cohesion and will can be attacked through dislocation, disruption and destruction, which are described further in ATP-3.2.1, *Conduct of Land Tactical Operations*.

- a. **Dislocation.** Dislocation denies the enemy the ability to bring their strengths to bear, or to persuade them that their strength is irrelevant. Its purpose is wider than the frustration of the enemy's plan; it is about ensuring that their strengths are in the wrong place.
- b. **Disruption.** Disruption can be used to break apart and confuse assets that are critical to the employment and coherence of the enemy's fighting power. It aims to rupture the integrity of a force, to render it incapable of deciding and acting purposefully. Military targets might include communication networks, command centres, transport nodes or logistic facilities.
- c. **Destruction.** Destruction, when unsupported or unfocused, is not normally a major contributor to shock, other than when used on a massive scale. Otherwise, the careful selection and destruction of discrete capabilities or force elements amplifies the effects of surprise, dislocation and disruption, and can be decisive in undermining an enemy's will to fight.

Section 2 – Mission command

Introduction

3.15 Mission command is NATO's command philosophy for the command of military operations. It is more than a leadership technique or command and control procedure. As the basic principle, it has a major bearing both on the attitude and leadership style of commanders and the conduct of their subordinates. The principles of systematically granting, accepting and demanding autonomy and calling for subordinate commanders to display initiative and creativity permeate all echelons in the hierarchy. This is the approach which empowers leaders at every level and promotes initiative as well as freedom and speed of action. It is intended to generate agility and tempo. This enables a force to overcome an adversary even in the most chaotic and demanding circumstances and maximizes initiative to seize opportunities. This philosophy is founded on the clear expression of intent by commanders, and the freedom and duty of subordinates to act on that intent, even when initially assigned tasks are no longer feasible or appropriate. Mission command depends upon:

- the duty of commanders to express their intent clearly and to ensure that it is understood;
- the duty of subordinates to act to achieve that intent; and
- the subordinates' freedom of action to achieve the intent, within constraints.

3.16 Mission command offers a philosophy of command that advocates centralized planning that includes provision of clear guidance and intent with decentralized execution based on mission-type orders and disciplined initiative; a style that describes the 'what', without necessarily prescribing the 'how'. The doctrine of mission command stresses the importance of understanding what effects are to be created rather than specifying the ways in which it should be done.

3.17 While the combined arms and joint force required to conduct land operations require centralized planning and command, their dynamics call for a maximum autonomy in mission execution. Freedom of action is indispensable for success in land operations. Subordinate commanders must be free to decide within the framework of the higher commander's intent and assigned mission how to execute their mission and task including:

- where and how to establish their main effort;
- what risks to take; and
- the synchronization of their activities.

3.18 If mission command is to be instinctive it must be well understood and practiced. Mission command requires commanders who will make sound decisions without recourse to their higher headquarters and who are comfortable with freedom of action. It depends upon effective leadership at all levels of a force. Commanders must reconcile the granting of freedom of action to subordinates with the need to monitor their actions during mission execution. This requires superiors to have trust in their subordinates' skills and capabilities but does not relieve them of their obligation to monitor their subordinates' actions.

Principles

3.19 Mission command stresses the importance of understanding what effects are to be created rather than specifying the ways in which it should be done. Successful mission command is guided by the following principles.

- a. **Responsibility.** Commanders have a responsibility to express their intent clearly and to ensure that it is understood, especially when specifying their main effort. They must also enable unity of effort by training their subordinates and commands, which promotes mutual understanding and building trust. It is a commander's responsibility to make timely and effective decisions; simultaneously, subordinates have a responsibility to act upon their commander's intent, especially when the situation has changed. Subordinate commanders decide how best to achieve their missions. Therefore, mission command requires subordinate commanders to be willing to both assume responsibility within the scope of the freedom of action granted and to act independently and creatively at their echelon. Subordinates have a duty to help foster mutual understanding and trust with their superiors.

b. Unity of outcome. Mission command requires unity of outcome. This stems from: the commander's ability to formulate a clear intent and mission statements; the use of common doctrine and tactics; a common language of command; a high standard of collective training; and the designation of priorities and a main effort. Taken together, these provide a framework of common understanding throughout a force. They also assist in coordinating actions in time and space and the ability to anticipate and respond swiftly to changes in the situation.

c. Freedom of action. Commanders can only be successful if they are adapting their actions to a developing situation quicker than their adversary. Freedom of action enables subordinates to act independently, thereby enabling agility in changing situations and exploitation of opportunities in accordance with their overall objective. Therefore, commanders must delegate the maximum freedom of action in line with their subordinates' capabilities. They only specify how a mission will be executed if there are political, legal or military restraints, to enable coordination and synchronization of actions and on the same objective. Subordinates exploit the freedom of action through the friction and chaos of conflict to meet their higher commander's intent.

d. Trust. Trust is a prerequisite of command at all levels. Trust improves speed of decision-making and, therefore, tempo. Commanders' skills and capabilities in combination with a willingness to accept mistakes develops trust. While trust must be earned and not demanded, the default should be for commanders to trust their superiors and subordinates. They must trust that their subordinates will sensibly interpret their intent and persevere. Personal trust can only be built up over time with experience, rather than by reputation. The spirit of mission command requires a bond of trust between superiors, subordinates and peers that will develop through shared experience. This can be challenging for rapidly task organized or multinational forces lacking shared experience where understanding, interoperability, clear command and control (C2) and leadership at all levels is paramount.

e. Mutual understanding. Like trust, mutual understanding is established over time and through the application of common training, doctrine and concepts. Especially the practice of acting in accordance with the higher commander's intent, even when communications are limited, can only be successful if there is a high degree of unity in thinking and action at all echelons. Mutual understanding builds trust. With experience, commanders gain understanding of the issues and concerns facing their subordinates, partners and peers. Professional knowledge and study, and the cultivation of personal relationships give subordinates, in turn, an insight into command at higher levels, enabling them to anticipate and apply their initiative to good effect. Mutual understanding is also based on common doctrine and command philosophy and so cannot be assumed when operating in a multinational and interagency context. Where shared experience and common doctrine do not exist, commanders should pay attention to developing and sustaining mutual understanding as a central pillar of effective interoperability.

Application of mission command

3.20 Founded on the principles above and the absolute responsibility to act on the superior commander's intent, there are practical, sequential actions that guide the effective application of mission command:

- commanders ensure that their subordinates understand the intent, their own contributions and the context within which they are to act;
- commanders exercise minimum control over their subordinates, consistent with the context and nature of mission, and the subordinates' experience and ability, while retaining responsibility for their actions;
- subordinates are told what outcome they are contributing to, the effect they are to create and why;
- subordinates are allocated sufficient resources to carry out their missions; and
- subordinates decide for themselves how best to act on their superior's intent including where and how to establish their main effort and what risks to take – this requires the subordinates' ability and willingness to use their initiative.

Section 3 – Joint action and the joint functions in the land environment

Introduction

3.21 Joint action is described as the use of a combination of manoeuvre, fires, information and civil-military cooperation (CIMIC) to affect an actor's understanding, capability and will, and the cohesion between them. It is 'informed and directed by' the joint functions of C2 and intelligence (including surveillance and reconnaissance) and 'supported by' the joint functions of sustainment and force protection, as shown in Figure 3.1. The inclusion of CIMIC alongside manoeuvre, fires and information recognizes the centrality of the comprehensive approach and the need for interaction between non-military actors and the military to achieve the operational objectives.

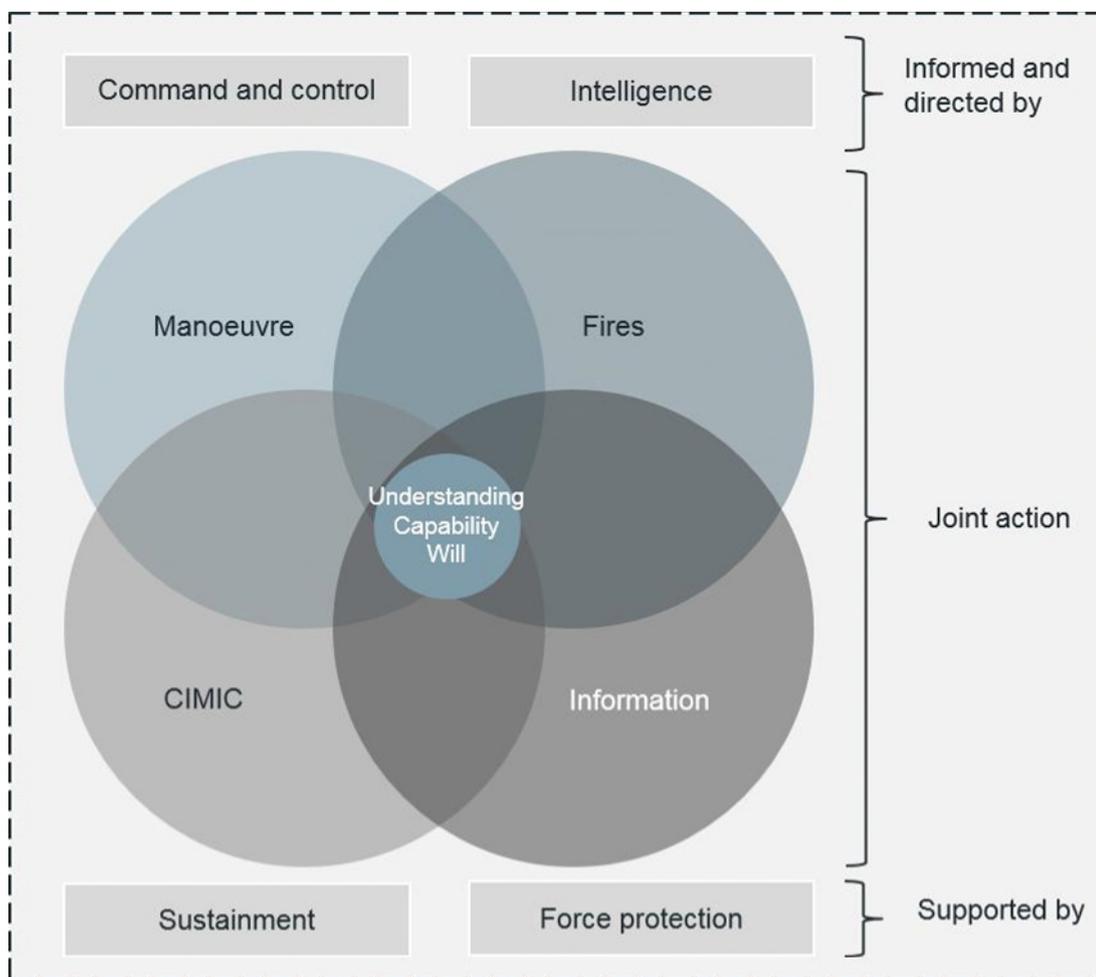


Figure 3.1 – The joint action framework

3.22 Central to joint action is analysis and understanding of the audience relevant to the achievement of the objectives. Commanders must also develop understanding of the information and physical aspects of the operating environment, and of the context and consequences of their actions. However, no amount of analysis can achieve complete understanding in advance of an operation and predictable relationships between cause and effect are rare in adversarial human conflict. Therefore, it is essential to set the force to learn throughout an operation, generating dynamic and continuous understanding. This will require specific planned effort to collect and analyze information to test deductions and to refine decisions as to future action.

3.23 Joint action in the land environment has four fundamental considerations.

- a. **The audience.** People are at the heart of conflict; it is their decisions and behaviours that determine how conflict is conducted and resolved. Joint action requires consideration of the diverse audience that is relevant to the attainment of our objectives, globally, nationally and within joint operations areas. The audience's

perception of the legitimacy of the operation, both the justification for the operation and the way it is conducted, is a key consideration.

b. Understanding. Joint action is founded on the land force's understanding of its mission and operating environment. A dynamic approach to understanding, built on a learning culture, enables the force to adapt and innovate in response to evolving situations. In the context of decision-making, understanding is the perception and interpretation of a situation to provide the context, insight and foresight required for effective decision-making.

c. Capability integration. Land forces create desired effects by integrating all available capabilities. Interoperability of the land forces starts with other components, multinational, host nation, inter-governmental, non-governmental and inter-agency partners.

d. Integration of action. Joint action needs commanders to think about how their actions contribute to the operational objectives, in a broad and evolving context. This approach encourages a wider and longer-term view of a situation, relative to the task and role of the land force. The focus on outcomes must seek to ensure that the tactical actions and their outcomes (effects) contribute in a logical fashion to operational objectives, which, in turn, should support the strategic concept. This is fundamental to the practice of operational art.

Understanding

3.24 Fighting power cannot be applied effectively and efficiently without understanding: the conflict and its context; the operating environment; audiences and threats; our own capabilities; and the capabilities of other actors (friendly and opposing). Understanding helps commanders to make decisions; it also helps them to manage any associated risks and any second and subsequent order effects that could be harmful in influencing the target audiences. Understanding helps commanders and their staff to identify the causes of conflict, the nature of emerging crises, and the context required for determining deterrence, coercion or response postures. Understanding involves acquiring and developing knowledge to a level that enables us to know why something has happened or is happening (insight) and be able to identify and anticipate what may happen (foresight).

3.25 The context comprises the historical, political, economic, cultural and social background to the situation or conflict. It shapes what resources and missions are allocated to land forces, their freedoms, constraints and relationships with others. It also shapes, but cannot predict, the likely consequences of our actions, which in turn contribute to the evolving context. Actions will have both intended and unintended effects. These can be positive or negative, immediate, short or long term, and will be perceived and interpreted differently by different parts of the audience. Commanders, therefore, need to constantly assess and reassess the consequences of their actions, as perceived by the audience, and adjust

accordingly. This requires commanders to understand the social and cultural expectations of various audiences.

3.26 Commanders must understand the informational aspects of the land environment: how it can influence the audience, and how, as a resource of the land force, it supports the integration of actions. As a means of influence, they must understand what information is relevant and to whom, how it is received, and how it might influence people's decision-making and behaviours. They must also understand how they and others compete for influence in the information environment.

3.27 Information is a fundamental resource of for all actors. It is perceived, interpreted and shared by and among individuals and groups and generated, maintained and transferred via different media, primarily in the electromagnetic spectrum, which will be contested and potentially denied by actors. Understanding how NATO and others operate in the information environment informs how they protect their own information, and how they might challenge actors. Commanders seek information advantage, but must be able to operate without it.

3.28 Understanding is a means to an end; nothing happens until action is taken. What is important is to draw from the available relevant information what effects and combinations of actions are required, and then to act appropriately and quickly, relative to other actors. Furthermore, it is through action that understanding is often best developed. Only so much can be learned through observation and study; early actions should usually be seen as a bridge from preliminary understanding to joint action. Actions to enable understanding continue throughout an operation; a land force's actions necessarily generate responses from audiences which feed constantly updated understanding. The context will suggest how to generate understanding, perhaps through early deployment of specialist forces or analysis of information and intelligence already collected. In some cases, active information gathering may compromise subsequent shaping actions, but in others, spurring a reaction may be essential to generate understanding for shaping or decisive actions. Commanders, therefore, express not only what they seek to understand, but also how the intelligence operation is to be conducted.

Integration of action to achieve desired outcomes

3.29 Joint action blends military capabilities to create effects on the understanding, physical capability, will and cohesion of the audience. Selected and planned to achieve the objectives, these effects are ultimately created in people's minds, influencing their decision-making, to attain the desired end state. Joint action is planned from desired outcome back to supporting effects and the actions that will create them. The plan is then adjusted in response to what has been learned and the changing situation.

3.30 Objectives are achieved by effects that bring about changes (or not) in an object, for example, maintaining the support of actors or denying an adversary access to a piece of terrain. Joint action seeks effects on the understanding, capability and will of actors and the cohesion between them.

a. Understanding. The decision-making of actors is, like ours, grounded in their understanding, how they perceive and interpret situations. Actions can affect their understanding directly or indirectly. Often, how key individuals understand a situation can affect the decisions and behaviour of larger groups. For example: adversary commanders who have been deceived, or denied the ability to make accurate assessments, will give less effective direction to their subordinates; a force might show additional resolve as a result of the actions of just one individual; or a community might leave a town or stay in it, support an adversary or not, depending on how a few influential people interpret the situation.

b. Capability. Our actions can damage, build or maintain physical capability in the form of people, equipment and infrastructure and the means to sustain or direct them. For example: an enemy's physical capability can be destroyed or denied; partner forces can be equipped and trained; and communities can be provided with or given improved access to resources and infrastructure.

c. Will. Our actions can seek to affect actors' will and cohesion positively or negatively, depending on the desired outcome. Land forces can use joint action to bolster or maintain partner and community will and cohesion, for example, by using capacity building or fire support to improve partner forces' morale.

3.31 Having identified the effects required, a commander integrates the actions and capabilities available to create them. Those actions taken by the land force are normally worded as tasks, which, together with their purpose, constitute subordinates' missions. At the tactical level, such missions are typically fixed: they require specific activity, such as attacking, seizing terrain, building a bridge or providing logistic support. A capacity to think laterally beyond these missions is, however, required; commanders must always consider the wider impact of their actions and how they might contribute to first and second order effects and outcomes.

The joint functions in the land environment

3.32 The joint functions are a framework of related capabilities and activities that assist commanders to integrate, synchronize and direct various activities. They describe all the functions of military organizations in planning, executing and assessing land operations. They are:⁴⁴

- command and control;
- intelligence;

⁴⁴ The order in which the joint functions are presented is different to that in Allied Joint Publication (AJP)-3, *Allied Joint Doctrine for the Conduct of Operations* and AJP-5, *Allied Joint Doctrine for the Planning of Operations* (manoeuvre, fires, command and control, intelligence, information, sustainment, force protection and civil-military cooperation (CIMIC)). This has been done to allow joint action and the joint functions to be explained more clearly. Their meaning has not been changed.

- manoeuvre;
- fires;
- information;
- CIMIC;
- sustainment; and
- force protection.

3.33 Figure 3.1 illustrates how the functions fall into three groups organized by purpose. Command and control and intelligence functions inform and direct the operation or action; fires, manoeuvre, information and CIMIC are activities conducted relevant to achieving the operational objectives; and force protection and sustainment are the activities that support and protect the operation.

Command and control

3.34 C2 encompasses the exercise of authority and direction by a commander over assigned and attached forces to accomplish the mission. Joint C2 should include all forces contributing to the operation and consider coordination and cooperation with international organizations, non-governmental organizations and other actors. Operations are normally characterized by centralized planning and direction to achieve unity of outcome, whereas authority for execution should be decentralized by delegation to the lowest level appropriate for the most effective use of forces. To enable the execution of such direction, a joint C2 structure is required, which must be fully understood at all levels, and thus facilitate the clear, timely and secure passage of guidance and orders, situation reports and coordinating information.

