National Defence / Défense nationale

B-GL-371-003/FP-001

LAND FORCE

FIELD ARTILLERY

FIELD ARTILLERY OPERATIONAL PROCEDURES

(ENGLISH)

(Supercedes B-GL-306-002/FP-001, 1983-05-04)

WARNING

ALTHOUGH NOT CLASSIFIED, THIS PUBLICATION, OR ANY PART OF IT, MAY BE EXEMPT FROM DISCLOSURE TO THE PUBLIC UNDER THE ACCESS TO INFORMATION ACT. ALL ELEMENTS OF INFORMATION CONTAINED HEREIN MUST BE CLOSELY SCRUTINIZED TO ASCERTAIN WHETHER OR NOT THE PUBLICATION OR ANY PART OF IT MAY BE RELEASED.

Issued on the authority of the Chief of the Land Staff

Canada

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Issued on the authority of the Chief of the Land Staff

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Canada

FOREWORD

1. B-GL-371-003/FP-001 *Field Artillery Operational Procedures* is issued on the authority of the Chief of the Land Staff. It is effective upon reception.

2. B-GL-371-003/FP-001 *Field Artillery Operational Procedures* builds upon the material presented in B-GL-300-007 *Firepower*.

3. This publication supercedes B-GL-306-002/FP-001, *Artillery In Battle, Field Artillery Vol 2 Artillery Staff Duties*.

4. Suggestions for amendments are to be forwarded through normal channels to Chief Land Staff, attention DAD.

5. The NDID for the French version of this publication is B-GL-371-003/FP-002.

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FIRE SUPPORT

You can't describe the moral lift
When in the fight your spirit weary
Hears above the hostile fire
Your own artillery

From the Native poem "Vasily Terkin" by Aleksandr Tvardovsky

GENERAL

1. Fire support plays a significant role in the success of a commander's plan. The effective use of fire support reduces friendly casualties while inflicting casualties on the enemy. Fire support disrupts and demoralizes the enemy and is a critical factor in achieving the commander's end state. Fire support provides commanders with an attack system that is capable of engaging the enemy long before the direct fire engagements begin. As close operations begin, fire support engages targets of immediate concern as well as important targets that are not yet directly involved in the close operation.

2. This publication provides the groundwork for fire support planning, coordination and execution at division and brigade. The publication bridges the gap between artillery doctrine as described in B-GL-371-001 *Field Artillery Doctrine* and the tactics, techniques and procedures used to provide fire support to the manoeuvre commander's battle plan.

CANADIAN ARMY APPROACH TO WARFARE

3. The Canadian army, as stated in B-GL-300-003 *Land Force, Command*, has adopted a manoeuvrist approach to warfare. Our combat philosophy seeks to impose defeat by shattering enemy moral and physical cohesion and his ability to fight as an effective coordinated whole, rather than destroying him by incremental attrition. B-GL-300-002 *Land Force, Tactical Doctrine* goes on to list ten fundamentals as guidance, which are as applicable to the artillery as they are to manoeuvre forces.

4. This approach to warfare places emphasis on attacking the cohesion and will of the enemy. Fire support plays a dominant role in this attack. Effective fire imposes casualties, causes loss of communications and disrupts and delays enemy plans, thus reducing the enemy's will to fight. Fire support is used throughout the width and depth of the enemy deployment to attack the enemy's cohesion, and ultimately the enemy's will to fight.

5. Armies use combat power to attack the enemy. To achieve the desired result, combat power is applied by designating the main point of effort, synchronising all systems to the main point of effort and imposing a tempo of operations. Fire support assists in the maintenance of high tempo operations by attacking enemy positions and resources thereby reducing the enemy's effectiveness before the manoeuvre forces engage them. Furthermore, fire support reduces the enemy's tempo by attacking the enemy's command and control system, logistical chain and manoeuvre forces.

6. The artillery commander directs indirect fire resources in support of the main effort. This involves the prosecution of deep, close and rear operations in a manner that supports the concept of operations developed by the commander.

7. There are rarely enough resources to accomplish all the tasks demanded by the commander. It is therefore extremely important that these resources are synchronized in time and space to achieve the commander's mission and end state. This requires detailed coordination and consideration of the commander's intent and concept of operations. Fulfilment of the intent requires the right weapon system employed at the appropriate time and place, this and an effective targeting process, are the objectives of fire support planning.

FIRE SUPPORT SYSTEM

8. The fire support system consists of three components functioning in a coordinated manner to support the commander's plan. The components of the system are:

a. **Command and Control**. This is the brain of the fire support system. It encompasses the collation of

information, fire support planning and the coordination and synchronization of activities.

b. **Target Acquisition**. Target acquisition (TA) systems are the eyes and ears of the fire support system. This component performs the essential tasks of providing timely and accurate information to enable the attack of specific targets. It forms part of the intelligence, surveillance, target acquisition and reconnaissance (ISTAR) system and involves the consolidation of targeting information.

c. **Attack Resources**. The attack resources are the hands and feet of the fire support system. They respond to the decisions made by the command and control component and the target information derived from the TA component. The attack resources include: field artillery, mortars, attack and armed helicopters, air, naval gunfire, offensive information operations (Info Ops) and non-lethal weapons.[1]

ROLE OF THE FIELD ARTILLERY

9. The modern battlefield, more than ever before, is a joint and combined environment. The various components on the battlefield must work together to achieve the commander's intent. **The role of the field artillery is to assist in the defeat of the enemy with indirect fire as part of the all arms battle**. The destruction, neutralization, suppression and harassment of the enemy is not enough. Fire support must be fully integrated and synchronized to achieve the commander's mission.

10. The artillery commander at each level is responsible for exploiting the full potential of the artillery and the fire support system. This is achieved through the effective application of fire support,

[1] For more information on the Fire Support system see B-GL-300-007 *Firepower* chapter 2.

integrated with the manoeuvre commander's plans. Artillery commanders apply the following principles to ensure that they achieve the desired results:

a. **Concentration of Force**. Artillery is most effective when it is massed. Instead of attacking multiple targets simultaneously, it is usually more effective to attack the targets sequentially with larger weights of fire, thus, the majority of fire missions will be regimental or larger size.

b. **Coordination**. Artillery commanders work with manoeuvre commanders at all levels, from combat team through to the level of joint operations, co-ordinating the activities of the fire support system. Artillery commanders must be able to work well within a team and need to develop an understanding of the characteristics and limitations of the fire support system and of all arms in the land battle.

c. **Flexibility**. The fire support plan must be developed in a manner that permits changes to be handled quickly and easily without disrupting or diluting its overall effect. Flexibility is ensured through the allocation of resources, the overlapping of weapon systems and through constantly monitoring the progress of the operation.

d. **Economy of Effort**. The fire support system attacks targets to support the accomplishment of the mission. It is important not to waste resources on targets of limited value. Field artillery units are dependent on a continual flow of ammunition, and this will be a limiting factor in almost any operation. When deciding on weights of fire and number of fire units to engage targets it is important to consider the effect on ammunition availability and the importance of the target in relation to the manoeuvre commander's plan.

ADVISING, PLANNING, COORDINATING AND EXECUTING

11. The artillery commander is responsible for planning, advising, coordinating and executing the fire support plan for the manoeuvre commander. Traditionally, the artillery commander is the primary advisor to the manoeuvre commander, and therefore is included in the development of the commander's plan. The artillery commander is also likely to assist the commander in mission analysis and must fully understand the commander's intent and concept of operations as they form the basis for the development of all plans within the formation.

12. Artillery commanders advise on the employment of fire support resources to the manoeuvre commander throughout the planning and execution of operations. This requires artillery commanders to be well versed on the capabilities and limitations of the fire support system, on the enemy and on the manoeuvre commander's intent and concept of operations. They also need to understand the artillery tactics for the various operations or transitional phases of war.

13. It is of paramount importance that the fire support plan be well integrated into the manoeuvre commander's plan. This is achieved through concurrent planning with the manoeuvre force and through constant interaction with the commander's planning staff.

14. The large number of resources available to commanders to engage the enemy, along with their varying ranges, lethality and lead times, requires close coordination to ensure that the desired impact is achieved. One of the fundamentals of our doctrine is seizing tactical opportunities. It is not enough to have a plan. The plan must be executed and opportunities exploited to achieve the commander's intent and desired end state. The dynamic and proactive execution of the fire support plan is an essential element of the overall battle plan.

CHAPTER 2
ORGANIZATION AND DUTIES OF ARTILLERY STAFFS

SECTION 1
THE ARTILLERY COMMANDER

1. **Introduction**. This chapter reviews the artillery command structure and principal headquarter elements and responsibilities at division and at the artillery regiment.

2. At every level, the gunner is the commander's fire support co-ordinator and speaks for the commander on all matters pertaining to fire support. The artillery commander must understand the supported commander's mission, intent and concept of operations to properly apply the fire support resources necessary for the success of the operational plan. The artillery commander is both an advisor to the supported commander and a formation or unit commander. The artillery commander carries out the formation or unit fire support estimate, as well as being intimately involved in the manoeuvre commander's planning process. The artillery commander must achieve an appropriate balance in terms of time and effort between conducting the formation or unit planning process and contributing to the manoeuvre commander's. The artillery commander must :

a. **Interpret**. The artillery commander must fully assimilate the pertinent information and completely comprehend the mission of the supported commander. The artillery commander must also understand the mission, intent, concept of operations and the end state of their mutual superior commander and the commander two levels up;

b. **Advise**. The artillery commander must know the fire support, ISTAR and attack resources available and must use this knowledge to advise the commander on exploiting these resources in developing the commander's plan.

c. **Integrate**. Finally, the artillery commander must develop and integrate the fire support attack resources into the operational plan.

3. The process of fire support integration is illustrated in Figure 2-1.

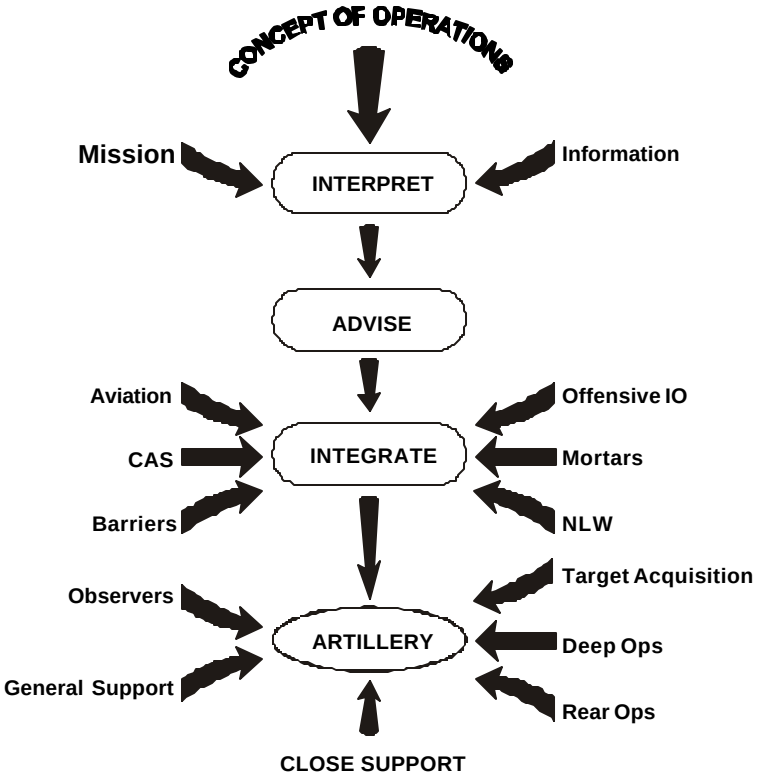

Figure 2-1: The Artillery Commander's Functions in Developing the Commander's Plan

SECTION 2
DIVISIONAL ARTILLERY HEADQUARTERS

4. **Command**. The Commander Division Artillery (CDA) is the commander of the division artillery brigade, and is the fire support advisor to the division commander. The division artillery (div arty) headquarters allocates resources, and commands, controls and coordinates all artillery supporting the division.

5. Div arty headquarters contains the personnel, vehicles and equipment necessary to assist the CDA in the command and control of divisional artillery assets. The headquarters is located at division main headquarters, with a small element at division rear headquarters.

6. The integration and synchronization of fire support for the division commander's plan is achieved through the fire support planning and coordination process. Formal planning and coordination binds the fire support resources together in a common effort with the aim of attacking targets with the most effective and efficient attack resource(s) in accordance with the commander's intent.

7. Fire support activities must be integrated with the commander's plan and are based on the following principles:

a. The manoeuvre commander retains the authority and responsibility to direct target priorities, levels of effort and the sequence of those efforts. At division, the CDA is responsible for ensuring that all available means of fire support are fully integrated and synchronized with the operational plan and are in accordance with the commander's guidance.

b. The fire support system must operate as one force. The successful delivery of fire support requires the close coordination of command, control, communications, intelligence and fire support attack resources with the necessary service support functions.

c. The fire support system must be responsive to the needs of the commander. The activities of each fire

support agency must be focused on achieving the commander's mission. This is done through concurrent planning based on the commander's intent and concept of operations.

8. It is the responsibility of the CDA to carry out fire support coordination on behalf of the division commander. To effect the required coordination, the artillery commander establishes a fire support coordinationcentre (FSCC) within the division headquarters. The FSCC consists of one common operations centre with representatives and communications from all available indirect fire support agencies. The CDA is responsible for the operation of the FSCC

9. The CDA advises the division commander on the employment of all fire support attack resources. These resources must be employed so that each is used to best advantage, in the most effective and efficient manner, and such that all conflicting demands are resolved. This requires that the FSCC coordinate the fire support in accordance with the following guidelines:

a. Requests for fire support are assigned to the agency that can deliver the most effective fire in time.

b. Fire support requests and calls for fire are submitted directly to the agency that will deliver the fire if a representative is present. If no representative is present, the request is submitted to corps artillery.

c. The type of fire support furnished mu st meet the wishes of the division commander. If the commander's request cannot be met, viable alternatives must be suggested and provided.

d. Care must be taken to safeguard friendly forces.

10. If naval, air, or aviation liaison officers (LO) are attached to the division headquarters to provide expert advice and planning for their respective support, they will become part of the FSCC. If no air, aviation or naval representative is available at the appropriate FSCC, the artillery will carry out their fire support coordination functions.

11. The div arty headquarters is divided into two cells, operations and administration. The operations cell is headed by the G3 and encompasses division artillery intelligence, the FSCC and the airspace coordination centre (ASCC), commanded on behalf of the commanding officer of the air defense (AD) regiment by the 2IC of the AD regiment. The G4 heads the administration cell.