3.35 C2 in the land environment has to facilitate the complex direction of activities on multiple tactical levels. This requires delegation of authority and synchronization of activity. A broad range of, often multinational and joint, capabilities need to be combined and harmonized into a credible and effective force.

3.36 Rules of engagement (ROE) for NATO forces are guidance and directives to NATO commanders and the forces under their command or control defining the circumstances, conditions, degree and manner for the use of force and/or describing and regulating behaviour and actions of NATO forces that may be construed as provocative, in peacetime, crisis or conflict.⁴⁵

3.37 C2 depends heavily on the electromagnetic spectrum capabilities, which are likely to be congested and contested. As the cyberspace and space domains and electromagnetic spectrum have no physical boundaries, C2 could be hampered from activities outside the

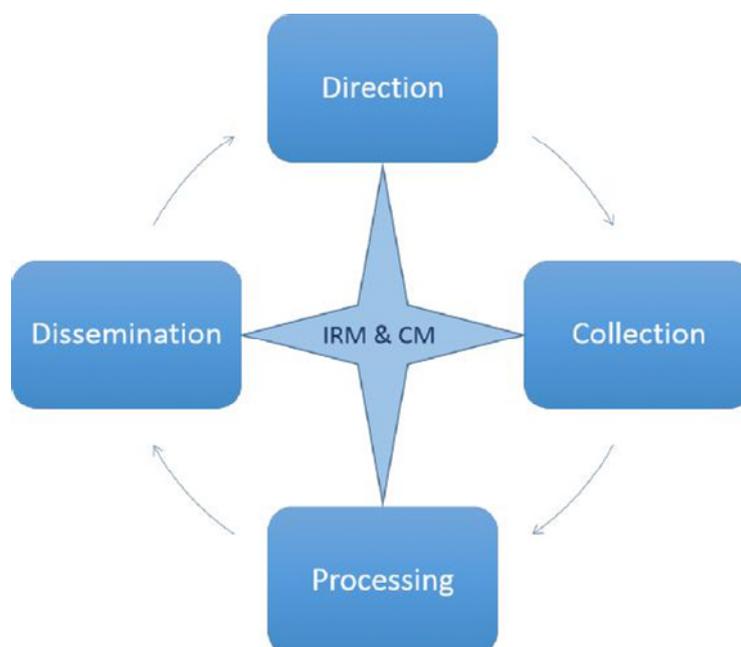
⁴⁵ For further details see MC 0362/2, *NATO Rules of Engagement* and the Joint Task Force SOP 216, *ROE*.

force's area of influence. Robust and resilient C2 is required to enable continuous direction of joint action.

Intelligence

3.38 The role of intelligence is to contribute to a continuous and coordinated understanding of the operating environment. It supports commanders by: identifying conditions required to achieve objectives; avoiding undesired effects; and assessing the impact of actors on the commanders' concept of operations. Intelligence is therefore an aid to providing situational awareness, develop understanding and is a critical tool for decision-making.

3.39 Intelligence should drive operations by providing the commander and staffs with timely and accurate products that support their particular needs and is tailor-made to those requirements. Intelligence as a function encompasses the activities of commanders, staff and collection assets to generate intelligence products using the intelligence cycle, as shown in Figure 3.2. These roles are supported by a series of specific responsibilities of the intelligence staff, including: informing the commander; describing the operating environment; identifying and defining adversary objectives; and supporting planning, execution and assessment of operations.



IRM – intelligence requirements management. CM – collection management

Figure 3.2 – The intelligence cycle

3.40 Intelligence in the land environment must consider the multifaceted human environment as the roots of conflict that are usually found in this environment. As a result, intelligence processes and capacities should be able to enable understanding and assessment of all aspects in the land operating environment. As the land operating environment is prone to rapid changes, intelligence must also be able to adapt quickly.

Manoeuvre

3.41 Manoeuvre is defined as: ‘the employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in respect to the enemy in order to accomplish the mission.’ Manoeuvre seeks to render adversaries or enemies incapable of resisting effectively within the joint operations area (JOA) by shattering their cohesion rather than destroying each of their components through incremental attrition. Manoeuvre involves the assets of more than one component and may involve strategic assets, temporarily made available for the operation. At the operational level, manoeuvre is the means by which a commander sets the terms in time and space, declines or joins combat, or exploits emerging developments. It is the process by which force, or the threat of force, is focused where it can have decisive effect, to pre-empt, dislocate or disrupt adversary operations. It involves trade-offs (for example, speed versus time, width versus depth, concentration versus dispersion), and thus requires an acceptance of risk.

3.42 Manoeuvre in the physical land environment is heavily influenced by a multitude of factors and actors, meaning that planning and execution of manoeuvre is complex and needs careful consideration by the commander and their staff.

Fires

3.43 Fires refers to the use of weapons to create a physical virtual or cognitive effect on a target. Fires provide the commander with the ability to affect the physical component of adversary fighting power, impacting their understanding and moral component and, consequently, influencing their will to fight. Fires may be used to support formations in close operations or may be used independently to engage targets in deep operations. At the operational level, target selection and engagement is subject to the joint targeting process to create specific effects to achieve military objectives and attain the desired end state.

3.44 Fires include direct and indirect weapons and systems of land, maritime and air forces primarily designed to destroy, neutralize or suppress an adversary. Fires also include electromagnetic activities (jamming).

3.45 Fires in the land environment create effects in the three effect dimensions (physical, virtual and cognitive), which must be in compliance with the Law of Armed Conflict and ROE. This is of particular relevance to land operations due to the presence of people, increasingly living in urban areas, where combatants and civilians are in close proximity and the risk of inflicting collateral damage to civilians, critical infrastructure and cultural and historic sites is high. Therefore, fires can be restrained due to strategic considerations.

Information

3.46 The information function helps commanders and staff plan information activities, while integrating with other functions, to influence relevant actors. Key enablers are strategic communications, information operations, psychological operations and public affairs. Strategic communications (StratCom) will direct, coordinate and synchronize the overall communication effort and direct the information staff functions. At the operational level this function includes StratCom guidance to tactical-level information operations, psychological operations and public affairs. These key enablers should be integrated at the start of the planning process, support ongoing military operations and be consistent with the overall information strategy and desired end state. Coordination is also required to ensure that activities by one component in the information environment are coordinated with strategic and other components' activities due to the unbounded nature of the information environment.

3.47 Land operations are conducted in a complex information environment that is heavily congested and contested. This gives both opportunities and restrictions for actions to influence actors and audiences. Land forces have direct contact with actors and audiences, which gives the opportunity to influence them directly, without depending on the electromagnetic environment. Commanders and their staff need to consider the effect of the speed of information flow within friendly forces, within hostile forces and within local and regional communities. Failure to do so will have adverse effects on achieving operational and strategic objectives.

3.48 Longer-term messaging, perhaps to wider audiences, is also hard to gauge, and is more vulnerable to counter-messaging. Therefore, effective use of information requires considerable understanding of the audiences civil-military interaction (CMI), and continuous monitoring and assessment by specialist intelligence activity. This enables land forces to adapt their activities to remain in step with the changing understanding and behaviours of audience.

Civil-military cooperation

3.49 CIMIC is a joint function comprising a set of capabilities integral to supporting the achievement of objectives and enabling NATO commands to participate effectively in a broad spectrum of CMI with diverse non-military actors. CIMIC enables the commander to create, influence and sustain conditions that will promote the achievement of objectives, and thereby maximize the effectiveness of the military contribution to the overall mission.

3.50 Attaining the desired end state demands close interaction with all actors that are not NATO's opponents within a JOA. This can only be achieved by close cooperation, harmonization and de-confliction, aiming for the full cooperation of the civilian population and institutions to create conditions that offer the Alliance forces the greatest possible moral, material, environmental and tactical advantages. Implicit in this aim is the denial of such advantages to an enemy or adversary. CIMIC requires the comprehensive integrated

application of all means of Alliance power, both military and non-military, to create effects that contribute to the desired end state.

3.51 Unlike the maritime and air environments, the land environment is distinguished by the fact that it is where people predominantly live. Commanders have a moral and legal responsibility towards the civilian populations in their area that can only be met by cooperating with non-military actors. Consequently, CMI is particularly useful as a tool for the Alliance to support the achievement of strategic and operational objectives. Commanders and their staff should acknowledge the myriad of non-military actors in the land environment who can influence the outcome of the conflict or crisis. A thorough understanding of the intentions of these non-military actors is paramount for applying CIMIC in the land environment.⁴⁶

Sustainment

3.52 Sustainment is the provision of personnel, logistics, medical, military engineering, finance and contract support necessary for Alliance operations and missions. Beyond enabling force elements to meet their objectives, sustainment aims to delay the point of culmination as much as is practicable. It is therefore an integral function, influencing planning and execution at every stage of operations. Sustainment facilitates the rehabilitation, resupply and regeneration of force elements, bringing the combat effectiveness back to a usable level and support the morale of troops. This necessitates anticipating the needs of the force beyond the current mission and often requires activity that has not been explicitly ordered.

3.53 Sustainment activities influence the tempo, duration and intensity of all operations. This also includes shaping the land environment through employing military engineering support to enable manoeuvrability, development and maintenance of infrastructure, water supply and environmental protection.

3.54 The joint logistic support group (JLSG) is responsible for the planning, coordinating and executing of logistic support in the respective JOAs by using assigned national, host nation or commercial resources. It is the means by which NATO delivers multinational sustainment support for operations and reception, staging, onward movement as well as integration.

Force protection

3.55 Force protection is a function aimed at minimizing the vulnerability of personnel, facilities, equipment, materiel, operations and activities to threats and hazards to preserve freedom of action and operational effectiveness. Force protection measures are those that seek the protection of the force as a sole objective, outside of any tactical objective at hand. For example, a defensive position to deny the adversary terrain is not force protection, but a

⁴⁶ For further details see AJP-3.19, Allied Joint Doctrine for Civil-Military Cooperation.

camp perimeter security is a force protection measure. It is both the commander's and every individual's responsibility. The fundamental elements of force protection are:

- security;⁴⁷
- military engineering support to force protection;
- air defence;
- medical force protection and force health protection;
- consequence management;
- resilience;
- tactical area of responsibility control; and
- chemical, biological, radiological and nuclear (CBRN) defence.

3.56 Force protection in the land environment must consider threats posed by hostile action as well as environmental hazards, which demand different force protection measures and sound security intelligence. Detecting threats to the force can be challenging in the complex human environment as hostile actors can conceal themselves amongst the local population. A comprehensive approach to force protection in the land environment is needed to maintain effective combat power.

3.57 Critically, the moral component of the force must also be protected. In the same way as the manoeuvrist approach emphasises effects on an adversary's cohesion and will to fight, so too must we protect our own will and cohesion. Physical, electronic, cyberspace and information protection measures are necessary, but are insufficient to maintain the force's moral component, which is developed over time, both before and during operations.⁴⁸

Section 4 – Land operations

Introduction

3.58 Land operations are codified in three ways: operations themes (described in Chapter 1), land tactical operations, and land tactical activities. The relationship between each is shown diagrammatically in Figure 3.3. The depiction of the proportion of each tactical activity is illustrative. The dominant type of land tactical operation (defensive, offensive or stability) will determine the balance of the four groups of tactical activities.

⁴⁷ Security in the context of force protection refers to the physical and procedural measures taken to deny the enemy knowledge of the dispositions, capabilities and intentions of friendly forces, and protect the force against terrorism, espionage, subversion, sabotage and organized crime (TESSOC). It also includes defensive cyberspace operations, information security and electronic protective measures (EPM).

⁴⁸ For further details see AJP-3.14, *Allied Joint Doctrine for Force Protection*.

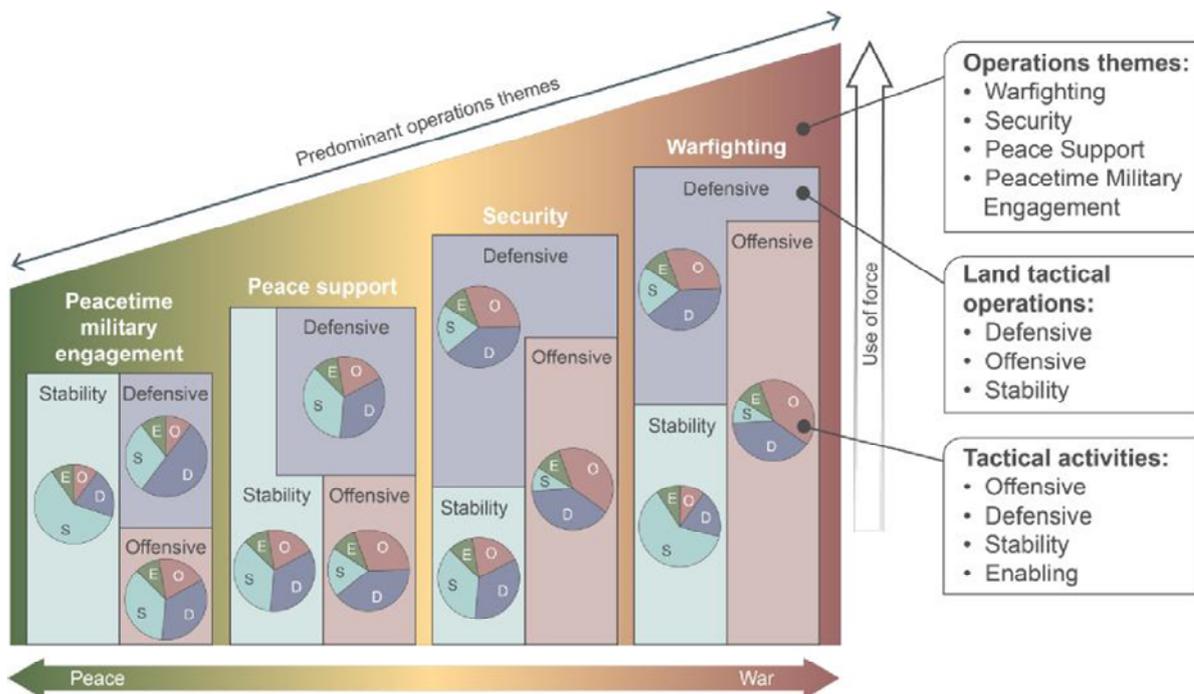


Figure 3.3 – Land operations

Land tactical operations

3.59 There are three types of land tactical operations, which are described in detail in ATP-3.2.1, *Conduct of Land Tactical Operations*.

- a. **Offensive.** Operations to impose one's own will upon the adversary.
- b. **Defensive.** Operations to deny the adversary their objectives.
- c. **Stability.** Operations to set the conditions that enable authorities and other organizations to function properly and maintain or create the conditions in which the risk for outbreak, escalation and recurrence of conflict is reduced to acceptable levels, leading to a more secure and less threatening environment.

Tactical activities

3.60 Each of the land tactical operations will consist of a tailored combination of four groups of tactical activities: offensive, defensive, stability and enabling. Each activity depicted is intended to create or contribute to a particular effect on the understanding, physical capability and/or will and cohesion of other actors. Competence in planning and executing the tactical activities is fundamental to a land force's fighting power. The depiction of the proportion of each tactical activity in Figure 3.4 is illustrative. The dominant type of land tactical operation (defensive, offensive or stability) will determine the balance of the four groups of tactical activities.

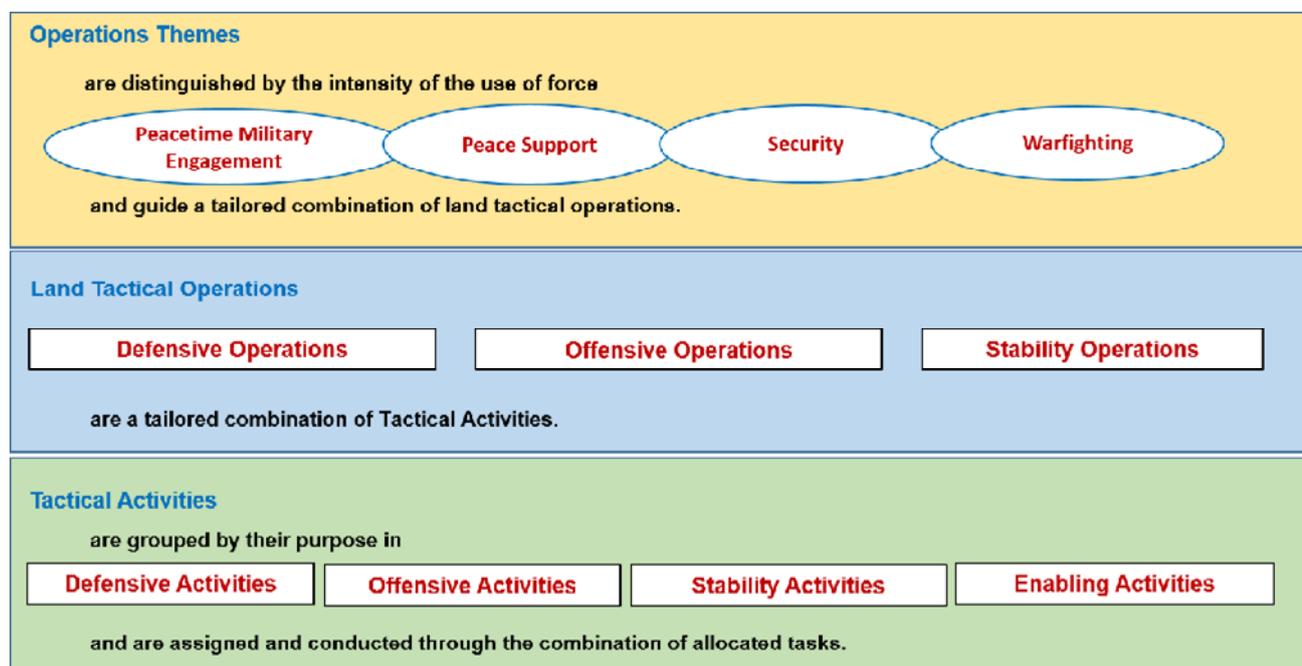


Figure 3.4 – Context of land operations

3.61 These tactical activities frequently occur simultaneously within a single area of operations (AOO). Commanders must be able to conduct this variety of activities simultaneously and sequentially, and to transition quickly from one type of activity to another during rapidly evolving conflicts. These activities are described in ATP 3.2.1.1, *Conduct of Land Tactical Activities*.

Section 5 – Orchestrating operations

Operational art

3.62 Land operations are orchestrated through the application of operational art within joint action. Operational art is the employment of forces to achieve strategic and/or operational objectives through the design, organization, integration and conduct of strategies, campaigns, major operations and battles. It is the critical link between strategy and tactics and ensures that tactical actions support (through operational objectives) the strategic concept and goals. At the land component level, and usually at the higher tactical (corps and division) level, operational art translates strategic and, specifically, operational direction into tactical execution. The land force contributes to joint operational decisive conditions, which leads to attaining the desired end state. This means that it is the principal way in which tactical activities are designed and managed in concert with other agencies. Operational art is, therefore, the orchestration of joint action. It is realized through combining the commander's vision and skills, operations design and operations management, as illustrated in Figure 3.5.

ORCHESTRATING TACTICAL OPERATIONS



Figure 3.5 – Orchestrating land operations: the three elements of operational art

3.63 Operational art is often regarded as only an aspect of command at the operational level. However, its understanding and application is implicit to land force commanders with operational-level responsibilities. It informs the design of the campaign or operation to which they contribute and is therefore the source of their higher commander's intent. It is also relevant as a tool at the tactical level, when sequencing multiple tactical activities to achieve operational objectives and must be understood by tactical commanders.⁴⁹

Commander's vision and skills

3.64 Operational art embraces a commander's ability to take a complex and often unstructured problem and provide enough clarity and logic (some of which is intuitive) to enable detailed planning and practical orders. A commander's approach is as much art as science. They gain an understanding of the context through analysis of the situation, including both the overt symptoms and underlying causes of conflict. Thereafter, awareness of a situation, and a feel for how it is being changed by military activity and other influences, is cultivated and maintained by continual assessment. Operational art is therefore realized through combining a commander's skill and the staff-assisted processes of operations design and operations management.⁵⁰

3.65 Operational art is not a purely mechanistic process. There is a significant human element focused on commanders and the reach that they can extend through their leadership across the theatre of operations, including beyond the joint force. Operations design and management draws extensively from the commander's intent to guide and focus staff effort.

⁴⁹ See also Allied Tactical Publication (ATP)-3.2.2 *Command and Control of Allied Land Forces*, and Allied Procedural Publication (APP)-28, *Tactical Planning for Land Forces*.

⁵⁰ For further description see AJP-5, *Allied Joint Doctrine for the Planning of Operations*.

A commander must balance the time it may take to develop understanding of the breadth and depth of the problem with the requirement to produce clear direction and plans in time for effective execution while promoting interaction with military and non-military partners within a comprehensive approach. Commanders on enduring operations accept that their time periods in command cover only a proportion of a longer campaign within a comprehensive approach. This requires a high degree of humility in command, respecting the role of other partners and awareness of the context for individual contributions.

3.66 A commander's vision and skills are derived from a mixture of experience, intuition and ability, combined with established principles, practices and procedures. They include:

- leadership;
- effective understanding;
- applying and promoting a comprehensive approach;
- applying the manoeuvrist approach;
- applying mission command;
- collaborative planning between two or more command echelons involved in the operations planning process;
- understanding and applying StratCom direction and guidance;
- understanding and applying the impact of operations themes;
- understanding and applying principles and operational considerations; and
- understanding and applying risk management.

Operations design

3.67 Operations design is a process of iterative understanding and problem framing that supports commanders and staffs in their application of operational art. Operations design establishes the sequence and purpose of critical actions, assigning missions and priorities to subordinates and supporting commands. These actions are nested within, and contribute to, the higher commander's objectives – a requirement that may cause tension in a multinational environment when balancing national and operational command requirements, but which should not be overlooked. Operations design leads to the concept of operations and provides the basis for control of the operation.

3.68 Operations design, through review and refinement, is continuous; the situation will change, so the operation and the force must adapt in response to actions, reactions and the unavoidable consequences of chance and friction. It does not routinely require a redesign of a campaign, operation or even tactical activities every time commanders and staffs change over, or forces are relieved.

3.69 As described in Section 3, the operational use of joint action requires operations design that aligns actions, effects and objectives with desired behavioural outcomes. Each level of the land force nests its activity under the superior level; indeed, some force elements in some circumstances may not even have outcomes – the successful achievement of their objectives may contribute to higher level outcomes. The main aspects of operations design include:

- using sequencing and phasing;
- using the conceptual frameworks;
- using centre of gravity analysis;⁵¹
- applying joint action through the joint functions; and
- effectively combining land tactical operations.

Operations management

3.70 Operations management integrates, coordinates, synchronizes and prioritizes the execution of activities within operations and assesses their progress. Adversary and adversary responses will inevitably affect the course of a campaign or operation, as will those of others. Assessing the course of the operation, then acting quickly to modify the plan to meet objectives in a new light, is the essence of successful operations management. The main elements of operations management include:

- decision-making (monitor, assess, plan, direct);
- organizing land forces to ensure the appropriate mix of forces and groupings;
- battlespace management;
- information management;
- risk management;
- liaison with military and non-military actors;
- effective battle rhythm; and
- sustaining fighting power.

⁵¹ Though designed for strategic- and operational-level analysis, it can also be a useful tool for land forces at the higher tactical level (corps and division).

Section 6 – Conceptual frameworks

Introduction

3.71 Commanders, having developed their understanding of the desired outcomes and the relevant audiences, then assess what objectives need to be achieved, and by what effects. In visualizing and explaining how actions, effects and objectives contribute to attaining the outcome, commanders design their operations using the three conceptual frameworks:

- operations framework (decisive – shaping – sustaining);
 - functional framework (find – fix – strike – exploit); and
 - the geographic framework (deep – close – rear), which describes where and when activities take place in relation to the force.
- } group actions by their desired effects

3.72 All of the frameworks can be used, sometimes in parallel, when designing operations and activities. The frameworks are introduced here and explained in more detail in ATP-3.2.1, *Conduct of Land Tactical Operations*.

Operations framework

3.73 **Introduction.** The operations framework provides the why (purpose) of tactical operations, in that it describes how the effects created by tactical activities correlate, to ultimately achieve the desired objectives. The operations framework comprises three actions, as shown in Figure 3.6.

- a. Decisive.** Decisive action or actions are those essential to achieve the mission; without them, the mission is unlikely to succeed. Enabled by understanding and shaping actions, and critically reliant on sustaining actions, they can be terrain or actor focused, or both. There may be a single, short decisive action, or a series of events over a protracted period. In both cases, what is decisive informs the unifying purpose of supporting, enabling and subordinate formations and units and is integral to attaining the higher commander's intent; it contains the main effort. Decisive includes engagement and exploitation.
- b. Shaping.** Shaping actions create or preserve the conditions required within the operating environment for what is decisive to the mission. These conditions may relate to a broad or targeted part of the audience and hostile, neutral or friendly actors.
- c. Sustaining.** Sustaining actions (broadly reflected by the tactical functions of sustainment and protection) enable land forces to survive, move and fight so that they can conduct understanding, decisive or shaping actions. Sustaining is also about protection, through a balance of active measures to neutralize a threat and defensive measures, which include guarding, dispersal, camouflage and deception.

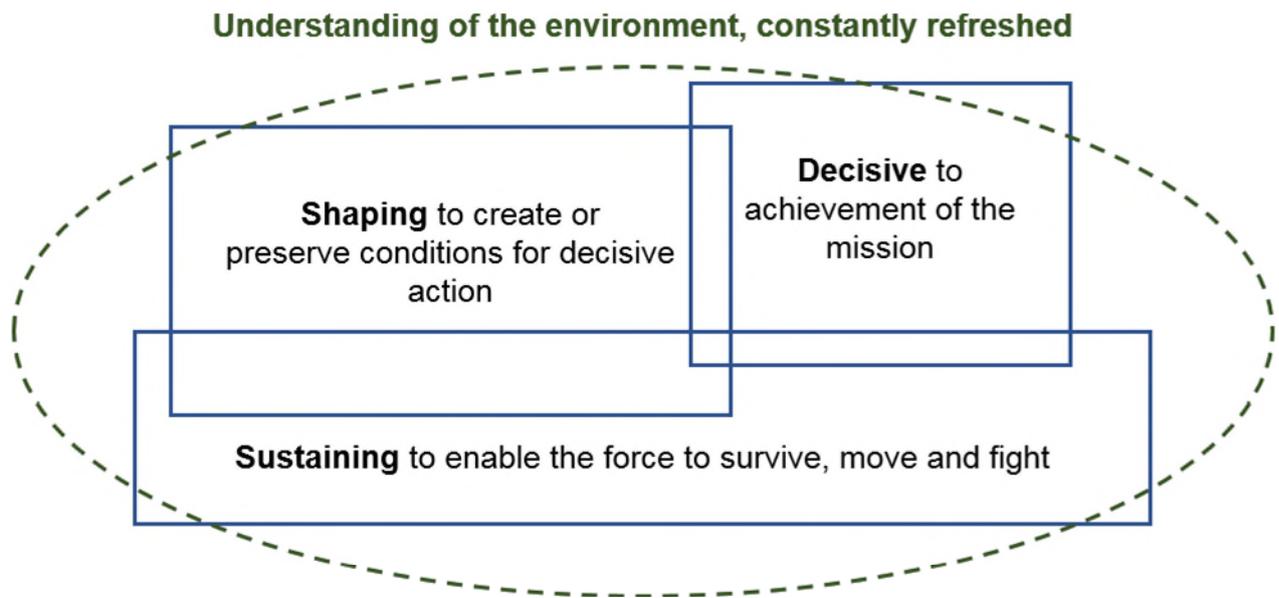


Figure 3.6 – Operations framework

3.74 At any level of command, the operations framework describes how the missions and tasks of subordinates interact in terms of their purposes and contribution to what is decisive. Understanding, shaping and sustaining actions support those that are decisive and often endure throughout an operation. By applying the operations framework, commanders and staff ensure their concept of operations is balanced and able to have a clear and unambiguous main effort. At some point in the operation, the main effort will switch to the decisive action.

Functional framework

3.75 **Introduction.** The functional framework describes the ‘what’ of something that is to be done, in terms of actions and their immediate effects. It is based on four core functions.

- a. **Find.** Finding is as much about gaining a contextual understanding as it is about locating an adversary unit. Actions to find occur throughout an operation. In some combat situations, it may be enough to discover the location, motivation, organization and strength of an adversary. In more complex situations, it is important to have contextual understanding of the situation, to understand the physical and cultural aspects of the environment, and to understand the likely consequences of activity on the adversary – for example, on their morale – and perhaps on a population.
- b. **Fix.** Fixing can be achieved by a range of methods that deny enemies recourse to their desired courses of action, for example, by reducing their popular support. Fixing involves denying an adversary their goals, distracting them and depriving them of freedom of action. Fixing can be achieved using a range of tactical methods, for

example, using direct or indirect fires, jamming, deception, saturation patrolling and overt surveillance.

c. Strike. Strike is a form of decisive engagement. To strike is to manoeuvre and then take direct action to accomplish the mission. Manoeuvre means more than movement in combination with fire. It enables commanders to marshal their capabilities so that they are focused for greatest effect, avoiding adversary strengths and exploiting their weaknesses. Effective manoeuvre exploits an adversary's weaknesses before they can protect them, presenting multiple threats to which they are unable to respond coherently. Direct action in combat usually means seizing objectives or destroying adversary forces. In a broader sense, direct action incorporates any decisive action that is focused on undermining an opponent's will, understanding or capability and the cohesion between them.

d. Exploit. Exploit is to seize opportunity created by previous activity to achieve an objective, or directly to fulfil part of a commander's intent. Opportunities can occur at any time while finding, fixing or striking. A commander should constantly search for such opportunities and, when they occur, vigorously pursue them. Exploitation should be expected from subordinates. They should not have to be told to exploit, but only told how far they may exploit if necessary.

3.76 The functional framework is designed for use against an adversary in combat operations but can be adapted to other situations. To conform to the manoeuvrist approach, these core functions are conducted rapidly and in a seamless sequence. This requires anticipation and concurrent activity. The functional framework can also be adapted to other military tactical activities at battlegroup level and below. Striking may involve violent offensive action or entail the launch of activity aimed at influencing an adversary's perceptions or those of their supporters.

Geographic framework

3.77 **Introduction.** The geographic framework describes the 'where and when' of employing military capability. In this framework, deep and rear operations are defined in relation to the close battlespace of operations in and around the main forces of a formation. Geography in the land environment is important as it describes where intended operations take place and because so often the terrain, and who controls it, is vital or at least key. Even in a non-linear battlespace, the concepts of deep, close and rear, and a sense of range and proximity, aid understanding. When used in combination with the operations and functional frameworks, they provide a powerful method in helping to visualize, organize and integrate activity.

a. Deep operations. Deep operations are conducted at long range and often over a protracted timescale, against an adversary's forces or resources not currently engaged in the close battle. They may comprise intelligence gathering or fires, manoeuvre and information activities, aimed at targeting key vulnerabilities (the will,

cohesion or capabilities of an adversary). Deep operations are usually conducted at the corps or divisional level, often supported by other components to shape the close operations of subordinate forces. Deep operations conducted by land forces are distinguished by their sustainment and communication requirements, and by their significant potential to dislocate an adversary, if conducted at speed and with sufficient force.

b. Close operations. Close operations are those conducted by the main body of a formation, often in direct contact with an adversary or situation. They are usually conducted at short range and in an immediate timescale. The means include, for example, destruction, arrest, deception, direct fire and rapid manoeuvre.

c. Rear operations. Rear operations establish and maintain friendly forces to generate freedom of action for deep and close operations. All forces have a rear area. They include many administrative and logistic activities, protection of critical assets and infrastructure and real estate management. They may require stability activities to maintain or gain consent of a host nation and the range of offensive and defensive activities through combined arms manoeuvre.

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Annex A – Operations in specific environments

A.1 The character of specific land environments has significant employment considerations for land forces. This annex describes the seven most commonly encountered and significant environments in which land forces will be employed. It gives an overview of the main characteristics of each environment and how those characteristics will affect the employment of land forces across the joint functions. Guidance on the conduct of tactical activities within each environment are contained in applicable Allied tactical publications (ATPs). This annex should be read in conjunction with Annex B of this document, which summarizes the characteristics of different types of forces and their suitability for different specific environments.

Section 1 – Operations in urban environments

Introduction

A.2 The nature of operations and campaigns drives military operations to consider, and often operate within, civilian-dominated, urban areas. This is particularly so when faced with irregular forces and their willingness to shelter amongst population centres.

A.3 As the centres of political, economic and social power, populated areas will be a key consideration at strategic and operational levels and the achievement of related objectives. Thus, tactical land operations can be expected to be conducted within or to influence urban areas. An urban environment is a dense, complex environment with physical, informational and human aspects, all of which must be assessed and understood to the greatest degree possible, to help ensure the achievement of objectives. Details for the conduct of land operations in the urban environment are given in ATP-3.2.1.2, *Land Tactical Operations in an Urban Environment*.

Characteristics of the urban environment

A.4 An urban environment is a dense and complex system of systems expressed through a multidimensional physical system, an information system and a human system consisting of a significant population. These systems within the urban environment are interconnected and effects to one will have reverberating implications to all. Conflict, at any scale, will magnify and stress any fragilities in these systems. Although urban environments will have similar characteristics and constituent systems in the larger sense, each urban environment will be unique.

Physical system characteristics of the urban environment

A.5 The physical characteristics of the urban environment will complicate operations, demand high levels of troops to achieve objectives and likely result in higher casualty levels and consumption rates of combat supplies. Additionally, concerns over maintaining the

physical infrastructure systems within an urban environment and avoiding civilian casualties will greatly complicate operations.

A.6 The urban environment's physical characteristics will consist of complex human-made terrain of an urban settlement and the natural environment within and around it, including the urban littoral. It includes subterranean (for example, underground), surface, super-surface (for example, rooftops), and hollow-space environments. Fields of observation and fire will be limited, ground will canalize and conceal movement. Limited line of sight and reduced communications will make command and control difficult with limited situational awareness. The effects of the urban terrain on operations will include the following.

- a. Three-dimensional aspect to operations, at street level, on rooftops and in buildings, and underground in sewers and subway systems. This will complicate command and control and slow the tempo of operations.
- b. Restricted fields of fire and observation will limit the employment of weapons at their maximum effective ranges, limit reconnaissance, degrade situational awareness and complicate command and control. Density of the terrain will limit radio communications, thus further frustrating command and control.
- c. Infrastructure, in particular when damaged or destroyed, provides cover and concealment for both sides. This will increase options for surprise, counter-attacks, infiltration, bypass and continuous disruption to any movement.
- d. Canalizing streets, regular patterns and damage to infrastructure may channel, limit and delay movement. Shifting resources from one part to another also proves difficult.
- e. Increased demand for personnel due to the interaction with the local population, the high casualty rates and density of the terrain. There will be higher casualty rates and higher rates of consumption of ammunition and other combat supplies. Thus, sustainment and battle casualty replacement must be carefully considered in planning.
- f. Restricted vehicle movement and requirement for intimate support for all vehicles by dismounted troops due to close engagement ranges.
- g. Weather and the results of combat in urban environments, like rubble, dust etc., increase the restrictions.
- h. There will be additional physical and psychological strain on personnel. This will demand a greater requirement for high levels of initiative and quality leadership.
- i. Riverine and littoral areas may offer potential lines of communication and points of entry for own or adversary forces, as well as for the civilian population.

A.7 Additionally, the physical urban environment includes functional systems of infrastructure, including transportation, communications, education, cultural, health, public safety and utility, forming a complex matrix of flows, with linkages and intersecting nodes. To the greatest extent possible, operations should be planned to avoid unnecessary damages to these systems.

Information system characteristics of the urban environment

A.8 Communication systems and networks within and between urban areas allows for the rapid movement of ideas, data, techniques, and the coordination of activities (for example, coordinated attacks by irregular forces, mobs and protests). Increased technology and human connectedness broaden the city's networks beyond its physical boundaries, linking it to populations throughout the world. Like other systems, the information system is fluid and is interlinked with the physical infrastructure and is influenced by human interaction within (and external to) a specific urban environment. Information – both positive and negative regarding operations – may be passed quickly. All this must be considered in planning.

A.9 The complex information environment paired with the dense presence of people will have numerous effects, including:

- a continuously developing and changing information situation that must be considered by commanders and staff, to best support operations and objectives;
- possibilities for all actors, including adversaries, to influence and coordinate, but also a source of intelligence; and
- possibilities for commanders to integrate into the urban information environment and interact with key leaders and populations, to build support for operations.

A.10 It is likely that adversaries will exploit the communication system of the urban environment for their own benefit, to communicate internally and to use messages to influence the local population. For NATO, this will greatly facilitate the use of electronic warfare and cyberspace-related capabilities, for both collection and attack purposes.

Human system characteristics of the urban environment

A.11 The human system within an urban environment will be unique and reflect in large part the national and regional culture. It consists of the characteristics and interactions of individuals, groups and populations all linked by their shared urban space. The presence of a civilian population and its critical infrastructure will be a major consideration in the planning and conduct of operations. Considerations will include the following.

- a. Protection of the civil populace in accordance with the Law of Armed Conflict and international humanitarian law, to the greatest extent possible. This will entail an increase in stability activities, particularly in terms of those that seek to safeguard populations, support humanitarian relief, prevent looting and similar actions.