OPERATIONS CELL

12. The operations cell is commanded by the G3. The G3's principle tasks are:

a. organize, direct and supervise the staff of the operations section, and, through the G4 direct and coordinate the activities of the administration cell in support of the artillery commander's plan;

b. ensure coordination of staff work with higher, lower, and flanking formations;

c. assist the artillery commander in decision making; and

d. assist the artillery commander in the direction, coordination, and execution of plans and orders.

13. **Division Artillery Intelligence Section**. This section is headed by the division artillery intelligence officer (DAIO), and is responsible for gathering, collating and processing all artillery intelligence of interest to the artillery and formation staffs. The DAIO is primarily concerned with enemy artillery resources, deployment patterns, and those other resources that assist the enemy in the use of his field and air defence artillery. The DAIO is the locating battery commander from the target acquisition regiment[2].

14. **Fire Support Coordination Centre**. This cell is responsible for producing and executing the division fire support plan, and for its

[2] More information on locating artillery can be found in Chapter 16.

execution. The FSCC consists of a plans cell, an operations cell and the ASCC and includes staff officers for air, aviation, naval gunfire, if required, and other fire support agencies as required. The FSCC's tasks include:

a. advise the division commander and staff on the capabilities and use of fire support attack resources;

b. fire support planning;

c. coordinating with the deep operations coordinationcentre (DOCC) on the details of the targeting process;[3]

d. coordinating fire support issues with other cells in the division headquarters;

e. disseminating necessary information to the ASCC to permit appropriate airspace control measures to be adopted;

f. conducting the detailed staff work necessary to plan and implement the CDA's plans, including assistance to the CDA in the preparation of:

(1) artillery operation orders, instructions, and (sub) paragraphs,

(2) ammunition allotment,

(3) movement orders, and

(4) artillery manoeuvre area (AMA) requirements;

[3] For more information on this subject see Chapters 4, 5 and 10.

g. planning and controlling ammunition, including the determination of the division required supply rate (RSR);[4]

h. controlling the fire of artillery units within the division;[5]

i. provision of LO's to artillery formations and units;

j. controlling, allotting and assigning target numbers;

k. supervising registration policy within the division;

l. advising on survey policy and priorities; and

m. maintaining records on state of survey.

15. **Liaison Staff**. Artillery headquarters and units may be called upon to deploy and receive LOs. Outgoing LOs are usually drawn from the operations section and incoming LOs usually join the assigned operations staff. [6]

16. **Airspace Coordination Centre**. The AD regiment allocated to the division provides the manpower necessary to establish the division ASCC, also called the division air defence centre (DADC). DADC primary functions include:

a. AD staff duties,

b. deconflicting airspace use within the division,

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[4] For more information on ammunition planning see Chapter 6.

[5] This is the task of the Divisional Command Post Officer (DCPO). He operates from the Division Command Post, which is normally co-located with the FSCC, or if communications are a difficulty, the CP can be deployed in a more central location to better communicate with the necessary units and observers.

[6] Annex B expands on the duties and responsibilities of artillery LOs.

c. providing to the CDA in the absence of the commanding officer,

d. assisting the G1/G4 staff in AD administrative matters, and

e. completing other tasks as directed by the G3.

ADMINISTRATION CELL

17. The administration cell is commanded by the G4 and consists of the following elements:

a. **G1 Arty**. This cell is where the formation's personnel management takes place. The G1 duties are concerned with personnel administration, discipline and personnel replacements. G1 Arty works closely with, and under the direction of, the G4.

b. **G4 Arty**. This cell plans and coordinates the administration and service support details to support the artillery commander's plan. The staff maintains close liaison with the formation logistics staff.

18. The administration cell is responsible for:

a. preparation of administrative orders and instructions, as well as the collection, consolidation and dispatch of administrative reports and returns;

b. liaison with administrative staffs at division and higher HQ on administrative policy and planning;

c. advice to the CDA and the planning cell on resource control, with particular reference to areas where critical shortages might affect operations;

d. recommendation of priorities of resupply when resources are limited;

e. provision of briefings to service support units on current and future operations, particularly when pending activity is likely to affect the service support plan;

f. performance of staff checks for ammunition requirements, including the initial liaison with the divisional administration staffs for dump locations, transport availability and ammunition availability;[7]

g. preparation of movement tables for artillery units supporting the division; and

h. personnel matters.

[7] For more information on this aspect see Chapter 6.

ANNEX A
FIELD REGIMENT HEADQUARTERS

1. The commanding officer (CO) of the direct support (DS) regiment is the fire support advisor to the brigade commander. The regimental headquarters of the DS regiment controls, coordinates, and allots all artillery and fire support resources assigned to the brigade.

2. The regimental operations officer (Ops O) supervises the regimental FSCC on behalf of the CO. The FSCC assist the CO in providing advice, coordinating fire support resources in the brigade, and commanding his direct support regiment. The FSCC is located at brigade headquarters.

3. The Ops O is assisted by the Regimental Command Post Officer (RCPO). The RCPO is responsible for controlling the fire of the regiment and other artillery tasked as reinforcing or general support reinforcing. He usually deploys forward for more effective communications and control. The duties of regimental CP personnel are fully covered in B-GL-371-004/FP-001 *Duties of the Regimental Headquarters and on the Gun Position*.

4. The artillery Ops staff includes the Ops O, the assistant operations officer, the brigade artillery intelligence officer (BAIO), and various technicians and communicators. Duties are as follows:

a. fire support planning;

b. member of the targeting team within the brigade;

c. co-ordinating fire support issues within the brigade headquarters;

d. disseminating necessary information to the brigade ASCC to permit appropriate airspace control measures to be adopted;

e. organizing and operate the FSCC at brigade headquarters;

f. reporting tactical information from and to the supported formation, the RCPO, the batteries, the

alternate headquarters when established, and divisional artillery headquarters;

g. co-ordinating AMA and terrain requirements for all artillery deployed in the brigade area;

h. preparing operation orders and instructions for the CO as directed;

i. producing written fire plan tables and target and defensive fire (DF) lists;

j. assisting the CO in ammunition planning;

k. keeping the RCPO informed of current developments; and

l. preparing movement orders as directed by the CO or the deputy commanding officer.

ANNEX B
ARTILLERY LIAISON OFFICERS

1. The reciprocal exchange of artillery LOs occurs when artillery formations or units enter a command and control relationship with formations or units of a different nationality and when the tactical or operational situation requires a very close coordinationand co-operation. The purpose of the exchange is to establish and maintain close, continuous physical communication between formations and units. An artillery LO speaks on behalf of the commander and shall be an experienced officer of appropriate rank who has the confidence of the commander. The LO shall be fully aware of own commander's mission, intent, plan and main effort. The LO shall also have detailed knowledge of the parent formation or unit and its equipment, order of battle (ORBAT) and tactical doctrine. The following guidance is provided for artillery LOs.

2. **Duties**. The duties of an artillery LO are:

a. To convey own commander's verbal and written orders and instructions, including fire plans, to the headquarters or force element group to which attached. The LO must be prepared to amplify the commander's intent and points of detail when appropriate. This shall be explained in a personal briefing by the commander or G3.

b. To act as an officer link to lower, higher, flanking or cooperating headquarters to provide own commander with situational awareness of latest information and intentions.

c. To represent own commander at the headquarters of allied armies, naval or air forces.