Commanders, even at the most junior levels, must be able to switch quickly between types of activities and correctly apply the rules of engagement to meet the most pressing need at any given moment.

b. Appreciation of the need for strategic communications (StratCom) to inform the populace will be crucial to operational and strategic success. StratCom is vital to build and maintain the legitimacy of the campaign, to explain NATO actions, and to undermine the propaganda of adversaries.

c. Continuous assessment of the effect of operations on the civil populace, including the need for due diligence to limit collateral damage.

A.12 Given the likely presence of civilians in the urban areas, there may be a need to stabilize the situation and to address immediate governance and infrastructure issues. Thus, the comprehensive approach, with the military working in an integrated fashion with other agencies, will play an important role and must be considered throughout planning and operations.

Threats in the urban environment

A.13 Threats in the urban environment can be difficult to identify due to the dense nature of the environment and the willingness of some adversaries to blend with the civilian populace. In urban environments, friendly forces will likely encounter a variety of potential adversaries, who will employ a variety of tactics and many will avoid decisive engagements and seek to intimidate local populations.

A.14 Dense urban environments offer adversaries an opportunity to counter the technological and training advantages of NATO forces and to target the population's national will by inflicting an unacceptable level of casualties with little cost to themselves.

A.15 The variety of adversaries, often avoiding decisive engagements while exploiting the information environment to their advantage, will pose significant challenges to NATO forces that have traditionally focused on manoeuvre and protracted engagements, causing frustration and a seemingly lack of progress. They will also be highly effective at employing their own forms of psychological operations and public affairs to undermine NATO's efforts and legitimacy. Often these adversaries will compete with legitimate governance and seek to influence the civil populace.

A.16 As with any campaign, commanders must focus on the objectives of their adversaries and work to counter them through the full range of capabilities available, including those that seek to influence the civilian populace.

Force employment considerations for the urban environment

General

A.17 NATO operations in the urban environment should adhere to the following principles.

- a. Maintain continuous understanding of the urban environment. This includes an understanding of the various systems within the environment, and how they impact on the achievement of friendly objectives and denial of the adversary's objectives. It includes understanding the cultural and social expectations of the local populace.
- b. Prosecute operations targeting all urban systems – physical, information and human. All these must be considered and integrated in the planning and conduct of operations.
- c. Maintain a mindset of force agility. Forces must be able to transition quickly across the full range of tactical operations and activities, and quickly exploit the information environment to gain a superior narrative.
- d. Adopt a campaign mentality in terms of the duration of the operations and amount of resources required for their conduct.
- e. Maintain the integrity of the urban system. Collateral damages should be mitigated to the greatest extent possible.

Command and control considerations in the urban environment

A.18 The physical nature of the urban environment will cause subordinates to operate outside their line of sight and limited radio communications. Additionally, it will cause opportunities and targets to be fleeting. A balance between mission command philosophy and centralized decision-making will be required. This will stretch command and control processes, staffs and systems, possibly beyond their maximum capacity due to the density and quantity of information desired. Continual updates from subordinates will be needed.

A.19 Control needs to be ensured through detailed preparation and battlespace management, particularly given the density of the terrain and the multilevel density of troop deployments that will occur. Multiple elements occupying the same grid coordinate in different vertical levels of space, but reporting to multiple authorities, will present control challenges for battlespace management. Common standing operating procedures, such as combat identification means, will be essential.

Intelligence considerations in urban operations

A.20 Intelligence to support land operations in the urban environment must consider assessment of all three systems (physical, informational and human) and the manner in which they interact and impact upon planned objectives. Intelligence must work to help distinguish

adversaries within this environment. Particularly, intelligence work must identify the objectives and conditions that the adversaries wish to achieve or create. This should directly inform and influence a commander's planning and conduct of operations.

A.21 Every effort must be made to differentiate between combatants and civilians before beginning each phase of combat operations, recognizing that some adversaries may attempt to intimidate civilians or use them and civil infrastructure as human shields in the belief that this will guarantee protection from attack.

A.22 This very complex operating environment demands an accurate target acquisition process that requires a wide range of sensors including intelligence, surveillance and reconnaissance (ISR) assets to cross-check the collected data and confirm the legitimacy of targets. Electronic warfare, cyberspace-related and space-based capabilities are most useful in information collection, particularly in dense urban environments where adversaries can easily hide and conceal their actions, either within the infrastructure or by being amongst the populace. Unmanned aircraft systems (UAS), employed at all tactical levels, will allow information collection and reconnaissance to occur while limiting the exposure of troops.

Manoeuvre considerations in the urban environment

A.23 In the urban environment, manoeuvre is characterized by a complex, canalizing, dense terrain, shorter lines of sight and shorter ranges. There will be an emphasis on smaller, all arms units moving in closely coordinated fashion over shorter distances. The combined arms approach in the urban environment will become a very local battle.

A.24 In the offence, intermediate objectives must be identified in planning so that forces are not over extended or cut off. In the defence, the defending force may have to establish perimeter posts and other positions to avoid isolation and being bypassed by the adversary and to provide security for the main defence force within the urban environment.

A.25 Riverine areas may provide alternative options for manoeuvre, in particular to avoid time consuming movements and to create dilemmas to the adversary by envelopments.

Fires considerations in the urban environment

A.26 The density of the urban environment makes it difficult to positively identify and target an adversary with capabilities that rely on visual signatures, locations or behaviour to indicate adversaries. Due to terrain features and poor visibility, targets are often fleeting. Fire control observers will need to be positioned suitably far forward to identify and engage targets, thus increasing accuracy and minimizing collateral damage.

A.27 The use of UAS can assist in locating adversary positions for engagement, and, if armed, to engage targets that other systems may not be able to reach.

A.28 Fires may damage and destroy infrastructure, rendering structures unusable and hindering the movement of friendly forces. Collateral damage to essential civilian services (such as sanitation and medical facilities) must be mitigated wherever possible.

Information considerations in the urban environment

A.29 The information system is one of the key systems that characterize the urban environment and it is thus a major consideration in the planning and conduct of operations. The urban environment is characterized by multiple audiences and influential actors, each of whom is likely to have a different perception of, and reaction to, the information they receive. Forces always operate under public scrutiny because of the population presence and pervasiveness of information technology. All actions must seek to build the perceived legitimacy of the operations and campaign. Information activities must match key messages to particular audiences based on an analysis of their needs and expectations. These will often be local and specific to a particular area of the town or city and culture, and often different to those of a regional or domestic audience.

Civil-military cooperation considerations in the urban environment

A.30 The diverse human and organizational aspects of an urban environment increase numbers of relevant contact points tremendously. Within all three civil-military cooperation (CIMIC) functions, civil-military liaison, civil support to forces and military support to nonmilitary actors, the requirements will likely be at such a high level that they cannot be satisfied by a formation's or unit's CIMIC personnel alone. Units may have to be tasked with stability activities to meet the demand. In particular, dispersed forces will be significantly challenged to provide CIMIC support at all places required. All commanders must be prepared to deal with civil leaders and agencies throughout urban operations. Key to such dealings will be the need to limit expectations by the civil populace and their leadership in terms of the amount of support and resources the military can provide.

Sustainment considerations in the urban environment

A.31 Operations in urban areas are personnel and resource intensive, and thus require specific planning and measures to ensure forces do not culminate early. Small distributed units will potentially require sustainment more often and must be supplied through subsurface, surface and super-surface areas. Sustainment planning must anticipate the temporary isolation of elements of the force within the urban environment.

A.32 Planning must consider all options, such as air delivery and prepositioning programmes; however, security will be required to protect landing zones. Principles for providing effective sustainment to units operating in the urban environment are as follows.

- a. **Self-sufficiency.** Units should plan to be as self-sufficient as possible, particularly in the defence.

- b. Combat service support dispersed and decentralized.** Combat service support groups must be dispersed and decentralized.
- c. Host-nation support.** The use of host-nation support and civil resources must be considered.
- d. Inter-agency cooperation.** Given the civil populations' likely present in urban areas, commanders and staff must consider in planning the need to provide emergency sustainment to in-place groups, ideally in close coordination with appropriate agencies.

Force protection considerations in the urban environment

A.33 Given the dense infrastructure of the urban environment, the likely non-contiguous battlespace, and the pervasive presence of civilians, force protection will be very resource intensive. Infantry forces will likely be required to protect combat support and combat service support elements, rear areas and movement corridors.

A.34 The deployment of shoulder-based, highly manoeuvrable air defence assets (for example, Stinger man-portable air defence system (MANPADS)) should be taken in consideration.

Section 2 – Operations in wooded and forest environments

Introduction

A.35 The collective term of wooded areas⁵² refers to an area that consists mostly or completely of woods and forests and of which the obstacle value is such that dispersed mounted operations are barely possible, if at all. Operating in wooded areas is extremely demanding and has many similarities to operations in urban areas though less multidimensional. The emphasis is on close combat, conducted on a de-centralized basis by units of company and platoon strength, who are required to be able to operate independently in separate sectors. The through roads and paths often form the key terrain where the battles are initially fought. The ground between them, particularly the lateral routes, can be used for flanking (counter) attacks and other offensive activities carried out by means of infiltration.

Characteristics of operations in woods and forests

A.36 Wooded areas can be classified in accordance with several factors such as: tree density, tree type (coniferous or deciduous), tree height, land use, legal standing and ecological function. Woods at different latitudes and elevations form distinctly different ecological zones: boreal forests near the poles, tropical forests near the equator and

⁵² The term forest tends to be used to describe larger wooded areas, but the size of each is not precisely defined. Therefore, the term wooded area refers to both woods and forests.

temperate forests at mid-latitudes. Both elevation and precipitation affect the composition of wooded areas.

A.37 The key characteristics that will affect force employment and operations in wooded/forested areas will be the following.

- a. Density of the wooded area (how close the trees grow together) will affect observation, lines of sight, engagement ranges and mobility. The tempo of operations will be slowed.
- b. Fields of observation and fire will be more limited and thus engagements will occur at shorter ranges. There will be greater protection, cover and concealment for troops and equipment from view and from fire. This will possibly allow greater opportunities for surprise, infiltration and bypass but pose problems for command and control of forces.
- c. Types of trees present will affect observation and lines of sight depending upon the time of year. Largely coniferous forests will continue to have more limited lines of sight during the winter months whereas lines of sight will improve in largely deciduous forests during winter months.
- d. Vehicle movement will be canalized and restricted to more open areas or routes through the wooded area
- e. Concealment and covered movement will allow the engagement of armoured vehicles at short ranges. Thus, armoured vehicles will require intimate support and protection by dismounted forces.
- f. Higher rates of consumption of ammunition and other combat supplies. This must be anticipated in sustainment planning.
- g. The broken lines of sight and density will degrade command, control and communications. Limited visibility will have a psychological effect on the troops who are employed in operations in forests for extended periods of time. Thus discipline, initiative and quality leadership at all levels will be key to success.

A.38 Many of the physical characteristics of a wooded area are similar to those of an urban area: limited lines of sight; constricted and canalized movement; short engagement ranges; increased sustainment demands; and difficulties in command and control.

Force employment considerations in wooded environments

A.39 The characteristics of wooded areas make it difficult to control and protect. Natural obstacles, the limited presence of roads and variable conditions of those roads contribute to reduce the rate of movement of forces. In addition, several other factors across the joint functions must be considered.

Command and control considerations in wooded and forested environments

A.40 Command and control will be difficult in wooded and forested environments due to the density of terrain. Initiative at the lower tactical levels will be key, and clear control measures will be necessary to ensure a commander's situational awareness.

A.41 Plans and force allocations will have to adapt to the characteristics and demands of this environment. The following should be considered.

- a. More security measures such as flank screens/guards to eliminate surprise and prevent infiltration.
- b. Strict movement control and allocation of routes.
- c. Decentralization of armoured assets and of combat support so that dismounted infantry elements have the necessary intimate support and can protect those mounted assets.
- d. Small reserves that are kept ready just behind the forward units. This can be used to exploit opportunities and quickly react to infiltrations.
- e. Specific force identification measures may be needed to avoid fratricide incidents.

A.42 The preparations for offensive operations in forests requires a great deal of time. Reconnaissance in advance, including air reconnaissance, generally yields little information. Simplicity is the key element when formulating the plan. Subsequent phases are prepared in broad outlines and refined on the basis of combat reconnaissance and the course of the battle. The axes of advance are largely determined by the available roads and paths. It may be that the adversary's defence only starts deep inside the forest.

A.43 Executing defensive operations in forests is only useful if the attacker, given the mission and the possibilities offered by the terrain, cannot execute a turning movement and has to capture or clear the wooded area in order to proceed.

A.44 Given the slow movement rates and limited fields of view, planning and preparation for defensive operations in wooded areas will take more time than usual. The use of wooded areas for the defence may be combined with area of mobile defensive operations in more open areas. If there are a limited number of friendly troops available, the same unit will be forced to operate over the entire depth. In such a situation, the preferred option is a mobile defence (or delay) with ambushes and raids, whereby the unit ultimately falls back to positions at or behind the exits from the forest, where a prolonged defence is possible.

A.45 It must be remembered that wooded areas provide shelter and concealment for civilians during conflict and may be used by them. Thus, commanders must consider the possible need for stability activities during operations in this environment should civilians

needing protection be encountered. Reconnaissance assets will help determine this and it should be a priority information requirement for commanders.

Intelligence considerations in wooded and forested environments

A.46 Wooded areas can provide cover from observation from a variety of sensors and reduce the line of sight to a short distance, providing opportunity for outflanking movements and ambushes. Flank and rear security elements will be key to alerting commanders of threats from flanking or infiltrating forces.

A.47 The dense overhead concealment provided by many wooded and forested areas will reduce the effectiveness of overhead surveillance. A greater reliance on thermal systems will be necessary.

A.48 A commander may have to decentralize reconnaissance forces to be under commander of lower echelons so as to provide better support to those elements, avoid surprise and exploit opportunities. It is virtually impossible to control the entire area between the positions. Intensive patrolling, observation posts and unmanned sensors provide time and space to be able to respond with reserve elements.

A.49 Tempo may be slower while the adversary main effort or strong points are located. Bypass routes may be a priority information requirement for commanders.

Manoeuvre considerations in wooded and forested environments

A.50 In many ways, offensive and defensive activities in large woods and forests are akin to fighting in urban areas. The infantry supported by engineers and where possible by armoured vehicles and tanks, will conduct the majority of activities. The emphasis is on close combat, conducted on a decentralized basis by units of company and platoon strength, who operate more or less autonomously in the separate sectors. The through roads and paths often form the key terrain where the battles are initially fought. The ground between them, particularly the lateral routes, can be used for flanking attacks, counter-attacks and infiltration. During activities with mechanized infantry, it is the traversability of the forests and the density of the roads and paths that determine whether operations must be mounted, dismounted or carried out on foot. In the last, most unfavourable case, weapons and necessary ammunition are adapted. The crews staying behind with the vehicles are kept to a minimum.

A.51 Operations in wooded areas are most suited to light or medium forces capable of moving and operating for long periods with limited fire and logistic support. Medium forces can offer the optimal balance of mobility, firepower and protection. Support must always be provided in the form of armoured assets, even if these are confined to the roads and paths. Armoured units are used to attack in forests wherever movement is possible. But, as in urban operations, armoured vehicles will require intimate support from dismounted infantry to prevent destruction by short-range anti-armour weapons, which can be kept concealed until armour is within their killing area.

A.52 Operations in wooded areas are characterized by small-unit engagements at relatively close range, with a reliance on combat support units, such as combat engineers to provide mobility support. The concealment given by vegetation means that surprise can easily be achieved. From this perspective, offensive operations and activities can be resource intensive. An envelopment or turning movement through an airborne insertion can be used to attack the defender via their exit routes and to attack or cut them off from their combat service support.

A.53 Offensive operations in forests should be avoided. An envelopment or turning movement around (or over) the adversary is preferable, as the adversary is thus outmanoeuvred. The adversary may, however, organize their defence in such a way that the attack must be conducted through forests.

A.54 Capturing a forest with limited depth or a corridor through forests is done by pushing through with infantry to the exits from the area, preferably without phasing. A simultaneous airmobile operation may be considered to attack the defender via the rear exits and to cut them off from their service support. In deep forests, the attack is conducted in phases with intermediate objectives at short range to ensure cohesion in the operation. Broadly grouped reconnaissance should also be used, behind which the grouping of combat forces should be narrow and deep. In this way, weak points in the adversary defence can be exploited immediately.

A.55 It must be possible to shift the main effort quickly, as the way the adversary defence is organised only becomes clear once the battle is underway. Therefore, not all assets should be committed. Reserves generally should close behind the forward units, preferably in their (armoured) vehicles, so that they can quickly take advantage of any success.

A.56 The defence usually commences on the forward edge of the forest. However, the fringe of the forest draws a great deal of direct and indirect adversary fire. Tanks and long- and medium-range anti-tank weapons are flanked as much as possible or positioned in front of the edges. The (mechanized) infantry establishes its positions so deep in the forest that the adversary cannot attack them directly with armoured units, nor are they able to observe indirect fire.

A.57 In defence operations, tanks and long- and medium-range anti-tank weapons are used on the flank or positioned on the front edges of woods to use their range and lethality. The (mechanized) infantry establishes its positions so deep in the forest that the adversary cannot attack them directly with armoured units, nor be able to observe indirect fire against them.

A.58 As in urban areas, a force defending in woods and forests may have to deploy perimeter posts, not only for early warning and attrition, but to prevent the adversary from bypassing the area, thus forcing the adversary into the unfavourable terrain of woods and forests. In the defence, manoeuvre in the depth of the forest is based on the (temporary) defence of positions which control the through roads and paths. Positions in the forest must

be located in such a way that: roads, paths and clearings are controlled; the units can support each other; and all-round protection is possible. The depth of the defence will consist of the main defensive position and centralized reserve.

A.59 In clearings in the forest, armoured units can be deployed to prevent the adversary from turning around forest sectors. These units are also deployed if, in the event of a successful adversary attack, friendly troops have to disengage to withdrawal from the area under cover. Tanks and anti-tank weapons of long and medium range are deployed at places with sufficient fields of fire, usually on and along paths and roads, in support of the infantry's operation from their positions. Tanks can also be deployed to support smaller elements for anti-armour defence at locations under threat.

Fires considerations in wooded and forested environments

A.60 Direct fire weapons are restricted in their range and ability to observe and engage targets in the wooded and forested environment.

A.61 The effects of indirect fires will be difficult to see and thus fire controllers may have to be further forward, and engagement ranges may be shorter. Indirect fires should be registered on the adversary's likely exit or reinforcement routes to interdict adversary forces as they move.

A.62 The presence of trees will also increase the risk of fire spreading, as a result of indirect fire engagement, particularly during dry periods. Forces in the defence may have to preposition firefighting equipment.

Sustainment considerations in wooded and forested environments

A.63 The defensive battle in wooded and forested areas may require the early positioning of defensive stores to allow the building of strong points. Resupply routes should be a consideration in planning and routes may have to be improved to support sustainment during the operation.

A.64 Forces defending in wooded and forested areas may find themselves isolated for certain periods of time and therefore may need additional combat supplies prepositioned in their locations. Resupply cannot always be relied upon. Likewise, the evacuation of casualties may be delayed. This may require additional medical facilities to be placed closer to the point of wounding or other methods of casualty evacuation to meet the appropriate medical guidelines.

A.65 Routes may be used for resupply to a certain extent, but dismounted resupply may be a common requirement.

Force protection considerations in wooded and forested environments

A.66 Air defence assets will likely be employed in depth outside of the wooded areas or on the flanks where engagement is more likely.

A.67 For a defending force, a significant amount of work will be required to prepare strong points and other defensive positions. The commander will have to give clear priorities for defensive and other protective works as engineers will be a limited and overtasked resource.

A.68 If chemical weapons are used, the size of the contaminated area may be relatively small in comparison to other types of terrain. The period of contamination, however, will be longer.

A.69 Air defence assets will likely be employed in depth on the edge, or outside or high features above the canopy. Flank positions may be adopted depending on likely avenues of attack, where engagement may be more likely. For vertical launch systems, with suitable line of site, these may be sited in clearings within wooded areas.

Section 3 – Operations in cold weather environments

Introduction

A.70 Cold regions can be described as any region where cold temperatures, unique terrain, and snowfall have a significant effect on military operations for one month or more of each year. Weather conditions can have a large impact on operations, particularly when extreme weather events disrupt both military and civilian functions. Cold weather operations occur in an environment when the temperature (including wind chill) is 8°C and below. Executing tactical operations in cold weather conditions requires special techniques, training and equipment. Snow, ice, frost and fog are likely to occur in such conditions. Wind intensifies the effect of cold on personnel and equipment. Cold regions are broken down into subregions: the arctic, subarctic, and temperate sub-regions.

Characteristics of operations in cold weather environments

A.71 There are two different types of cold conditions: wet cold and dry cold.

a. Wet cold. Wet cold conditions occur when the average temperature is above -10°C (+14°F) and variations in day and night temperatures cause alternate freezing and thawing. These conditions may be accompanied by dry snow, followed by sleet or rain, followed again by sub-zero temperatures. Additionally, wet snow or rain, causing the ground to become slushy and muddy, may be part of these conditions.

b. Dry cold. Dry cold conditions occur when average temperatures are below -10°C (+14°F). The ground is usually frozen and the snow dry. These low temperatures, plus wind chill (the combined effects of wind and temperature), increase the need to protect the entire body.

A.72 A wet cold condition is more dangerous to troops and equipment than the colder, dry cold environments as the ground becomes slushy and muddy and clothing and equipment becomes perpetually wet. Water conducts heat 25 times faster than air, meaning that wet cold environments can result in higher environmental casualty rates (both personnel and equipment) if the forces are not properly equipped, trained, and led. Under wet cold conditions, the ground alternates between freezing and thawing making movement planning problematic.

A.73 When conditions become extreme and the temperature falls below -32°C (-25°F), the problem of survival becomes of greater significance. Therefore, cold conditions can have a radical effect on the conduct of land operations.

A.74 The additional following characteristics and cold weather-related factors should be considered when planning and conducting operations in cold weather.

a. Movement. Severe frost and freezing can improve the condition of terrain that was previously difficult or impossible to traverse. The obstacle value of waterways can be reduced or eliminated completely if freezing temperatures persist.

b. Snowfall. Heavy snowfall may have significant effects on land operations, including the following.

(1) Movements over previously passable terrain can become impossible to traverse, and where still possible, vehicles leave deep tracks that are readily visible. Overtime, a passable route may become impassable as snow-covered and frozen ground is degraded by vehicle movement.

(2) Roads may need to be cleared before they are used, while specialized vehicles may be needed to sustain forward elements. During stability operations, a commander may have to devise a snow and ice clearance plan using military assets.

(3) The requirement for camouflage in snowy conditions is different, requiring different colour visual, strict track discipline and greater thermal camouflage.

(4) Reduction in the effects of artillery and mortar fire.

Heavy snow may lead to a significant risk of avalanches, which military actions, such as the use of artillery or conduct of demolitions, may increase.

c. Cold. Cold temperatures have a negative effect on both personnel and equipment and is worsened with windy conditions (known as wind chill).

d. Melting. After a long period of freezing weather, a thaw can result in localized flowing and saturation making some areas impassable. Likewise, previously frozen and passible terrain may become impassable during a thaw period.

- e. **Light.** Semi-arctic areas have long periods of daylight in the summer and few in the winter.

Force employment considerations in cold weather environments

General

A.75 Cold weather presents a serious hazard to troops and potential impediment to the successful conduct of operations. These conditions require special equipment, techniques and training for troops, otherwise operations will suffer, become unattainable, and efforts will become a matter of simple survival against the elements. Snow, ice, frost and fog are likely to occur in such conditions. Wind intensifies the effect of cold on people. Troops that not properly trained and equipment quickly become ineffective casualties.

A.76 Wet cold offers perhaps more challenges than dry cold. During wet cold conditions troops will easily become wet from perspiration and rain but face periodic freezing conditions, particularly at night. This may be a greater hazard to troops than a consistent dry cold. Cold weather, particularly extreme cold weather, will affect equipment, battery life and reliability of vehicles and complex equipment.

A.77 There is little difference between the tactical procedures utilized in a cold environment and those employed in other climates. The principles of tactics remain the same and the choice of force (light, heavy, or medium) will be determined by the terrain and the specialist skills of the available units. However, the speed and tempo with which the activities are conducted can decrease significantly to account for the extremes of the environment. The echeloning of forces during operations will extend the length of operations. The outcome of most of the cold weather combat may be decided more by environmental factors and a force's ability to deal with them, rather than by the opposing forces. Effective analysis of the weather and climate conditions peculiar to cold regions may increase opportunities for surprise.

A.78 All these issues must be carefully considered by commanders and staff when planning operations in cold weather environments. Operational tempo must be paced so that troops do not become over-exerted and equipment and vehicles do not breakdown unnecessarily.

Command and control considerations in cold weather environments

A.79 Cold weather and humidity – potentially worsened by fluctuating temperatures in heated command posts – will have a negative effect on communications equipment. Battery life will be reduced in cold temperatures.

A.80 The harsh conditions, worsened by long hours of darkness in arctic regions, can undermine moral and cohesion. Commanders at the lower levels will have to routinely check the physical conditions of troops to ensure that they remain operationally effective.

A.81 Changing terrain conditions, such as the sudden freezing of an impassable wet area, may increase opportunities for surprise. However, movements in a winter landscape are more easily observed and thus surprise may easily be lost. Movement and manoeuvre may be delayed, as more time has to be spent on combat service support for both personnel and equipment.

A.82 Large areas may have to be unoccupied. The reserves will, therefore, be deployed in a more decentralized manner. However, once a unit is committed it may be difficult to reassign it, or even impossible because of heavy snowfalls or a thaw making terrain impassable. The choice for the initial positions is, therefore, extremely important. The air component is less constrained in these environments than land forces, meaning that optimal use should be made of air power.

A.83 The use of auxiliary forces based on indigenous populations to assist regular or conventional forces should be considered. Possible tasks include point defence, scouting, information collection and guiding.

Intelligence considerations in cold weather environments

A.84 A priority information requirement for commanders in cold weather environments will be weather forecasts, in particular, significant changes in temperature and humidity (rain and snow) predictions. Changes in these issues can significantly affect terrain and mobility and other issues, and thus significantly affect operations for both friendly and adversary elements.

A.85 The possibility that the adversary's avenues of approach could differ from what was originally expected must also be borne in mind. Given the dispersion, it is relatively simple for the adversary to infiltrate and then seize the logistic support installation and the lines of communications. The protection of the rear area thus requires special attention.

Manoeuvre considerations in cold weather environments

A.86 As noted, snow and temperatures may improve or degrade movement in the cold weather environment. The overall tempo of manoeuvre will likely be slower.

A.87 Fire support adjustment may be more difficult as snow coverage can cover, or mask terrain features used as reference points. Additionally, target acquisition systems may degrade in the cold weather.

A.88 The chances of success are significantly increased if the attacker manages to separate the combat units from their combat service support. Without food or fuel to survive, the effectiveness of combat forces is drastically reduced.

Fires considerations in cold weather environments

A.89 Planning must consider that the effect of artillery and mortar fire is considerably reduced by the smothering effect of snow. Proximity fuses should be considered for fire

missions. As for direct fire weapons, fire adjustments may be more difficult with snow coverage masking terrain features normally used to adjust fires.

A.90 This reduced effect for indirect fires applies to all explosive ordnance. Additional measures need to be taken to gain the expected effect when using pyrotechnical devices such as smoke grenades, flares, etc., to prevent these to melt down and disappear in the snow.

Information and civil-military cooperation considerations in cold weather environments

A.91 Cold weather environments may be populated by small, remote populations, potentially grouped along tribal lines. Such populations will be valuable sources of information regarding the terrain, navigation and adversary forces.

A.92 Such populations and their leaders may have a significant role to play in supporting operations. Thus, information plans and CIMIC engagement will play an important role in gaining the support of these populations. Promises that are unsupportable or unnecessary cannot be made by CIMIC staff and junior commanders. Local populations may have unreasonable expectations of support from friendly forces that cannot be met. Thus, commanders and CIMIC staff must be careful to reduce and manage expectations.

Sustainment considerations in cold weather environments

A.93 Given the cold temperatures, fuel consumption will be much greater in a cold weather environment. Diesel-fuelled vehicles may have to be kept running to prevent freezing and will thus consume additional fuel even when not moving. Additional fuel will be required for stoves and other heating and light sources. Battery capacity reduces in cold weather, thereby increasing a force's energy demand. These higher consumption rates must be considered in planning.

A.94 Keeping weapon systems, vehicles and other equipment combat ready requires special measures, equipment and facilities. Metals and plastics become harder as the temperature drops and the risk for it to become brittle and be damaged increases.

A.95 The living conditions are particularly tough for personnel and impose heavy demands on their physical stamina. Measures need to be taken against frostbite, snow blindness, hypothermia and dehydration. Specialist clothing, equipment, food and medical support are needed to maintain forces.

Force protection considerations in cold weather environments

A.96 Training and proper equipment will be key to protecting the force – troops not properly equipped or trained for cold weather environments will quickly become casualties and combat ineffective. Measures must be taken in snow conditions to avoid negative effects on vision (snow blindness).

A.97 Making trenches and building or digging cover is problematic if the ground is frozen, snow-covered, or water-logged. Explosives are often used to help make trenches if the ground is frozen. Under conditions with snow, trenches and cover from direct fire can be constructed by hand. Different snow conditions require different thickness of cover. Water can be added to snow defences so that they freeze to ice.

A.98 All cold weather force protection measures may be more vulnerable to aerial observation compared to other environments. Snow conditions require special consideration in terms of camouflage. Vehicle and personal tracks will be easy to identify, and camouflage may have to be changed following snow falls or melting periods.

Section 4 – Operations in desert environments

Introduction

A.99 A desert is an area with annual rainfall of less than 250 mm and can include areas with both high and low temperatures. Vegetation is sparse and the daily temperature fluctuations can be extreme, ranging from below freezing to 55°C (130°F) in one 24-hour period. Topography and soil types vary greatly between deserts. Long periods of drought can be interrupted by sudden rain and flash floods.

Characteristics of operations in desert environments

A.100 There are four types of desert terrain as described below.

- a. **Mountain.** Mountain desert is characterized by scattered ranges or areas of barren hills or mountains, separated by dry, flat basins.
- b. **Rocky plateau.** This type of terrain is an extensive flat area with quantities of solid or broken rock at or near the surface.
- c. **Sandy or dune terrain.** This terrain is often an extensively flat area covered with sand or gravel, the product of ancient deposits or modern wind erosion.
- d. **Cold deserts.** Some high desert areas may have extremely low temperatures but are classified as deserts due to their low rainfall. The Gobi Desert is an example of a cold, high desert, with extremely low rainfall and the temperatures can fall to -40°C in winter. The principles of operating in cold weather environments apply to these deserts.

A.101 Operations in desert regions are mainly affected by features of the terrain, specifically:

- the lack of population, infrastructure and local supplies;

- good fields of observation and fire, thus placing demands on mobility and reconnaissance and providing all forces excellent opportunities for movement and manoeuvre;
- scarcity of ground water;
- flash flooding at certain times;
- sparse vegetation making camouflage difficult – this also makes navigation and distance judging more difficult;
- long distances to be travelled, thus creating a demand for mounted forces and resulting high demands for fuel consumptions; and
- significant temperature ranges and arid conditions – temperatures and other weather conditions such as high levels of blowing sand have a major effect on the performance of personnel and equipment.

Force employment considerations in desert environments

General

A.102 The open terrain associated with most desert environments offers advantages to both adversary and one's own forces. Agile command of subordinates accustomed to using their initiative may be key to gaining the upper hand over the adversary.

A.103 The type of desert region will determine the composition of the force. Heavy and medium forces are essential for more open deserts, whereas, light forces are more suitable to employment in closer, mountainous desert regions. Armoured, air assault and motorized forces can be advantageously employed to exploit the vast distances characteristic of some desert regions.

Command and control considerations in desert environments

A.104 The ability to move rapidly and to command with agility may be keys to success in the desert terrain. In relatively flat and open desert regions, the operation is mainly conducted by armoured units, sometimes supported by airmobile and airborne units. Combat will usually take place in a large area which offers good scope for conducting highly mobile combat. In general, the command and control will not differ greatly from that under normal circumstances, however, the time and space factors will be different.

A.105 Dry, sandy terrain also reduces the promulgation of radio waves, degrading the effectiveness of some communication systems.

A.106 Initiative and agility will be key factors for subordinate commanders to take advantage of the large movement areas and good fields of fire and observation.

A.107 Depth of forces will be key in both the offence and defence in order to reinforce lead units that are caught by surprise or suffer significant attrition over long ranges.

A.108 Given the large open areas of many desert environments, close coordination and synchronization of actions against the adversary will give a marked advantage. Coordinated actions conducted simultaneously against the adversary over the available large distances will undermine the adversary's cohesion and continually disrupt and dislocate their plans and actions.

A.109 The use of auxiliary forces based on indigenous populations to assist regular or conventional forces should be considered. Possible tasks include point defence, scouting, information collection and guiding.

Intelligence considerations in desert environments

A.110 Special attention is required for timely reconnaissance in depth and maintenance of contact with the adversary to prevent turning movements. UAS will be of great value to monitor the intentions and movements of adversary forces, but operators and analysts may be susceptible to deception.

A.111 The civil population within a desert environment will be a key source of information, covering such subjects as terrain features, effects of changing weather patterns and adversary actions.

Manoeuvre considerations in desert environments

A.112 The extensive fields of observation and fire require a permanent all-round protection, mobility and long-range reconnaissance. Featureless desert terrain makes day and night navigation challenging and high levels of visibility over long distances can cause distances to be underestimated. In open regions surprise may be difficult to achieve and manoeuvre can be planned to be beyond the range of the adversary's ISR systems. In certain circumstances, there may be no alternative but to manoeuvre in range of the adversary's long-range ISR capabilities. In these instances, speed, suppressive fires and close air support can mitigate the risks.

A.113 Because of the large amount of space available, the desert region is ideal for envelopment and turning movements. Assault troops should use the adversary's open flanks to circumvent the adversary main effort and occupy key terrain in the depth; the adversary will thus be outmanoeuvred. Because of the lack of cover, assault troops are also vulnerable and thus flank security and/or protection are important considerations.

A.114 Close cooperation between ground, airmobile and air components is essential to limit the adversary's ability to react given the large areas for observation and fire. Covered approaches for helicopters are by no means always available. The adversary will thus observe these airmobile movements relatively early and be able to attack them immediately upon insertion.

A.115 Operations should be considered at night as a preference because of favourable temperatures and the reduced effects on air power.

A.116 The extensive fields of observation and fire, the lack of obstacles and the numerous avenues of approach are specific problems for area defensive operations. This can be compensated for by conducting the defence in depth and by keeping a strong reserve.

A.117 In the defence, the initial emphasis should in any event be on establishing the location of the main adversary effort, so that it is possible to concentrate the counter-attack force or the reserve on the adversary flank or rear. Key terrain in the desert consists of logistics facilities, road and rail intersections, water-collection areas, mountain passes, and so on. Holding the desert region itself will seldom be a deciding factor in achieving the ultimate objective.

Fires considerations in desert environments

A.118 The extensive fields of fire mean that the adversary can be attacked at the longest possible range. Field artillery, aircraft and attack helicopters can be used to support the withdrawal and the subsequent movement to the depth. Smoke can also be used to conceal these moves.

Information and civil-military cooperation considerations in desert environments

A.119 Local populations in desert environments will likely be tribal-based and any information and CIMIC engagements with them must understand and take into consideration the tribal relationships.

A.120 CIMIC endeavours will likely be limited but any programmes undertaken must be limited in scope and resources and must be sustainable without the presence of NATO forces.

A.121 Given the large fields of observation and fire, deception can play a key part in the success of operations. Movement, dust and noise created in a particular area, especially if reinforcing the likely assumptions of the adversary commander in terms of direction of attack, can effectively deceive the adversary and cause a dislocation of their forces and disruption of their ability to properly react.

Sustainment considerations in desert environments

A.122 The extreme weather conditions, the lack of water, the terrain, sparse population and limited road networks hamper mobility, survivability and resupply of forces. Heat and sand take their toll on much of the equipment. The performance of helicopters diminishes considerably. The heat can have an adverse effect on supplies. Sand and dust can also have adverse effects, such as the accelerated wear of equipment. Frequent maintenance is thus highly important.

A.123 The effects of desert conditions on equipment may create higher demands for spare consumable parts such as air filters and fuel filters. The hard ground (often lava rock) and thorn bushes may cause increased wear and damage to the tires of wheeled vehicles, and thus generate greater consumption rates.

A.124 Ground water is often so deep that only small amounts can be obtained by digging wells meaning water resupply will be a key planning factor. Intensive rainfall occurs sporadically in desert regions, but because of the lack of vegetation, local flooding results, which in turn closes off movement routes such as wadis.

A.125 Consumption of combat supplies may be higher in desert conditions. This will likely include higher water consumption and higher fuel consumption given the long ranges for vehicle movement.

A.126 Extreme heat and sunlight can limit the effectiveness of air defence assets using infrared-based effecters.

Force protection considerations in desert environments

A.127 Surviving in desert regions over a prolonged period imposes heavy physical and mental demands on personnel. Operating in the desert affects them physically and psychologically, particularly because of dehydration, exposure to the sun and the high temperatures. Physical capabilities are more limited and water consumption is extremely high.

A.128 Strict discipline and extra personnel care are essential if the negative effects are to be kept to a minimum. Acclimatisation is necessary to allow the body to adjust to the extreme heat; a period of approximately four weeks is usually enough. If that is impossible, deployment in hot conditions and subsequent operations must be suitably paced to allow acclimatisation and avoid casualties. Protection against the effects of the sun and sandstorms is also vitally important.