3. **Information Requirements**. The following information is to be obtained by artillery LOs prior to departure and updated on a regular basis:

a. artillery commander's mission, intent, plan and main effort;

b. current and planned changes to:

(1) ORBAT,

(2) C^2 relationships,

(3) tactical tasking and responsibilities of artillery unit and sub-units, and

(4) AMAs;

c. tactical situation including details of enemy artillery and ground forces, and latest intelligence and threat update;

d. ISTAR plan, including an understanding of own formation key named areas of interest (NAI), targeted areas of interest (TAI) and associated decision points (DP);

e. target engagement priorities;

f. fire support coordinationmeasures (FSCM);

g. airspace control measures;

h. locations of formations, units and sub-units;

i. zones of responsibility of fire units;

j. location and zones of observation of observers;

k. authorisation of observers;

l. zones of responsibility of weapon locating and combat surveillance equipment;

m. state of survey and availability of meteorological data;

n. AD coverage and weapon control status;

o. condition of roads;

p. general state of equipment and vehicles;

q. ammunition holdings, restrictions on ammunition expenditure and dumping policy; and

r. artillery combat service support (CSS) plan.

4. **Communications**. An LO must be able to communicate with the parent formation or unit. Prior to departure the LO must confirm the method of communication to be employed and the requirement to deploy with communications equipment and data links, communications instructions and codes. If possible, communications shall be tested prior to departure.

5. Artillery LOs may be required to deliver documents to another formation or unit. LOs must be prepared to brief on the content of any documents to be delivered and shall anticipate likely questions at the point of delivery. Prior to departure, the LO shall confirm the procedures for destruction of classified material. Where appropriate, the following documents may be collected prior to departure:

a. artillery operations orders and administrative orders;

b. offensive, defensive and counterbattery fire plan orders including target lists and overlays;

c. artillery target lists and overlays; and

d. artillery formation and/or supported formation standing operating procedures (SOPs), as appropriate.

CHAPTER 3
COMMAND AND CONTROL

…Artillery commanders are always well forward, from where they control fire, but artillery is commanded at the highest level. This is a system proven in war, superior to any other system and it is a battle winner. It must not be whittled away. It is also a very cost effective and flexible way of getting every ounce of value from all available artillery at all times and particularly when the unexpected occurs.

MGen MJ Tomlinson CB OBE Director Royal Artillery, 1983

GENERAL

1. The aim of this chapter is to expand on the command and control of field artillery and the tactical tasks associated with the control of field artillery fire units outlined in B-GL-371-001 *Field Artillery Doctrine*.

2. The range of modern artillery is such that their fire may be available to more than one unit or formation, both in national and multinational operations. The siting of weapons systems and surveillance and target acquisition (STA) resources and the concentration of their fire to achieve the best results during rapidly changing tactical situations demands an efficient and flexible system of command and control (C2). The highest artillery commander must be able to influence the siting of weapons and STA systems within the formation so that the fire of as many weapons as possible can be concentrated on the most important targets. The artillery commander must be able to rapidly allot the fire of artillery units to targets in accordance with the commander's intent and concept of operations. In this manner, command of artillery resources is exercised at the highest level, but the control of artillery fire is exercised at the lowest level.

COMMAND AND CONTROL RELATIONSHIIPS

3. Operational orders detail the command and control relationships, tasks and responsibilities and the periods for which they are effective. These relationships are used in NATO and in the American, British Canadian and Australian (ABCA) defence agreements and are summarised in B-GL-371-001 *Field Artillery Doctrine*.

4. Divisions usually operate within a corps. Each corps has integral artillery brigades; they are used to fight corps deep operations and to supplement the firepower of the forward divisions. This is achieved through the use of NATO command terminology as described in B-GL-300-003 *Command* – usually by specifying operational command (OPCOM) or operational control (OPCON). The impact of the command relationship on the formations use is as follows:

a. **OPCOM**. A formation or unit placed under OPCOM receives its orders from the formation or unit under whose command it has been placed, concerning all tactical and administrative matters, including movement. This is the normal command relationship between a corps Field Artillery (FA) Brigade and division artillery (div arty). For example, corps arty could assign 64 FA Bde OPCOM to 4 Div. The CDA would be able to give each of the units of 64 FA Bde individual taskings.

b. **OPCON**. A formation or unit receiving a formation or unit under OPCON has the authority to control the operational capability of that artillery, but does not have the authority or responsibility for other functions. If 64 FA Bde was assigned OPCON to 4 Div, the CDA would be unable to give individual units of the brigade tasks. Instead he would be restricted to giving the formation a task, thereby restricting the CDA's flexibility for the employment of this resource. For this reason, this command relationship is used rarely between the corps and division, and then only for a short period of time.

c. OPCON is also the normal command relationship for the allocation of FSCCs, Battery Commanders (BCs) and Forward observation officers (FOOs) to manoeuvre formations or units. For example, "BC and four FOOs from 14 GS Regt OPCON to Princess Louise's Dragoon Guards (PLDG) for Phase 1". BCs and FOOs placed under OPCON are responsible for the provision of indirect fire support, liaison, communications and advice.

d. **Tactical Control (TACON)**. The artillery unit or sub-unit placed under TACON of another unit or sub-unit is responsible to initiate liaison with the gaining unit for the purposes of co-ordinating movement and local defence within the established boundaries. Unit placed under TACON must conform to direction from the gaining unit. This is another command relationship under which BCs and FOOs may by placed. In this case, the BC and FOOs have significantly more freedom of action and movement.

5. Within the division, artillery tactical tasks are normally used to allot resources to the brigades and the formation as a whole. In rare situations, the CDA can use NATO command terminology to assign tasks to div arty units.

TACTICAL TASKS

6. The control of artillery fire units may be delegated to an artillery commander by means of one of the four tactical tasks. Tactical tasks define the way in which fire support resources are related to the supported arm and the degree of guarantee attached to the provision of that support. The **standard** tactical tasks, from most responsive to most centralized, are as follows:

a. direct support (DS);

b. reinforcing (R);

c. general support reinforcing (GSR); and

d. general support (GS).

7. The seven inherent responsibilities of the tactical tasks are as follows:

a. priority in calls for fire;

b. provision of liaison officers;

c. establishing communications;

d. provision of FSCC, and forward observers;

e. positioning or movement authority;

f. zone of fire; and

g. fire planning.

8. When the commander's intent cannot be accurately conveyed with one of the standard tactical tasks or by a modification, a non-standard tactical task may be assigned. Non-standard tactical tasks amplify, limit or change one or more of the seven inherent responsibilities or spell out contingencies not covered by the responsibilities, i.e. a restriction on ammunition or movement modifies a standard tactical task.