A.129 Cover and concealment are generally scarce in some types of the desert. Flat sandy deserts provide little if any natural cover or concealment, especially from aerial attack or reconnaissance. Ground concealment and protection from fire can be found behind dunes or in wadis. Forces must use artificial aids for camouflage, such as camouflage nets and thermal sheets.

A.130 Defensive positions and trenches will be difficult to dig on rocky ground. Trenches or fire positions may have to be built up, above the ground, using rocks and soil. A system of sangers – small, covered fortified firing positions – may be the best means of creating a network of protected fire positions for the defence.

Section 5 – Operations in mountainous environments

Introduction

A.131 Mountainous environments are areas with extremely uneven terrain characterized by high, steep-sided slopes and valleys, which may cover a large area. Towns and other built-up areas are concentrated in the valleys. Some mountain chains are in dry desert regions with temperatures ranging from extreme heat in the summer to extreme cold in the winter. In tropical regions, small to medium mountains are covered in lush jungles with deep ravines that flood during the rainy season. Temperatures in these areas typically remain warm and humid all year. Different mountain chains have different types of climates, but in general, their height means that the weather conditions are extremely changeable.

A.132 Mountains may rise abruptly from the plains to form a giant barrier or ascend gradually as a series of parallel ridges extending unbroken for great distances. Mountains may have isolated peaks, rounded crests, eroded ridges and high plains and be intersected by valleys, gorges and deep ravines. High rocky crags with glaciated peaks and year-round snow cover exist in mountain ranges at most latitudes. Rugged terrain is common among all types of mountains.

Characteristics of operations in mountainous environments

A.133 The rugged nature of mountainous environments makes operations difficult. Without specialist troops, operations are greatly restricted to the low-lying areas. The following characteristics should be noted.

- a. The enormous differences in altitude offer good observation possibilities, but at the same time create large areas of dead space.
- b. The road infrastructure generally follows the pattern of watercourses. This affects the movement, as most of the vehicle assets are confined to the road network. At higher altitudes, the road network is extremely limited, and movement is likely confined to foot or cart paths. Movements off the roads and paths in such areas are only possible for troops on foot.
- c. On the lower slopes, the vegetation often consists of woods and bushes, which provide the necessary concealment. There is virtually no natural vegetation cover above the tree line.
- d. At higher altitudes, the ground is made up of rock. Digging trenches is thus time consuming or impossible. Defensive positions may have to be build up using ground rock and soil.
- e. Operating on foot in mountainous terrain is extremely demanding in physical terms because of the thin air and the enormous differences in altitude.

- f. Weather may change rapidly and with little warning in these regions, thus, complicating and slowing operations.

A.134 Canalizing terrain such as mountain passes will be common and will likely be key terrain or even vital ground and, thus, essential to control. They must be identified and carefully factored into planning.

Force employment considerations in mountainous environments

General

A.135 Mountainous areas require specialist training and equipment and a period of acclimatization. Light forces are best suited to operations in mountainous regions due to their mobility and ability to secure the high ground and flanks. Heavy armoured units can only be used to their full advantage in the valleys or passes. Aviation and UAS can be used effectively for movement, information and surveillance, fire support and sustainment. Fire support of artillery or mortar units is essential to cover dead ground and to facilitate manoeuvre.

Command and control considerations in mountainous environments

A.136 Mountainous areas will be compartmentalized between valleys and peaks, thus complicating command and control and making mutual support and cohesion of operations difficult.

A.137 Operations in mountainous territory focus primarily on the control of key terrain. This often consists of areas the control passes, road intersections, exits from valleys, defiles and through roads. The possession of these dominating areas and key areas of terrain can exploit the canalizing effect of these areas. They can be defended from higher altitudes and concealed positions using relatively small numbers of troops. Actions to gain or hold high ground will often dominate operations in mountainous regions.

A.138 The range of communications equipment is often reduced due to the nature of the terrain, thus making command and control more difficult. Additional radio rebroadcast elements may be required to ensure communication connections.

A.139 The use of auxiliary forces based on indigenous populations to assist regular or conventional forces should be considered. Possible tasks include point defence, scouting, information collection and guiding.

Intelligence considerations in mountainous environments

A.140 Additional time and resources will be needed in the detailed analysis of the terrain and the key features of a mountainous area of operations. Priority must be put on identifying named areas of interest and target areas of interest to accurately predict adversary movement and identify ideal locations for engagement by direct and indirect fire systems.

Manoeuvre considerations in mountainous environments

A.141 Mounted movement will likely be restricted to the few routes and roads available, thus control of these routes and canalizing ground will be key. The limitations on mobility mean that the tempo of operations is slower and mutual support may be difficult to achieve between units. Helicopters can normally overcome these difficulties; however, they could be limited by unfavourable weather, the lower density of air at altitude and adversary air defence.

A.142 Infantry can operate virtually anywhere in mountainous country, particularly when dismounted. However, those employed in higher regions or particularly difficult areas should be specialist mountain troops. Only infantry can capture and hold key terrain that is situated in the mountains. Units of platoon and company size can often delay or halt a larger adversary unit by occupying key terrain that dominates passes and mountain ridges.

A.143 More assault troops are needed than in flat terrain to compensate the terrain advantages of the defender. The scope for influencing the operation is increased if a central reserve with a high degree of mobility is available. Airmobile units are particularly suitable in this respect. Axes of advance that follow the course of the valleys are the most favourable. The speed of attack will be lower than in flatter regions.

A.144 Rapid movement may be carried out by rotorcraft. It must be remembered that the lift capacity of rotorcraft will be restricted in higher elevations and must be considered in planning: more chucks will be required to move the same number of troops.

A.145 In the defence, force groupings will be heavily influenced by the terrain. Combined arms groupings will often need to be formed for prolonged periods given the limited ability of a commander to regroup elements once a battle has commenced. The size of units that receive independent tasks and orders must be such that they can also form their own reserve. The need for, and location of, a central reserve is determined by the estimated reaction time for its deployment. Again, aviation may help in this planning.

A.146 Although it is possible to select defensive positions with extensive fields of observation and fire, it is often difficult to introduce cohesion into the defence. The defence is characterized by local combat actions on a small scale. Mountainous terrain may allow a defence in depth, with deep engagement areas that allow an adversary to advance through low ground, be fixed by obstacles, mounted units and armour to the front and then engaged by fire throughout the adversary's depth from higher ground on the flanks. Such disposition allows for counter-attacks all along the adversary's flanks from higher ground or flanking flat ground. Any valley or canalizing ground must be wide enough to support flanking counter-attacks, however, the compartmentalized nature of the defence in mountainous terrain will place an emphasis on the defence in depth and substantial reserves to counter any breakthroughs.

Fires considerations in mountainous environments

A.147 Indirect fire support, particularly mortars that offer high angles of trajectory, will be key to covering dead ground and disrupting enemy movement. The terrain may restrict the attack direction of the close air support (CAS) strikes and may limit communications between ground elements and air elements. However, mountain terrain may force the adversary to concentrate their forces along roads, valleys, reverse slopes and deep defiles, where CAS can be very effective. Attack helicopters can use the terrain to mask movement but may be affected by the altitude limitations and payload restrictions. Unstable weather conditions can also impose sudden restrictions on fixed-wing and rotary assets.

A.148 Considerations for air defence assets must be given to the defence against adversary drones that will quickly identify force movements and concentrations given the limited options afforded by mountainous terrain.

Information and civil-military cooperation considerations in mountainous environments

A.149 Engagements with local populations will be likely limited in mountainous areas due to the lack of population concentration. Small built-up areas may need to be evacuated prior to the start of operations.

A.150 Populations in mountainous regions may be tribal-based and engagements with them must keep in mind their allegiances, assumptions and cultural expectations, which may differ greatly from those found in the more populated areas of the region. Any interaction must be gauged with those considerations in mind.

A.151 Local populations may be very helpful in understanding the local terrain and the best manner to exploit it for operations.

Sustainment considerations in mountainous environments

A.152 Given the limited routes and difficulties found in mountainous regions, defensive operations may require the use of stores and prepositioned stores, noting these should be overwatched and protected (from the environment as well as other actors). Sustainment and construction items may have to be pushed forward to sustain operations once battle has started and options for resupply may be limited. Alternate routes should be planned for sustainment given that adversary forces and fires may easily disrupt or block resupply along canalized ground.

A.153 Aerial delivery (air landed or paradrop) may provide useful means of sustainment in mountainous regions, but, again, the lift capacity of rotorcraft assets will be reduced in higher elevations, and particularly in hot temperatures.

A.154 Pack animals may provide useful means of sustainment in mountainous regions.

Protection considerations in mountainous environments

A.155 Training and properly equipping troops for the harsh conditions of a mountainous environment will be key to avoiding unnecessary casualties. Operating on foot in mountainous terrain is extremely physically demanding on personnel and equipment due to the gradient, thin air, enormous differences in altitude and climate. Commanders will have to carefully control the tempo of operations.

A.156 Given the canalizing features of mountainous terrain, deception will be difficult as options for movement will be limited. However, demonstrations and feints using airmobile assets may draw out adversary reserves that can then be engaged by indirect fires.

Section 6 – Operations in jungle environments

Introduction

A.157 Jungles are vast tropical forest areas, which are often combined with mountainous terrain or swamps. Jungles vary from tropical rainforests and secondary growth forests to swamps and tropical savannas. The dominating features of jungle areas are thick vegetation, constantly high temperatures, heavy rainfall and high levels of humidity. Weather is subject to rapid and violent change. These features combine to restrict movement, fields of observation and fire, communication, surveillance and target acquisition.

Characteristics of operations in jungle environments

A.158 The intensity of jungle operations is different from operations in more temperate and open environments. Combat in the jungle is characterized by long periods of shaping operations and finding the adversary, interspersed with short periods of violent, and sometimes unexpected, combat. Jungle battles are more often ambushes, raids and meeting engagements. Battles are not fought for high ground as frequently hills in the jungle are often too thickly vegetated to permit observation and fire, and therefore do not always qualify as key terrain. In the jungle, roads, rivers and streams, fording sites and landing zones are more likely to be key terrain features.

A.159 Operations in a jungle environment require specialist training and periods of acclimatization. Without such considerations, troops will quickly become casualties.

A.160 There are virtually no roads in jungles and paths must be cleared and kept open by hacking through vegetation. Because of the dense vegetation, the fields of observation and fire are extremely limited. Areas that would normally be designated as key terrain have no value in this environment. The larger rivers form good approach routes and thus riverine forces should be considered.

Force employment considerations in jungle environments

General

A.161 Movement, observation and supporting fires are all limited significantly by the terrain and dense vegetation of jungle environments. Rotorcraft becomes key to successful operations and sustainment given their mobility and ability to find and fix adversary forces with direct and indirect fire support.

A.162 When the area of operations lies in a coastal or island area, maritime support can be essential. Air support can be decisive, particularly in terms of rotorcraft assets. Reconnaissance, manoeuvre, fire support and sustainment can all be greatly assisted by air operations.

Command and control considerations in jungle environments

A.163 Thick foliage and rugged terrain reduce the range of radio communications and distort sounds thus affecting the ease of command and control. Reliable maps are often unavailable or have limited value because of the lack of orientation possibilities.

A.164 Navigation systems may be negatively affected by the dense foliage and some night vision systems will be limited due to the lack of ambient light at night.

A.165 Commanders must work, with the support of their intelligence staff and that of the higher echelons, to clearly identify the adversary objectives and to plan to counter them directly. The vast regions, dense cover and limited forces available demand that actions be as effective and as efficient as possible in denying the adversary their objectives. At the same time, operations cannot be purely defensive. The battle must be taken to the adversary so that their plans and efforts are pre-empted, and their forces neutralized or destroyed before they can bring them to bear on their objectives.

A.166 The use of auxiliary forces based on indigenous populations to assist regular or conventional forces should be considered. Possible tasks include point defence, scouting, information collection and guiding.

A.167 Given the density of the jungle terrain, situational awareness will be an ongoing challenge. Close coordination between units and with fire support assets will be key to avoid fratricide and ensure effective operations against the adversary.

A.168 Jungles and tropical regions may be bordered by extremely important agricultural or industrial areas. In this case, the security and control of these areas is vital and must be considered in planning objectives and operations. Destruction of these areas often mean the destruction of the complete future of large parts of a civilian population and will cause immense environmental damage.

Intelligence considerations in jungle environments

A.169 Terrain analysis will be a key aspect of the intelligence picture for operations in a jungle environment. This will help identify key routes, junctions, river access points and likely routes of travel for adversary and friendly forces.

A.170 Given the vast areas involved, a good amount of effort must be placed on identifying the adversary's objectives to best support the commander's planning and operations with limited forces over a vast area.

A.171 The employment of air surveillance (either manned or unmanned) to gather information will be limited given the dense overhead cover in the jungle environment. Even thermal systems will be very limited. Thus, information collection may have to use the electromagnetic spectrum (electronic warfare collection) to build the intelligence picture of adversary intentions. Human intelligence based on indigenous populations may become vitally important.

A.172 Patrolling will take on a significant importance in terms of locating the adversary, identifying adversary movement, contacting flanking friendly units and for covering gaps in defensive areas.

Manoeuvre considerations in jungle environments

A.173 The dense vegetation and general lack of infrastructure, along with reduced visibility and engagement ranges, make it extremely difficult to locate and engage adversary forces. These factors also tend to mitigate against the use of heavy and medium forces.

A.174 Jungle combat is primarily a fight for light forces, while medium and heavy forces (if they remain mounted) operate along roads, natural avenues of movement and the few open areas, where decisive battles generally occur.

A.175 The employment of armoured vehicles may become highly decentralized with pairs of armoured vehicles operating in support of dismounted forces, while the latter give the vehicles intimate protection from ambush.

A.176 An offensive activity such as an attack is conducted by infiltrating on paths that troops have themselves cleared along the flanks of the adversary defence and then capturing objectives in the adversary's rear. These units usually operate independently over a prolonged period. They must be specially trained and equipped for such operations. Support from porters is indispensable in this respect. As the attack progresses, reserves are brought up, ideally in armoured vehicles, along the cleared and secured tracks and paths. Rivers can also play an important role to outflank adversary forces.

A.177 The defence focuses primarily on the available routes, including the rivers. Along these routes, positions that can be defended on all sides are grouped in the depth and normally occupied by units of platoon to company size. The protection of the defence area, the service support installations and the friendly routes is ensured by extensive patrols and by laying ambushes. In this way, enemy infiltration can be prevented, or a decision can be made on where to deploy a reserve. A large number of friendly troops are deployed for this purpose. Deployment opportunities must be created for the reserve, which will move on foot or, preferably, by aviation (airmobile). The routes to be used must be prepared in detail.

Fires considerations in jungle environments

A.178 Similar to wooded and forest environments, the density of the jungle limits both the employment of indirect fire weapons and close air support. The observation and adjustment of fires should focus on vital point locations and open areas.

Information and civil-military cooperation considerations in jungle environments

A.179 The jungle will likely be sparsely populated but engagement with the indigenous populations can be key. It must be remembered that these groups will likely be tribally based and have different social and cultural expectations than their national counterparts in the more urban areas.

A.180 The protection of these small villages must be a consideration for NATO commanders. Ideally, this task can be assumed by local defence auxiliary forces, but liaison and coordination will be required.

Sustainment considerations in jungle environments

A.181 High humidity levels lead to corrosion issues with equipment, thus creating a higher demand for maintenance and spare parts.

A.182 Movement of supplies can be difficult and vulnerable to enemy attack as movement is likely to be canalized by restricted routes. Thus, resupply and casualty evacuation may rely heavily on rotorcraft assets or increased rear area security activity to assure the viability of the rear area route matrix.

A.183 The intensity of offensive jungle operations can result in higher casualty rates and thus higher demands to the personnel replacement system must be anticipated and met.

Force protection considerations in jungle environments

A.184 The environment of extreme heat, virulent diseases, and frequently dangerous flora and fauna hazards requires units to be carefully trained, equipped and acclimatized before deployment. Such measures are required so that troops remain effective in the harsh conditions and do not become avoidable casualties.

A.185 Environmental health planning and force health protection are vital to sustaining the force. Given the harsh conditions, commanders will have to pace operations accordingly.

Section 7 – Operations in riverine environments

Introduction

A.186 The riverine environment is an inland, coastal or delta area comprising both land and water, often with limited or non-existent land lines of communications. The area is likely to have extensive water surface and/or inland waterways (including lakes) that provide natural routes for transportation and communications. It is three-dimensional, with surface, subsurface and air environments. Waterways serve as primary lines of communication and frequently constitute key terrain. To control this key terrain, forces operating in a riverine environment must seek to control all three environments; however, managing risk remains a critical task in this complex environment and battlespace. While many nations have riverine forces that are part of a naval force, some nations' army or marine forces execute these operations. Riverine operations may, therefore, be executed by some nations' naval, army, marine, amphibious or special operations forces.

A.187 Operations in this environment are described as riverine operations and are detailed in ATP-08, Volume III, *Riverine Operations*.

Characteristics of operations in riverine environments

A.188 Operations in riverine environments can be conducted in two ways:

- as an extension of an amphibious operation (from the sea to the inland waterways through the mouth of the river); or
- as a specific land operation when the operations are conducted in a part of land characterized by the presence of rivers, lakes, lagoons or swamps, canals (natural or artificial), part of littoral area and bays.

A.189 The purpose and manner of conduct – as an extension of an amphibious operation or as a land operation – will likely dictate the type of commander.

A.190 Operations in riverine regions offer a commander greater options and allow the exploitation of otherwise impassable terrain features to help achieve tactical and operational objectives.

A.191 Given the nature of the riverine environment and the aims of operating in this environment, special equipment (particularly types of boats and support equipment) and training is required. Sound and well-practiced procedures and safety precautions (given the presence of water) will be required for success.

Force employment considerations in riverine environments

General

A.192 A task-tailored force conducts riverine operations and screens against adversary actions by denying an adversary the use of navigable waterways. The force counters current and emergent threats in the riverine environment, which includes lakes, rivers, harbours, deltas, coasts and fjords, in both littoral and inland regions.

A.193 Depending upon the nature of the campaign or deployment, the broad objectives of operations in riverine environments will likely run along the following lines.

- a. Security and establishment of control of the waterways in a geographic area. This may include a show of force on the waterways.
- b. Establishing limited control of specific land areas, population and resources. This may include assistance to CIMIC and support to local populations.
- c. Locating and destroying enemy forces, installations and supplies.
- d. Establishing and securing an area of operations.

A.194 The riverine environment requires unique capabilities and tactics. The primary advantage of a riverine force is its ability to concentrate a mix of forces effectively for operations in the riverine area, including the ability to attack selected targets in depth by exploitation of water ways to reach that depth. Tasks may include providing an armed force along water routes but also delivering forces for operations ashore. Forces must be able to integrate with other air and maritime capabilities for fire support and resupply.