9. Features to note in the tactical tasks on missions are as follows:

a. **Direct Support (DS)**. Artillery units are tasked DS to a formation (e.g. 11 Fd Regt DS 11 Canadian Infantry Brigade (CIB)). A field artillery regiment tasked DS is immediately responsive to the fire support needs of that formation or unit. When placed in DS to a brigade, a close support artillery unit supplies its BCs and FOOs, and dedicated communications to the units of the brigade. These groupings have the responsibility for fire planning and the coordination of fire support at every level of command from sub-unit upwards. Wherever possible, BCs and FOOs will be assigned to their

affiliated formation or units. This ensures a continuity of fire support to the supported arm at a personal level. The artillery unit CO controls movement of DS artillery.

b. **Reinforcing (R)**. When the fire of one artillery unit is insufficient for a particular operation another unit may augment it. Artillery units reinforce other artillery units (e.g. 14 GS Regt R 12 Fd Regt). A regiment can only reinforce one regiment at a time, but a regiment can be reinforced by more than one regiment. Reinforcing artillery responds to calls for fire from the reinforced unit as a first priority followed by its own observers and then to higher artillery HQ. Movement of the reinforcing artillery units is controlled by the CO of the reinforced artillery unit (e.g. in the above example, the movement of 14 GS Regt would be controlled by the CO of 12 Fd Regt). The tasking is often accompanied by caveats on time and/or ammunition expenditure.

c. **General Support Reinforcing (GSR)**. Artillery units are placed GSR to another artillery unit (e.g. 13 Fd Regt GSR 12 Fd Regt). The priority of fire is to the higher artillery HQ, then to the reinforced artillery unit. Fire from a GSR unit is not guaranteed to the reinforced unit. The higher headquarters has the first call for fire. For this reason the GSR unit is never used as the sole source of fire in a fire plan or in a serial to a fire plan. The reinforced unit uses GSR unit fires to supplement other unit fires on fire plan serials. If given approval by the higher artillery HQ, the GSR unit may be positioned by the reinforced artillery unit; however, positioning is normally done by the higher headquarters.

d. **General Support (GS)**. A regiment with a GS task provides fire support to the formation as a whole and remains under the immediate control of and is moved by the higher artillery HQ (e.g. 14 GS Regt

GS). It is the most centralized of the tactical tasks and the least degree of guaranteed fire support to a manoeuvre brigade.

e. **Non-standard Task**. A non-standard task is one of the above tasks with a condition (eg. 13 Fd Regt DS 13 CIB less authority for positioning). In this case all the responsibilities associated with DS apply with the exception of positioning authority.

10. **Priority of Fire**. The most important inherent responsibility is priority of fire. It has a major impact on a unit's response to calls for fire. The priority of fire can be allocated to specific individuals by the Ops O (C/S 95) on behalf of the CO. This allocation can be for a fixed time period or for a particular phase of an operation. The granting of priorities of fire provides clear guidance as to who will get fire first. This means that if there is a conflict over calls for fire, the observer with the priority will get the fire. For other conflicting requests, the RCPO requests additional fire support from division.

11. During the planning for an operation it often becomes clear that the fire support should be weighted towards a specific area or manoeuvre unit – usually the brigade's main effort. The CO can specify in the orders that the priority of fire from the regiment is to be given to a particular BC or FOO for a specific period of time or phase within an operation. Priorities of fire assist BCs and FOOs by detailing the resources available to them during operations. With this information, they can provide more accurate advice and produce a better plan.

12. There are many occasions when BCs/FOOs require the fire of the regiment for a period of time, e.g. during a battle group attack. The artillery regiment CO is the approving authority for requests of this nature, although he may delegate this authority to the Ops O. The Ops O may then allocate resources in accordance with the CO's specific direction.

13. For example, BC 111 Fd Bty has a requirement to support a battle group quick attack and wants to use the regiment. The request is addressed to the CO with a situation report, (e.g. "9, this is 19 SITREP ... **Request priority of fire** from CC1 for the next 90 minutes"). If the CO is not available to respond, C/S 95 will allocate the resources

based on the tactical situation and the direction given to him by the CO (e.g. "0, 19, CC1 this is 95, priority of fire from CC1 to 19 for the next 90 minutes"). The same procedure is followed, through the battery net, in the case of a FOO requesting the priority of fire from a battery or the regiment. The BCs do not have the authority to grant the priorities of fire of their batteries unless they have the priority of fire from their batteries.

14. By using priorities of fire wisely, the CO of the DS regiment can provide more flexible and responsive fire support to the entire brigade. It is important that the battle groups in contact receive the priority of fire from the majority of the batteries available. The brigade main effort should receive a larger share of resources than its other efforts. Having the priority of fire gives observers immediately available fire support for their battle groups.

15. **Restrictions**. Regardless of the type of task, or priority of fire assigned, the response of the field artillery unit/formation may be subject to restrictions imposed by the higher commander, through the controlling headquarters, These restrictions are highlighted in B-GL-371-001 *Field Artillery Doctrine*.

LOCATING ARTILLERY

16. Locating artillery is normally retained under corps or divisional control, but may be tasked to close support regiments. This implies that the locating artillery unit/sub-unit joins the communications net of the BAIO at the headquarters concerned and receives its tasks from that headquarters.

ORGANIZING ARTILLERY FOR COMBAT

17. The first step in organizing the artillery for combat is to assign a command relationship. Usually the Commander Corps Artillery (CCA) places some of his resources OPCOM or OPCON to the forward divisions. The remainder of the corps arty resources would normally be located with the forward divisions, but tasked to participate in corps deep operations.

18. The second step involves the allocation of tactical tasks. Having established the command relationship between units, the CDA must give the units under control a tactical task. These tasks are usually given to regiments. In rare circumstances, tactical tasks may be given to batteries.

19. The CO of the DS unit then allocates priorities of fire to the BCs and observers supporting the manoeuvre forces. This allocation of priority is determined through the CO's estimate of the situation and how he can best support the manoeuvre forces plan.

FUNDAMENTALS OF ORGANIZING FOR COMBAT

20. The five principals of organizing artillery for combat are summarized by the mnemonic AWIFM. These principals are explained in the following paragraphs.

21. **(A) Adequate Fire Support for Committed Combat Elements**. The minimum degree of adequate support for committed units is one close support regiment for each committed brigade. Additional responsiveness is provided through the assignment of reinforcing and general support reinforcing tasks.

22. **(W) Weight the Main Effort**. Designation of a main effort is a clear and simple method of enabling the commander to direct the desired weight of combat power towards the activity that the commander considers crucial to the success of the mission. The statement of main effort allows subordinate commanders to focus their actions on the commander's intent. The artillery and fire support resources are focused on supporting the main effort. The brigade designated to support the divisional main effort can reasonably expect to receive the majority of the fire support resources available to the CDA. The same analogy applies in allocating artillery from corps to division.

23. **(I) Immediately Available Support.** The manoeuvre commander requires fire support resources that can immediately influence the action. This is achieved through the use of GSR and GS tasks. The division commander expects the artillery to influence the battle long before close operations begin. Thus, some artillery resources need to be available to fight deep operations following the

guidance of the division commander, with the intent of creating a favourable situation for the manoeuvre brigades.

24. **(F) Facilitate Future Operations**. When assigning tactical tasks, the artillery commander must consider potential tasks that could be assigned to the unit. To permit the unit time to prepare, the commander can use on-order missions. This requires consideration of what the subsequent tasking of the unit is likely to be. For example, it may be better to have the Fd Regt from the depth brigade DS to the div covering force, than the regiment from a lead brigade.

25. **(M) Maximum Feasible Centralized Control**. The manoeuvre commander must maintain as much control as possible over the fire support resources supporting the unit or formation. In the defence, for example, the enemy normally has the initiative to choose the time and location of the attack; therefore, the artillery commander needs a greater degree of centralization than during offensive operations.