Command and control considerations in riverine environments

A.195 Typically, the riverine environment will most likely be commanded by the maritime component commander if the effects are in support of maritime operations or integrated into an amphibious operation. Likewise, as power is projected inland, command and control could be shifted after termination to the land component commander or special operations component commander; in either case, coordination for handover is required and the riverine forces will be assigned in command or supporting relationship to the appropriate battlespace commander. Most likely, the command will be determined by the overall aim and context of the operation (as an amphibious or land operation) and the location of objectives.

A.196 Close coordination between riverine forces, maritime forces and supporting or supported ground forces will be key. Combat identification of friendly forces will be an important planning factors and clear standing operating procedures and markings must be clearly and widely understood.

Intelligence considerations in riverine environments

A.197 Given the likely large areas of operation involved in the riverine environment, intelligence should focus on terrain features, particularly key waterways and their navigability (depth, banks, civilian traffic, tidal effects and times, etc.).

A.198 Collection efforts should focus on identifying adversary locations, objectives and likely movement routes so as to focus limited forces against adversary efforts in the most efficient and effective manner possible.

A.199 When conducting stability operations in a riverine environment, intelligence collection should focus on pirating and other criminal activities, and their actions and methods that military forces need to counter.

Manoeuvre considerations in riverine environments

A.200 Riverine operations exploit the advantages of the waterways for movement, capitalizing on mobility to find, fix, and strike hostile forces and exploit surprise and mobility. Surface mobility is achieved primarily by riverine craft maintaining control of water LOC and providing combat support and combat service support.

A.201 Tactical surprise and deception can be achieved by combining riverine forces with other forces moving by ground or air. Such manoeuvres will help envelop adversary forces and will present multiple problems for the commander.

A.202 In establishing security over a riverine area, such riverine forces can establish presence through waterborne guard posts and presence patrols. Such methods deter pirating and other criminal activities.

Fires considerations in riverine environments

A.203 Riverine forces will have integral direct fire weapons, but indirect fire support means may be limited depending on the location of such assets and the depth of operations in such areas.

A.204 Ideally, indirect fire controllers and CAS controllers will deploy as part of riverine forces to coordinate available support. Fire control along shores will likely be easy to target and adjust, but more difficult inland where targets and fire effects will be difficult to see.

Information and civil-military cooperation considerations in riverine environments

A.205 Riverine forces are ideally suited to engage with populations that inhabit the internal waterways of a region and are otherwise difficult to reach. Riverine forces are well suited to provide humanitarian assistance to contingencies or emergencies inclusive of disaster relief. Riverine forces can provide mobility, logistical support and assist civil authorities in evacuation of citizens as well as medical support.

A.206 Engagement with the local population will vary depending on the overall operational objective, type of riverine environment and the density of the population. In remote regions with little populations, the same considerations used in mountainous or jungle environments may be used. Again, such small, remote populations are likely to be targeted by adversary forces for supplies, information and protection. Thus, regular contact with populations that border waterways may identify adversary intent and objectives.

A.207 Such populations may require some level of security and, where possible, local auxiliary forces should be used.

Sustainment considerations in riverine environments

A.208 The introduction of riverine forces into a theatre of operations requires an established forward operating base or a forward logistic site, which can be land- or maritime-based, from which to operate.

A.209 A balance must be struck between making the riverine force self-sufficient for as long as possible, and keeping the riverine force as small, agile and defensible, commensurate to the mission. Waterways may be used as lines of communication for resupply, considering their protection from ambush. Aerial delivery is an option for resupply of riverine forces as well.

Force protection considerations in riverine environments

A.210 Movements on the waterways and on the limited road network in such environments are particularly vulnerable to ambushes. Thus, a clear intelligence picture is needed along with constant surveillance assets to identify such threats as early as possible.

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Annex B – Types of forces

Section 1 – Types of forces

B.1 General. Land forces may be divided into one of three descriptive types depending on their key characteristics: heavy forces; medium forces; and light forces. The characteristics of each type of force make them inherently more suited to certain missions, tactical situations or operating environments, as described in Annex A. Although the classifications of heavy, medium and light apply mainly to the combat elements of a force, the supporting elements (combat support, and combat service support) should be complementary. The key characteristics that are used to classify the types of forces below.

a. Protection. Protection refers to the level of a force's physical protection. It ranges from heavy forces, which are armoured, to light forces, which rely on measures such as dispersal or concealment for their protection, rather than their integral armour.

b. Firepower. Firepower refers to the level of a force's integral mounted or dismounted firepower. Forces that are mounted in vehicles are generally equipped with greater (heavier) firepower.

c. Mobility. Mobility is a quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfil their primary mission. Mobility will differ at the three levels of warfare (strategic, operational and tactical⁵³) and with the tactical situation. For example, tracked, armoured forces may have limited strategic mobility, but have great tactical mobility over rough terrain for short distances. However, the same forces will be limited in their ability to move in close terrain. Additionally, their tactical requirements for replenishment add to their weight and thus limit mobility at the operational level.

B.2 Selection and employment of forces. All types of forces have inherent strengths and vulnerabilities. The commander must select, group and task forces with an understanding of their capabilities in accordance with the operational situation. This does not mean that light forces should only be grouped with light forces. For example, the commander may employ light, dismounted infantry supported by heavy armoured forces when fighting a peer adversary in urban terrain. However, force elements should be grouped to ensure they are complementary in terms of mobility, firepower and protection and the freedoms and constraints of each element are understood.

⁵³ The terms are defined as follows. Strategic mobility: 'The capability to move forces and their associated logistics in a timely and effective manner over long distances. This could be between joint operations areas, between regions, or beyond NATO's area of responsibility.' (NATO Agreed) Operational mobility: 'The capability to move forces and their associated logistics in a timely and effective manner within the joint operations area.' (This definition is for the purpose of this document only.) Tactical mobility: 'The ability to move rapidly from one part of the battlefield to another, relative to the enemy.' (NATO Agreed.)

B.3 Training. Units that are designated to be part of a force will operate most effectively when they are cohesive. A force must train together on a regular basis and have established standing operating procedures (SOP) for the integration of their close support. Training together regularly can build the necessary mutual trust for executing mission command.

Section 2 – Heavy forces

Introduction

B.4 General. Heavy forces are those that move and fight with vehicles that are heavily protected with armour. They generally refer to main battle tanks, armoured reconnaissance elements and infantry mounted in heavy, armoured fighting vehicles.⁵⁴ They can manoeuvre rapidly cross-country and apply concentrated firepower to achieve shock action. Their integral protection and firepower enable these elements to close with the adversary forces while under fire and engage the adversary with direct fire at longer ranges due to the calibre of weapons a heavier platform can bear. They require significant logistical support, particularly in terms of fuel. They normally include indirect fire support and other combat support and combat service support elements with compatible levels of protection, range and mobility.

B.5 Characteristics. Heavy forces have the following characteristics.

a. Mobility. Heavy forces have a high degree of tactical mobility due to their speed and cross-country mobility. They are normally tracked and can rapidly cross all but the most difficult terrain, including minor obstacles. Their mobility assists them to breach adversary defences. This tactical mobility makes heavy forces ideal for rapid manoeuvre, flanking attacks and for exploitation. Combat support, particularly engineers, and combat service support elements require compatible mobility and protection to support these forces.

b. Firepower. Heavy forces have integral heavy weapons to provide their forces with close support. Infantry vehicles will have vehicle-mounted weapons to provide close support and are complementary to the firepower of the supporting armour. While armour destroys hard targets and adversary armour, the infantry vehicle-mounted weapons destroy light vehicles and dismounted infantry and neutralize or suppress area targets. Heavy firepower is key to destroying or neutralizing adversary armour and hardened positions, particularly in urban areas. Armour also neutralizes well-defended fortifications in urban areas and assists in breaching structures.

c. Protection. Heavy forces' high level of protection increases their survivability, particularly when the adversary is occupying prepared defensive positions. It defeats small arms and light anti-armour weapons and mitigates the effects of other weapons. It enables the infantry to dismount on the objective and provides some protection to dismounts when operating in close contact with the adversary.

⁵⁴ This type of force is also sometimes referred to as armoured.

B.6 **Limitations.** Despite their advantages, heavy forces have certain limitations.

a. Operational and strategic mobility. Due to their weight and requirement for significant echelon support, heavy forces cannot be rapidly deployed strategically or operationally. Tracked vehicles require flatbed road movement if moved over long distances operationally, and strategically require maritime movement in addition to air transport.

b. Close terrain. Heavy forces' strengths can be offset in close terrain, where a light force is able to manoeuvre in cover and use lighter weapons at shorter ranges. As a result, although highly effective in close terrain, armour must be combined with intimate infantry support.

c. Maintenance and resupply. Heavy forces consume significant amounts of fuel and require constant maintenance. Their logistical demand is high, requiring combat service support (CSS) to be well planned in detail to prevent loss of momentum.

d. Limited dismounted infantry. Heavy forces normally have smaller rifle sections amongst their infantry units and thus fewer soldiers to dismount.

Employment considerations

B.7 Several factors must be considered in the planning and employment of heavy forces.

a. Command and control. The speed and mobility of heavy forces and their integral command and control systems enable for rapid regrouping and re-tasking and enable them to operate at range depending on their sustainment. Heavy forces, particularly tanks, may be grouped with mechanized or light forces to mitigate their lighter weapons and protection.

b. Flexibility. Heavy forces can quickly concentrate force at the decisive time or place, making them ideal for both assault forces and reserves. They can be used to prevent local defeat in one area or to exploit success in another area.

c. Psychological effects: shock action and deterrence. Heavy forces' firepower and mobility create a significant psychological effect on any adversary force. Furthermore, during certain operations, the presence of heavy forces can have an effect of deterrence against would-be adversaries.

d. Marry-up/link-up drills. When grouping and regrouping of combined arms occurs before or during an operation, time must be allocated for grouped units to conduct their link-up drills and coordination. This will include the sharing of SOPs, command and control procedures, target indication procedures and the rehearsal of drills for close support.

e. Grouping. Heavy forces should be grouped with forces of similar and complementary characteristics to enable full exploitation of their strengths across the combined arms grouping. For example, heavy forces will require armoured engineer support for crossing obstacles and CSS echelon vehicles will require similar mobility to maintain the speed and mobility of heavy forces.

f. Close terrain. When working in close terrain with the adversary at short ranges, particularly in urban areas, heavy forces, particularly tanks, may be employed in smaller groupings to enable movement, avoid concentration and to provide close support to dismounted infantry. Additionally, they will need to have close support and protection provided to them by dismounted forces to avoid piecemeal destruction and separation from the infantry. Drills for such support need to be well-practiced and applied even in short defiles when operating in generally open terrain.

g. Sustainment. CSS force elements are unlikely to have comparable mobility and protection to the armoured forces they sustain. Consequently, tempo should be drawn from the ability to echelon forces rather than to conduct in-mission resupply. In extremis, immediate replenishment groups could resupply armoured forces, but they should be out of immediate contact; the use of battlegroup CSS will ensure appropriate forces are used to conduct this resupply. Transporting armoured vehicles on heavy equipment transport vehicles will conserve fuel and minimize the equipment support bill before tactical activity begins. The support groups that sustain armoured forces should be based outside of the direct fire zone (due to their light protection) but be able to transit lines of communication rapidly to conduct inter-mission CSS effect. Fuel, ammunition and equipment spares materiel will be the commodities in the highest demand.

B.8 Suitable tactical tasks. Due to their characteristics, heavy forces are ideally suited to the following tactical tasks, particularly in open terrain.

- a. Lead force in the assault and break-in (breaching) of an adversary defensive position. This includes the lead force in such urban tactics as a penetration or thrusts.
- b. Breaching force for obstacles if grouped with armoured engineers. Breaching of walls with main armament to assist in the break-in of a building by dismounted infantry.
- c. Pursuit and exploitation force.
- d. Reconnaissance in force.
- e. Countermoves when defending (for counter-attacks and spoiling attacks).
- f. Reserve force.
- g. Fixing and blocking tasks.

- h. Stability activity related tasks, particularly those requiring mobility in a high threat area.
- i. Tasks in support of enabling activities such as a guard force during a withdrawal or other activity involving mobility and the need to engage the adversary at range.

Section 3 – Medium forces

Introduction

B.9 **General.** Medium forces are forces that are mounted in tracked or wheeled vehicles with some mobility and armoured protection.⁵⁵ They form a critical intermediate step between heavy and light forces. Medium forces have organic vehicles and can manoeuvre within the battlespace, including the direct fire zone, with enhanced levels of protection, firepower, mobility, command and control and joint intelligence, surveillance and reconnaissance. Consequently, they afford greater tactical and operational mobility. This type includes a wide array of vehicle types and capabilities, ranging from forces mounted in lightly armoured patrol vehicles to those mounted in multi-wheeled, armoured personnel carriers, with heavy mounted weapons.

B.10 **Characteristics.** Medium forces embody the following characteristics.

- a. **Mobility.** The lighter weight of medium forces' vehicles increases their strategic, operational and tactical mobility. They may traverse significant distances to counter unexpected threats or exploit unexpected opportunities. Due to their high speeds on roads and moderate cross-country mobility, they offer significant tactical mobility. However, in combat, their limited protection and limited ability to cross even human-made or natural, small obstacles reduces their tactical mobility.
- b. **Firepower.** Medium forces will normally include integral vehicle-mounted support weapons for close support to dismounted troops. Additionally, the vehicles can be used to transport further heavy support weapons.
- c. **Protection.** Medium forces' armour can usually protect against lower calibre small arms fire but offers limited protection against light handheld anti-armour weapons. The armour is often scalable but the amount of additional modular armour that can be added is limited by the power-to-weight ratios of the vehicles.

⁵⁵ They can sometimes be referred to as mechanized forces. This is an older term meaning forces that are equipped with integral motor transport, which is normally armoured and often tracked.

Employment considerations

B.11 Notwithstanding the flexibility and inherent characteristics of medium forces (with their lighter armour and integral firepower), several factors must be considered in the planning and employment of heavy forces.

a. Sustainment. Although they are lighter than heavy forces, mechanized or medium forces still require the regular resupply of bulky and heavy fuel products and larger calibre ammunition.

b. Protection and vulnerability. The threat posed to the relatively light armour of medium forces must be considered in planning and execution. An adversary force well-armed with light anti-armour weapons will have a significant effect upon the force and attrite them substantially when at close range. This is particularly so in built-up areas. Therefore, the risk of losses normally prevents lightly armoured vehicles from being used in close combat. Medium armoured vehicles are highly suitable for some protected mobility, fire support and other support tasks, but are ill-suited for employment as part of an assault element against a well-equipped adversary, particularly those with heavy forces. Such employment must be avoided.

c. Grouping. Medium forces may be grouped with heavy forces to augment their flexibility or in support of light forces to increase their firepower. The speed of medium forces enables them to keep up with heavy forces in supporting and reinforcing roles, depending upon the terrain and the level of tactical mobility of the medium forces.

d. Flexibility. The combination of firepower and protection makes this a versatile type of force. They can be grouped with heavy forces, given their mobility, or used to enhance the firepower and protection of light forces. Their mobility enables rapid deployment and re-deployment to counter unexpected threats or to demonstrate will. They can even be employed in a dispersed manner, given their vehicle-mounted communications and ability to rapidly concentrate when required. Finally, medium forces tend to have a slightly larger proportion of dismountable soldiers, thus enabling more troops on the ground than heavy forces.

B.12 **Suitable tactical tasks.** Given the characteristics and limitations for medium forces, the following may be considered as suitable tactical tasks for medium forces (dependent upon a full assessment of the existing situation factors).

a. Seize tasks. Seize tasks against lightly defended positions and secure against lightly armed enemies.

b. Follow-and-assume tasks. Follow-and-assume tasks, particularly as an echelon or depth to heavy forces. The speed of medium forces enables them to keep pace with the heavy forces.

- c. **Security and protection.** Security and protection tasks such as screens and flank protection. Their suitability for covering forces is limited by their lack of heavy protection.
- d. **Reconnaissance and surveillance.** Their tactical mobility and protection enable them to operate in depth.
- e. **Clearing.** Clearing tasks, particularly in areas where the adversary is not well defended.
- f. **Exploitation and pursuit.** Exploitation and pursuit of fleeing demoralized adversary.
- g. **Convoy escort.** The wheeled mobility of medium forces enables them to keep pace with wheeled CSS or civilian vehicles that require protection in threatened areas.
- h. **Route security.** The speed and minimal route damage caused by wheeled mechanized vehicles make them a good choice for security of main supply routes.
- i. **Reserve tasks.** The mobility and firepower combined with the relative number of dismounted troops make them suitable for reserve tasks, particularly during operations that occur in large areas of operations.
- j. **Tactical tasks related to stability.** This is particularly the case where a strong security presence is needed but not necessarily tracked-based. Wheeled armoured vehicles have the advantage of limiting route damage in populated areas where the focus is security of the populace. They are also most suitable to escort civilian convoys and other similar tasks.

Section 4 – Light forces

Introduction

B.13 **General.** Light forces may be described as forces that are dismounted and/or equipped with limited organic lift offering limited or no protection from direct fire. They are rapidly deployable at all levels of command (tactical, operational and strategic). They are often optimized and trained for operations in close terrain, including specific environments (described in Annex A) where heavy vehicles are constrained.

B.14 **Characteristics.** Light forces embody the following characteristics.

- a. **Mobility.** Due to their lighter equipment, light forces have high levels of strategic and operational mobility but limited tactical mobility. They can be held at high states of readiness and deployed rapidly for short-term crisis response operations such as non-combatant evacuation operations. At the operational level, light forces can be moved rapidly to another location in the joint operations area or theatre but due to

limited combat power may need to be relieved quickly. Light forces may be motorized,⁵⁶ with integral wheeled transport. However, their vehicles' lack of cross-country capability and protection limits their tactical mobility.

b. Firepower. Light forces have limited integral fire support. Some support weapons, such as antitank guided missiles (ATGM), heavy machineguns or automatic grenade launchers are portable, but not normally for extended distances. This limitation is mitigated when light forces are provided integral light transport for support weapons. Even if support weapons are vehicle mounted, the vehicles will be light or unarmoured preventing their use within range of adversary fire. The lack of firepower may be offset somewhat using indirect fire, aviation and close air support.

c. Protection. Light forces lack armoured protection and are vulnerable to all fires. They therefore must seek protection through tactics such as dispersion, concealment and fortification.