AN EXAMPLE OF ALLOCATING FIRE SUPPORT

26. 4 (CA) Division has been assigned the task of defending along the River NAAB in southern Germany. The division commander's plan involves the PLDG acting as a divisional covering force during phase 1. In phase 2, 11 and 12 CIBs are defending along the river. The division main effort is 12 CIB. In phase 3, 13 Canadian Armoured Brigade (CAB) will conduct countermoves to destroy enemy penetrations and restore the defence along the river.

27. In this situation, the CDA would likely produce different organizations for combat for each phase of the operation. The diagrams at Figure 3-1 and 3-2 indicate the fire support allocation for the covering force phase and the main defence.

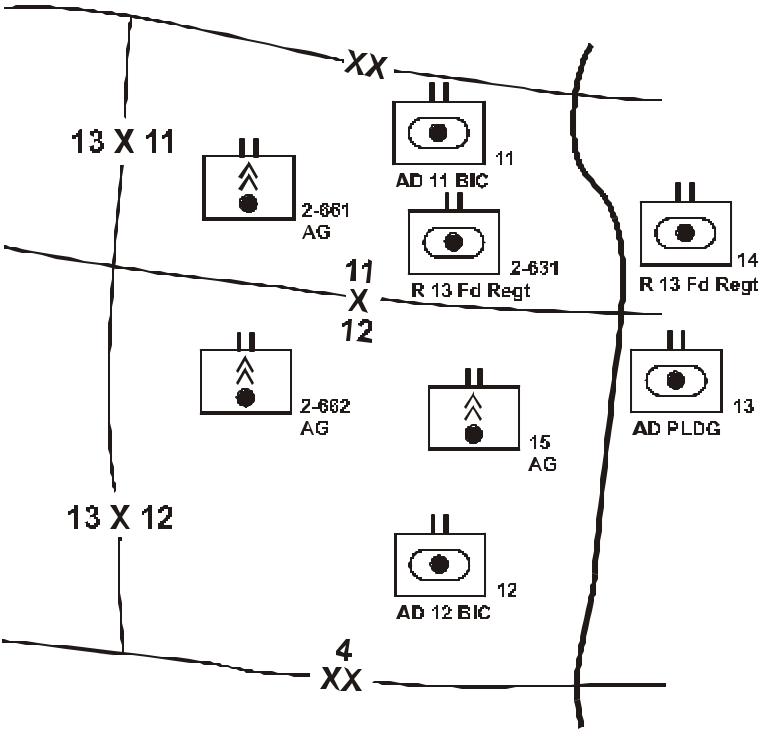

Figure 3-1: Fire Support Allocation for the Covering Force Phase.

28. During the covering force phase, 13 Fd Regt's FSCC, BCs and FOOs remain with 13 CAB, with the exception of one BC and four FOOs required to provide the artillery advice, planning and execution for the PLDG. 13 Fd Regt has been reinforced with two regiments to ensure that there is adequate fire support available at all times to the PLDG during the fluid covering force battle.

29. During the main defence phase, the artillery support has been weighted to the south, the division's main effort. However, both forward brigades have the support from two regiments worth of artillery. Once again, 13 Fd Regt's FSCC, BCs and FOOs would be with their affiliated units providing the fire support advice, planning and execution.

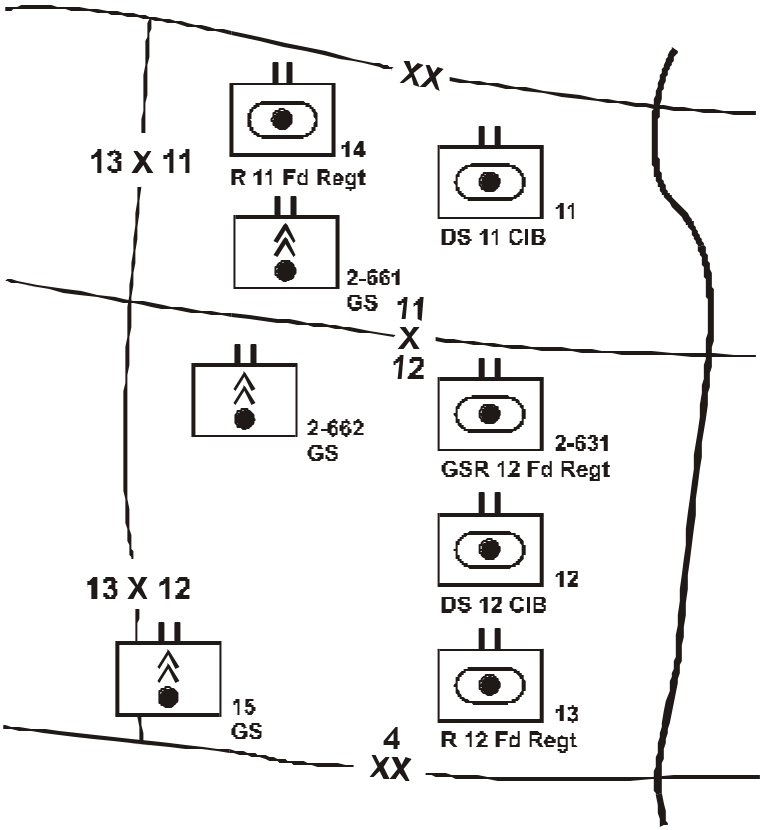

Figure 3-2: Fire Support Allocation for the Main Defence Phase.

30. Throughout this operation, the multiple launch rocket systems (MLRS) regiments have been kept in GS. This permits the CDA to participate in deep operations and lend additional fire support where needed. The addition of the 2-631 FA Bn as GSR 12 Fd Regt in the main defence phase increases the flexibility of CDA. The BCs and FOOs from 14 GS Regt are likely tasked with rear area security, or they might be used to supplement the forward brigades.

31. The CDA would also produce an organization for combat for the countermoves phase. It is likely to be modified when the countermoves are launched based upon the situation, but it provides 13 Fd Regt with enough information on what they are likely to receive that the CO and unit staff can begin planning.

COMMUNICATIONS

32. Fire support is highly dependent on communications. Observers must be able to send fire orders in a timely fashion and complete the indirect fire support mission to the manoeuvre force. Artillery commanders have to be able to rapidly contact their subordinates across the battlefield. One important key to effective communications is well understood call signs, both on the regimental and divisional nets.

33. **Division Radio Nets**. The divisional nets are structured parallel to the regimental radio nets. The following nets are operated at division:

a. **Div Arty Command**. This net is used for all command and control issues. It is important to keep traffic on this net to a minimum to ensure the rapid passage of fire orders and tactical information.

b. **Div Arty Ring**. This net is used by the Division command post officer (DCPO) to pass technical data, other than fire orders, related to the firing of the guns. The traffic on this net includes circulation of target records, met and survey data and fire plan coordination.

c. **Div Arty Intelligence**. The intelligence net is used for the dissemination of artillery intelligence and for orders from the CO of the TA Regt.

d. **Div Arty Administration**. The administration net is used for the passage of administrative details and orders.

34. To identify stations on the divisional nets, each unit is provided with a separate lettered designator that is coupled with a standard fixed call sign designating the specific level/element station. For example: A0 is the RCPO of 11 Fd Regt. Whenever an individual is on either a divisional net or a different unit's regimental net, they use this 'complete' call sign. When they are on their own nets, they drop the prefix. This permits all users to quickly identify to whom they are talking and permits individuals to rapidly switch nets without

having to waste time trying to figure out what their call sign is on these nets.

35. For example, observers directed to join other regimental artillery nets will use their standard call sign prefixed by the letter designator for their unit. C/S 19 of 11 Fd Regt would be A19 on the divisional net or the net of a different regiment. A list of call signs for 4 Division Artillery Brigade of X Allied Corps is provided at Figure 3-3 and for current units at Figure 3-4. Field artillery brigades that are placed "OPCOM" or "OPCON" to 4 Division receive the letter designators as outlined in Figure 3-5.

Unit/Individual	Call Sign
Commander Division Artillery	9
G3 Artillery	98
DCPO	0
A/DCPO	0A
Division current operations	95
Division current operations (Alternate)	95A
G2/DAIO	93
Signal Officer	91
G4 Arty	89
Target Acquisition RCPO	6
Liaison Officers	94, 94A, etc
CO 11 Field Regiment	A9
RCPO 11 Field Regiment	A0
Ops O 11 Field Regiment	A95
Admin CP 11 Field Regiment	A8
12 Field Regiment – Prefix	B
13 Field Regiment – Prefix	C
14 GS Regiment- Prefix	D

15 MLRS Regiment – Prefix	E
17 Target Acquisition Regiment – Prefix	Y

Figure 3-3: 4 Division Artillery Brigade of X Allied Corps

Unit/Individual	Call Sign
Commander Divisional Artillery	9
G3 Artillery	98
DCPO	0
A/DCPO	0A
Divisional current operations	95
Divisional current operations (Alternate)	95A
G2/DAIO	93
Signal Officer	91
G4 Arty	89
Target Acquisition RCPO	6
Liaison Officers	94, 94A, etc
CO 1 RCHA	A9
RCPO 1 RCHA	A0
Ops O 1 RCHA	A95
Admin CP 1 RCHA	A8
2 RCHA – Prefix	B
5 RALC – Prefix	C

Figure 3-4: Artillery Units Presently in Service

Brigade	Unit	Call Sign
65 FA Bde	Bde HQ	F
	2-661 FA (MLRS) Bn	FA
	2-662 FA (MLRS) Bn	FB
	2-631 FA (155) Bn	FC

Brigade	Unit	Call Sign
66 FA Bde	Bde HQ	G
	2-663 FA (MLRS) Bn	GA
	2-664 FA (MLRS) Bn	GB
	2-632 FA (155) Bn	GC
67 FA Bde	Bde HQ	H
	2-665 FA (MLRS) Bn	HA
	2-666 FA (MLRS) Bn	HB
	2-633 FA (155) Bn	HC
68 FA Bde	Bde HQ	I
	2-667 FA (MLRS) Bn	IA
	2-668 FA (MLRS) Bn	IB
	2-634 FA (155) Bn	IC

Figure 3-5: X Allied Corps Field Artillery Brigades

CHAPTER 4
FIRE SUPPORT PLANNING

The problem lies in not accepting the fact that fire support is too important to leave to Field Artillerymen. That is to say, the problem lies in the manoeuvre commander's not accepting responsibility for fire support.

Col Lightman, "Fire Support – Who's Responsible?",
***Field Artillery*, Feb 94.**

SECTION 1
INTRODUCTION

1. The artillery commander is responsible for the fire support plan. This plan must be developed totally in concert with the formation manoeuvre plan. First, the fire support plan must complement the manoeuvre plan and assist in shaping the enemy forces. Second, it requires the timely and accurate information from intelligence, surveillance, target acquisition and reconnaissance (ISTAR) resources to attack targets with the desired effect and to achieve the desired results. Thirdly, the fire support plan must be linked to obstacle planning to ensure or and to support the objectives of the barrier plan. Fourthly, fire support must be synchronized with the targeting effort to ensure continuity. Finally, it must be executable.

FIRE SUPPORT PLANNING

2. Battle procedure is the process by which a commander receives orders, makes the reconnaissance and plan, issues orders, prepares and deploys troops and executes the mission. It is an essential skill that must be mastered at all levels of command. The critical element of battle procedure is decision making - a command responsibility.

3. Battle procedure is a command-led process. It is a process that leads to a decision on how to proceed. Battles may be lost, or victory delayed, because of a commander's failure to recognize favourable circumstances and make sound and timely decisions. Figure 4-1 depicts the decision-action cycle, which is the process that

an individual goes through in order to take action from a set of circumstances. B-GL-300-003 *Command* states:

> A commander must strive to complete his decision-action cycle faster than his opponent. By *turning* inside his opponent's cycle, he will render his opponents actions inappropriate. In order to accomplish this, a commander must recognize when (and when not) to make decisions; when it will be appropriate to wait for further information; and when an immediate decision is required based on available, albeit limited, information.

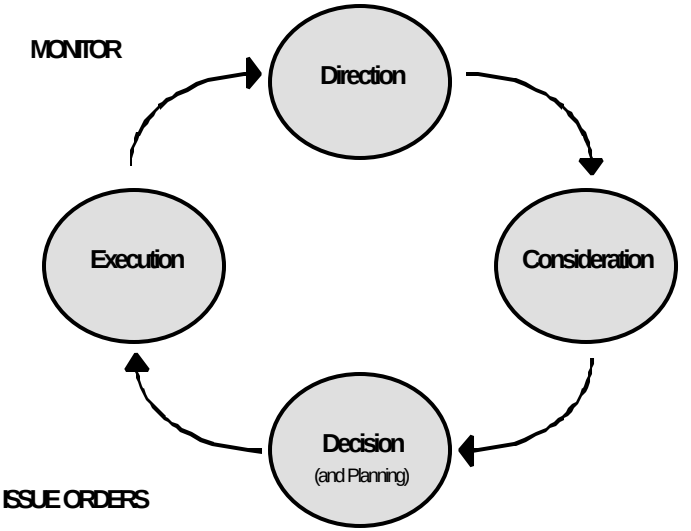

Figure 4-1: The Decision-Action Cycle

4. A number of tools and processes have been developed to assist commanders in completing this cycle faster. However these tools must be managed properly if they are to contribute in a meaningful way to battle procedure. Throughout the process, it is important to remember that the end result must be a workable plan. These tools can be divided into two basic groups:

a. those leading up to a decision by the commander:

(1) operation planning process (OPP), and

(2) intelligence preparation of the battlefield (IPB);

b. those used to implement and co-ordinate the execution of that decision:

(1) war gaming,

(2) decision support template,

(3) targeting,

(4) synchronization matrix, and

(5) orders.

5. At higher levels of command, commanders would have difficulty in completing an estimate of their own, given the amount of information and the processing tools available. Better and more timely results can be achieved utilizing a collective effort. The OPP is a collective estimate of the situation that synchronizes the efforts of the staff. It is a continuous and dynamic process involving concurrent activity and interaction between the commander, the staff and subordinate commanders. The process integrates tools such as IPB, targeting and war gaming which in turn generate products such as the decision support template (DST), the synchronization matrix and the attack guidance matrix (AGM).

6. The CDA uses the OPP to develop the fire support plan. However, unlike the manoeuvre commander, the CDA has to modify the process to reflect the timings of the OPP being conducted by the division. The end result is the division artillery staff start their cycle about the same time as the rest of the division staff, but conduct their key milestones after the manoeuvre key milestones – for example the division artillery information brief is logically conducted after the manoeuvre information brief.