Employment considerations

B.15 Based on the characteristics and the limitations of light forces, the following are key employment considerations for light forces.

a. Protection and vulnerability. Light forces, with their lack of protection and intimate fire support, cannot normally be employed against adversary heavy forces or even mechanized/medium forces unless defending in close terrain.

b. Close terrain. Light forces are often optimized in terms of equipment and training to work in close terrain, such as jungle and mountainous regions and may have an advantage in urban areas. They are often trained and equipped to be resupplied by light ground transport or by air.

c. Insertion, resupply, relief and extraction plans. Plans for the insertion of light forces must be detailed and carefully considered to avoid adversary strengths. Such operations must include plans for casualty evacuation, resupply, relief and extraction. Once committed, light forces will likely require rapid relief by heavier forces.

d. Dispersal. The characteristics of light forces make them suitable for dispersed operations. Without integral transport, their ability to disperse and aggregate rapidly in urban areas is highly effective, but very limited in rural areas. However, when deployed in small, coordinated groups in depth, they can cause heavy damage on superior forces, particularly when supported through air support, indirect fires and portable anti-armour systems.

⁵⁶ Motorized forces are those forces whose elements can be simultaneously lifted by motorized transport. Most motorized forces are transported in integral wheeled vehicles.

e. **Sustainment.** Although their logistic demand is less than that of other types of forces, their ability to carry supplies is also smaller. Light forces must generally carry their CSS or mount it in smaller vehicles with potentially less capacity. Thus, they require regular resupply.

B.16 Suitable tactical tasks. When considering tactical employment of light forces, it should be kept in mind that light forces need not be dismounted. They may be mounted in light wheeled vehicles, particularly when areas of operations are large. Given the characteristics and limitations of light forces, the following may be considered for suitable tactical tasks.

- a. Tasks assigned with airmobile insertion even though the force in question may not be designated as airmobile units. Additional training will be required.
- b. Security and protection tasks, such as flank security, vital point security and protection, the latter possible only if facing a similarly light forces threat.
- c. Reserve forces, particularly if operating in close terrain or during operations in which the enemies are not heavy forces.
- d. Operations where interaction with the population is essential and where a lighter profile better supports the operational objectives.
- e. Follow-on echelon forces to support heavy or mechanized forces when clearing close terrain.
- f. Reconnaissance and surveillance tasks.
- g. Any tactical task in which the terrain is close and the adversary comparable to the light forces.
- h. Tactical tasks inherent to stability activities, particularly those in close terrain such as dense urban areas. As with much light force employment, light wheeled vehicles are inherent to the light force and will assist in these tasks.
- i. Tactical tasks inherent to enabling activities, particularly where dismounted action is required.

Section 5 – Specialist capabilities

B.17 General. Some land forces will be classified based on the terrain or environment in which they operate or means of their deployment. Forces with specialist capabilities consist of airborne, amphibious forces, mountain forces, reconnaissance forces and special operations forces.⁵⁷

⁵⁷ Special operations forces have been described in Chapter 1.

B.18 Airborne forces. Airborne operations move combat forces and their logistic support into an objective area by air, either by landing or by delivering the personnel or cargo from aircraft in flight. As a type of light force, airborne forces are limited in their integral heavy firepower and protection. Their operations should be integrated with close air support, fire support and other force enablers that will help reduce their vulnerabilities. Such forces can be easily isolated and plans for their employment must include relief shortly after commitment. Airborne operations can be conducted from ships as part of littoral manoeuvre.

B.19 Amphibious forces. An amphibious force is a naval force and landing force, together with the necessary supporting forces that are trained, organized and equipped for amphibious operations. A landing force is the task organization of ground units, aviation and/or surface units that are assigned to conduct an amphibious operation. An amphibious operation is a military operation launched from the sea by an amphibious force to conduct landing force operations in the littorals. Amphibious operations are an important part of maritime power projection, which seeks to use the littoral as an operational manoeuvre space from which maritime-based joint amphibious forces can threaten or apply and sustain forces ashore. There are five types of amphibious operations: demonstration, raid, assault, withdrawal, and support to other operations.

B.20 In certain circumstances, such as upon termination of the amphibious operation, the landing force will remain ashore and transition in command between the maritime component commander and the land component commander or become the land component commander. Full details concerning amphibious forces are contained in Allied Tactical Publication (ATP)-8 (D) Volumes 1 and 2.

B.21 Mountain forces. Mountain forces (often referred to as mountain troops or alpine forces) have specialized capabilities, equipment scales and training to enable them to operate in the mountainous terrain, as described in Annex A. They are generally light forces and, depending on specific environmental conditions, may integrate mounted, organic close fire support and specialist mobility/counter-mobility capabilities.

B.22 Reconnaissance forces. Reconnaissance forces function as either combat or combat support elements and may be part of heavy, medium or light forces depending upon their integral equipment. Their primary purpose is to gain information, usually on the adversary and the terrain. Although their primary role is to gain information, some reconnaissance forces may be given fighting roles, typically as part of guard forces providing protection across a frontage or flank. A reconnaissance element that is primarily tasked with provision of battlefield information has a combat support role. One with a more aggressive task, such as guarding another force's flank, has a combat role. It should have appropriate fire, air and aviation support. Some reconnaissance forces may be suited to fighting to gain information without becoming decisively committed. Such reconnaissance forces must be equipped and trained to operate in this manner.

Lexicon

Part 1 – Acronyms and abbreviations

AJP	Allied joint publication
AOCC	air operations coordination centre
AOI	area of interest
AOO	area of operations
AOR	area of responsibility
ATGM	antitank guided missile
ATP	Allied tactical publication
C2	command and control
CAS	close air support
CBRN	chemical, biological, radiological and nuclear
CFIT	capabilities and force integration team
C-IED	countering improvised explosive devices
CIMIC	civil-military cooperation
CIS	communication and information systems
CM	collection management
CMI	civil-military interaction
CSS	combat service support
CyOC	Cyberspace Operations Centre
DCO	defensive cyberspace operation
DLE	deployable land elements
EME	electromagnetic environment
EMS	electromagnetic spectrum
EPM	electronic protective measures
EW	electronic warfare
FAC(A)	forward air controller (airborne)
GPS	global positioning system
HQ	headquarters
IRM	intelligence requirements management
IED	improvised explosive device
JFAC	Joint Force Air Component
JISR	joint intelligence, surveillance and reconnaissance
JLSG	joint logistic support group
JOA	joint operations area
JSEC	joint support and enabling command
JTAC	joint terminal attack controller
JTF	joint task force
LANDCOM	Allied Land Command
LCC	land component command
LOC	lines of communications
MILENG	military engineering

MP	military police
NATO	North Atlantic Treaty Organization
NGO	non-governmental organization
OCO	offensive cyberspace operation
OE	operating environment
OPLAN	operation plan
RBIO	rules based international order.
ROE	rules of engagement
SACEUR	Supreme Allied Commander Europe
SATCOM	satellite communications
SCEPVA	sovereign cyberspace effects provided voluntarily by allies
SOCC	Special Operations Component Command
SOF	special operations forces
SOP	standing operation procedure
TLC	theatre land component
UAS	unmanned aircraft system
UE	urban environment
UN	United Nations

Part 2 – Terms and definitions

adversary

A party whose intentions or interests are opposed to those of friendly parties against which the legal use of armed force may be envisaged.

(NATO Agreed)

area of interest

For a given level of command, the area of concern to a commander relative to the objectives of current or planned operations, and which includes the commander's areas of influence, operations or responsibility, and areas adjacent thereto.

(NATO Agreed)

area of operations

An area within a joint operations area defined by the joint force commander for conducting tactical level operations.

(NATO Agreed)

area of responsibility

For a given level of command, an area assigned to a commander to plan and conduct operations.

(NATO Agreed)

battlespace

The environment, factors and conditions that must be understood to apply combat power, protect a force or complete a mission successfully.

Note: It includes the land, maritime, air and space environments; the adversary and friendly forces present therein; facilities; terrestrial and space weather; health hazards; terrain; the electromagnetic spectrum; and the information environment in the joint operations area and other areas of interest.

(NATO Agreed)

campaign

A set of military operations planned and conducted to achieve a strategic objective.

(NATO Agreed)

centre of gravity

The primary source of power that provides an actor its strength, freedom of action, and/or will to fight.

(NATO Agreed)

chemical, biological, radiological and nuclear defence

The plans, procedures and activities intended to contribute to the prevention of chemical, biological, radiological and nuclear incidents, to protect forces, territories and populations against, and to assist in recovering from, such incidents and their effects.

(NATO Agreed)

civil-military cooperation

A joint function comprising a set of capabilities integral to supporting the achievement of mission objectives and enabling NATO commands to participate effectively in a broad spectrum of civil-military interaction with diverse non-military actors.

(NATO Agreed)

civil-military interaction

A group of activities, founded on communication, planning and coordination, that NATO military bodies share and conduct with international and local non-military actors, both during NATO operations and in preparation for them, thereby mutually increasing the effectiveness and efficiency of their respective actions in response to crises.

(NATO Agreed)

combat power

The total means of destructive and/or disruptive force which a military unit/formation can apply against the opponent at a given time.

(NATO Agreed)

combat service support

The support provided to combat forces, primarily in the fields of administration and logistics.

Notes: Combat service support may include, but is not limited to, administrative services, chaplaincy, civil affairs, financial, legal, medical and health services, military police, supply, maintenance, transportation, construction, acquisition and disposal of real estate, management of infrastructure, topographic and geodetic engineering, food services, graves registration, laundry and dry cleaning services, sanitary installations, and property disposal.

(NATO Agreed)

combat support

Fire support and operational assistance provided to combat elements.

(NATO Agreed)

combined arms

In land operations, relating to the synchronized or simultaneous application of several arms to achieve an effect on the enemy that is greater than if each arm were used against the enemy in sequence.

(NATO Agreed)

command

1. The authority vested in a member of the armed forces for the direction, coordination, and control of military forces.
 2. An order given by a commander; that is, the will of the commander expressed for the purpose of bringing about a particular action.
 3. A unit, group of units, organization or area under the authority of a single individual.
 4. To dominate an area or situation.
 5. To exercise command.
- (NATO Agreed)

component command

1. In the NATO military command structure, a third-level command organization with specific air, maritime or land capabilities that is responsible for operational planning and conduct of subordinate operations as directed by the NATO commander.
 2. A functional component command or environmental component command responsible for the planning and conduct of a maritime, land, air, special or other operation as part of a joint force.
- (NATO Agreed)

concept of operations

A clear and concise statement of the line of action chosen by a commander in order to accomplish his given mission.

(NATO Agreed)

contiguous

Sharing a common border, touching, next or together in sequence.

(Concise Oxford English Dictionary)

culminating point

The point in time and the location at which a force no longer has the capability to continue an operation under current conditions.

(NATO Agreed)

cyberspace

The global domain consisting of all interconnected communication, information technology and other electronic systems, networks and their data, including those which are separated or independent, which process, store or transmit data.

(NATO Agreed)

defensive cyberspace operation

Actions in or through cyberspace to preserve own and friendly freedom of action in cyberspace.

(TTF 2014-0269)

desert

An area with an annual rainfall of less than 250mm and can include areas with both high and low temperatures.

(This term definition only applies to this publication.)

dislocate

To deny another party the ability to bring his strengths to bear, or to persuade him that his strength is irrelevant.

(Not NATO Agreed)

disrupt

To negatively affect a hostile entity's formation, tempo and/or timetable.

(NATO Agreed)

electromagnetic spectrum

The entire and orderly distribution of electromagnetic waves according to their frequency or wavelength.

Notes: The electromagnetic spectrum includes radio waves, microwaves, heat radiation, visible light, ultraviolet radiation, x-rays, electromagnetic cosmic rays and gamma rays.

(NATO Agreed)

electronic warfare

Military action that exploits electromagnetic energy to provide situational awareness and achieve offensive and defensive effects.

(NATO Agreed)

end state

The political-strategic statement of conditions that defines an acceptable concluding situation to be attained at the end of a strategic engagement.

(NATO Agreed)

enemy

A party whose actions are hostile and against which the legal use of armed force is authorized.

(NATO Agreed)

environment

The surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelations.

(NATO Agreed)

exploitation

Taking full advantage of success in battle and following up initial gains.

(NATO Agreed)

fires

The use of weapon systems to create a specific lethal or nonlethal effect on a target.
(Not NATO Agreed)

improvised explosive device

A device placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic or incendiary chemicals and designed to destroy, incapacitate, harass or distract.

Note: It may incorporate military stores but is normally devised from non-military components.
(NATO Agreed)

information activities

Actions designed to affect information or information systems.
(NATO Agreed)

information environment

An environment comprised of the information itself; the individuals, organizations and systems that receive, process and convey the information; and the cognitive, virtual and physical space in which this occurs.

(NATO Agreed)

information operations

A staff function to analyze, plan, assess and integrate information activities to create desired effects on the will, understanding and capability of adversaries, potential adversaries and audiences in support of mission objectives.

(NATO Agreed)

integration

The progressive assembling of system components into the whole system.
(NATO adopted) (Source: ISO/IEC 2382-20: 1990)

international organization

An intergovernmental, regional or global organization governed by international law and established by a group of states, with international juridical personality given by international agreement, however characterized, creating enforceable rights and obligations for the purpose of fulfilling a given function and pursuing common aims.

Note: Exceptionally, the International Committee of the Red Cross, although a nongovernmental organization formed under the Swiss Civil Code, is mandated by the international community of states and is founded on international law, specifically the Geneva Conventions, has an international legal personality or status on its own, and enjoys some immunities and privileges for the fulfilment of its humanitarian mandate.

(NATO Agreed)

joint functions

A framework that provides the commander and staff a means to visualize the activities of the force and to ensure all aspects of the operation are addressed.

Note: They are command and control, intelligence, fires, manoeuvre, information, civil-military cooperation, sustainment and force protection.

(AJP-3, *Allied Joint Doctrine for the Conduct of Operations*).

joint logistic support group

A logistic-centric, force-generated, deployed, component-like joint organization, discharging operational level responsibilities, through joint operational and tactical-level activities.

(NATO Agreed)

joint operations area

A temporary area within a theatre of operations defined by the Supreme Allied Commander Europe, in which a designated joint commander plans and executes a specific mission at the operational level.

(NATO Agreed)

jungle areas

Areas with thick vegetation, constantly high temperatures, heavy rainfall, and high levels of humidity.

(This term and definition only apply to this publication.)

manoeuvre

Employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in respect to the enemy in order to accomplish the mission.

(NATO Agreed)

manoeuvrist approach

An operational philosophy, in which shattering the enemy's overall cohesion and will to fight, rather than their forces and equipment, is paramount.

(This term and definition only apply to this publication.)

mission statement

A clear, concise statement of the tasks to be performed and the purpose of the mission.

(NATO Agreed)

mission command

A philosophy of command that advocates centralized, clear intent with decentralized execution; a style that describes the 'what', without necessarily prescribing the 'how'. (ATP-3.2.2, *Command and Control of Allied Land Forces*)

mobility

A quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfil their primary mission.

(NATO Agreed)

mountainous

Areas with high, steep-sided slopes and valleys, which cover a large area.

(This term and definition only apply to this publication.)

non-governmental organization

A private, not for profit, voluntary organization with no governmental or intergovernmental affiliation, established for the purpose of fulfilling a range of activities, in particular development-related projects or the promotion of a specific cause, and organized at local, national, regional or international level.

Notes:

1. A non-governmental organization does not necessarily have an official status or mandate for its existence or activities.

2. NATO may or may not support or cooperate with a given non-governmental organization.

(NATO Agreed)

objective

A clearly defined and attainable goal for a military operation, for example seizing a terrain feature, neutralizing an adversary's force or capability or achieving some other desired outcome that is essential to a commander's plan and towards which the operation is directed.

(NATO Agreed)

offensive cyberspace operation

Actions in or through cyberspace that create effects to achieve military objectives.

(NATO Agreed)

operation

A sequence of coordinated actions with a defined purpose.

Notes:

1. NATO operations are military.

2. NATO operations contribute to a wider approach including non-military actions. (NATO Agreed)

operating environment

A composite of the conditions, circumstances and influences that affect the employment of capabilities and bear on the decisions of the commander.

(NATO Agreed)

operational art

The employment of forces to attain strategic and/or operational objectives through the design, organization, integration and conduct of strategies, campaigns, major operations and battles. (NATO Agreed)

operational mobility

The capability to move forces and their associated logistics in a timely and effective manner within the joint operations area.

(This term and definition only apply to this publication.)

operation order

A directive issued by a commander to subordinate commanders for the purpose of coordinating the execution of an operation.

(NATO Agreed)

operation plan

A plan for a single or series of connected operations to be carried out simultaneously or in succession.

Notes:

1. It is the form of directive employed by higher authority to permit subordinate commanders to prepare supporting plans and orders.
2. The designation 'plan' is usually used instead of 'order' in preparing for operations well in advance.
3. An operation plan may be put into effect at a prescribed time, or on signal, and then becomes the operation order.

(NATO Agreed)

psychological operation

Planned activities using methods of communication and other means directed at approved audiences in order to influence perceptions, attitudes and behaviour, affecting the achievement of political and military objectives.

(NATO Agreed)

riverine

An inland or delta area comprising both land and water, characterized by water lines of communication, including major rivers and tributaries or an extensive network of minor waterways, canals, and irrigation ditches.

(This term and definition only apply to this publication.)

simultaneity

In military operations an element of campaign and operational design that seeks to disrupt the decision-making process of the enemy commander by confronting the latter with a number of concurrent problems.

(NATO Agreed)

special operations

Military activities conducted by specially designated, organized, trained and equipped forces using distinct techniques and modes of employment.

(NATO Agreed)

stability policing

Police related activities intended to reinforce or temporarily replace indigenous police forces in order to contribute to the restoration and/or upholding of the public order and security, rule of law, and the protection of human rights.

(NATO Agreed)

strategic communications

In the NATO military context, the integration of communication capabilities and information staff function with other military activities, in order to understand and shape the information environment, in support of NATO strategic aims and objectives.

(NATO Agreed)

strategic mobility

The capability to move forces and their associated logistics in a timely and effective manner over long distances. This could be between joint operations areas, between regions, or beyond NATO's area of responsibility.

(NATO Agreed).

supported commander

A commander having primary responsibility for all aspects of a task assigned by a higher NATO military authority and who receives forces or other support from one or more supporting commanders.

(NATO Agreed)

supporting commander

A commander who provides a supported commander with forces or other support and/or who develops a supporting plan.

(NATO Agreed)

sustainability

The ability of a force to maintain the necessary level of combat power for the duration required to achieve its objectives.

(NATO Agreed)

tactical activity

The offensive, defensive, stability and enabling military actions executed at the tactical level.

(This term and definition only apply to this publication.)

tactical level

The level at which activities, battles and engagements are planned and executed to accomplish military objectives assigned to tactical formations and units.

(NATO Agreed)

tactical mobility

The ability to move rapidly from one part of the battlefield to another, relative to the enemy.

(NATO Agreed)

tempo

The rate of military action relative to the enemy.

(Not NATO Agreed)

theatre of operations

A designated area, which may include one or more joint operations areas.

Note: A theatre of operations may include land, air, space and maritime outside a joint operations area.

(NATO Agreed)

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