KEYS TO SUCCESSFUL FIRE SUPPORT PLANNING

7. The keys to successful fire support planning are:

a. **Integration with Manoeuvre**. The division's plan must be developed with the employment of fire support being considered from the outset. As each course of action is developed, a concept for the use of fire support needs to be included. As the manoeuvre staff conduct the various stages of the OPP, the plans cell of the FSCC must participate. The continual provision of fire support advice and coordinationis essential and ensures that the fire support plan is not just superimposed on the division plan, but is fully integrated and synchronized with the manoeuvre plan.

b. **Integration with ISTAR**. A key link between the manoeuvre planning process, fire support planning and targeting is the ISTAR Plan. This plan links the various acquisition resources to finding specific enemy formations to attack or required information to answer the commander critical information requirements. Fire support is both a key provider of acquisition assets and a key user of their information. Fire support planning supports and is supported by the ISTAR Plan.

c. **Command Direction**. The division commander needs to understand fire support and plan its use the same way he plans the employment of the brigades. The division commander, assisted by the CDA, must direct what fire support is to accomplish at each stage of the battle.

d. **Early Planning**. The CDA and div arty staff need to begin planning as early as feasible. Fire support planning involves coordinationwith the different elements of the fire support system and the division staff. This is a time consuming process.

e. **Dissemination of Information**. The rapid and efficient dissemination of orders and reports is extremely important. This is true throughout the planning process as the various cells need to be kept aware of changes to the various courses of action and to the current battle.

f. **Coordination**. Fire support planning requires detailed coordinationbetween different fire support systems and with the division. It requires the deconfliction of airspace, fire support coordinationmeasures and responsibilities between corps, flanking formations and subordinate formations and units.

8. Throughout this process, it must be remembered that it is the final result of the process, the **fire support plan**, and not the process itself that is important. This result must be an **effective**, **integrated** and **executable** plan.

a. An **effective** plan clearly defines and focuses on achieving the intended effects against the enemy. It uses all available acquisition and attack assets and pits the best combination against the right targets to support the manoeuvre commander's intent.

b. An **integrated** plan provides the focus and timing for the acquisition and attack systems to achieve a synergetic effect on the enemy. An integrated fire support plan combines and interacts with manoeuvre and the other combat functions to maximize the results of each attack and to efficiently achieve the desired objectives.

c. An **executable** fire support plan has the time, space and resources to achieve the objectives as planned. It ties detect and deliver assets to the high payoff targets and has a plan to assess the results. It is a simple, clearly communicated and flexible plan with well-defined decision points. Finally, manoeuvre and fire support commanders must understand the plan. Rehearsals or, if time does not permit, task back briefs shall be conducted with all major players to ensure their understanding.

ARTILLERY OPERATION PLANNING PROCESS

9. The following paragraphs breakdown the OPP into its six steps and describe the actions taken by the field artillery staff. It is important to note that the breakdown in six steps is a guide, the key aspects being the milestones that need to be completed. The key milestones are:

a. mission analysis – whether based upon the receipt of a new order, or upon a change in the situation;

b. information brief;

c. decision brief;

d. plan war game; and

e. issue orders.

10. **Step 1**: **Receipt of Task**. The planning cycle starts with the receipt of orders. The arrival of the corps warning order starts the division artillery staff into the OPP. At this stage it is unlikely that the staff can begin the detailed development, however, initial checks and time appreciation can be done. The CDA accompanies the division commander to the corps orders group.

11. **Step 2**: **Orientation**. Upon the return from corps orders, the CDA will commence his mission analysis for the fire support plan[8]. This is the process by which the CDA translates the tasks and limitations received from the corps commander and CCA into the aim for his estimate. Additional tasks or constraints received from the division commander are included and may have an important influence on the statement of the aim.

[8] The CDA often assists the division commander in mission analysis before beginning the fire support mission analysis. Furthermore, the CDA often includes G3 Arty in the development of the mission analysis. This is a very good technique and helps build mutual understanding between the artillery commander and the key artillery staff officer.

12. Mission analysis assists the CDA to understand the tasks assigned and implied and to enunciate the mission statement. It provides the framework within which division artillery operates. Finally, mission analysis done on a continual basis allows the CDA to seize opportunities during the conduct of the battle. Mission analysis comprises the following steps:

a. **Corps Commander and CCA's Intent**. The purpose is to establish what effect or result division artillery has to achieve within the corps commander and CCA's concept of operation. This requires an understanding of the corps commander's mission and main effort and end state. It is also important that the army commander's intent and concept of operations is understood.

b. **Assigned and Implied Tasks**. Assigned tasks are those stated in the directives or orders received from the CCA or division commander. Implied tasks are other activities that must be carried out in order to achieve the mission, including the requirement to support the corps commander and CCA's main effort. This does not require a list of all the routine tasks inherent in most tactical missions.

c. **Constraints**. The identification of specific tasks including those of time, space and resources which have been tasked or restricted and thus limit the way in which the CDA can execute his mission.

d. **Mission Statement**. [9]At the conclusion of mission analysis, the CDA confirms the mission statement, comprising the mission along with the reason for the mission. It must be clearly defined and within the bounds of immediate planning. **To support 4 Div's block along GOAL LINE, in support of corps preparations along HIGH STICK.**

[9] A mission statement comprises the mission along with the desired end-state.

13. Upon completion, the CDA briefs the G3 Arty on the mission analysis, along with CDA's main concerns and thoughts about the operation[10]. The G3 Artillery uses this information to form the basis of the planning directive which is usually given verbally to the staff. The planning directive contains all the important timings in addition to the direction from the CDA.

14. While the CDA conducts the mission analysis, the staff continue with their initial checks and planning.

15. **Step 3: Development of Courses of Action**. Once the staff has received the planning directive, they begin more detailed planning for the upcoming operation. For division artillery staff this involves many different activities taking place in the various planning cells. The G3 Artillery conducts the planning, making sure that information gets to the right place and providing direction whenever and wherever required. The focus of the various planning cells is as follows:

a. **The G3 Arty** orchestrates the production of the fire support course of actions (COAs). The G3 Artillery is involved as the artillery rep in the development of the friendly COAs and or delegates another member of the div arty staff to assist the division G3 in addressing fire support issues early during the process. If a battle is on-going, the G3 Artillery is the link between current operations and the planning staff.

b. **The G2 Arty (DAIO)**[11], working in conjunction with the division G2, develops the enemy picture for the division artillery staff. The DAIO is the expert on enemy fire support issues and assists the G2 in determining how the enemy will use it's fire support resources. As the G2 progresses through the IPB

[10] In many cases, the CDA may decide to brief it to the entire staff to ensure the widest distribution of the mission analysis and to respond to any questions. This method assists in creating a unity of effort.

[11] The DAIO is the BC of the Locating Battery.

process, the DAIO keeps the G3 Artillery abreast of developments.

c. **CO and HQ Staff of the TA Regt** work on developing concepts for supporting deep operations and the counterbattery fight. This plan is developed in conjunction with the ISTAR plan.

d. **G3 Arty Field (Fd) Plans** is responsible for the development of courses of action for fire support. This entails coordinationwith the division plans staff, flanking formations, any formations that are going to conduct a passage of lines, and corps artillery. One member of the cell works directly with the division staff and the development of their COAs–ensuring the link between the fire support plan and the manoeuvre plan. The rest of the cell develops the fire support plan. Initially, the cell concentrates on developing the artillery IPB product, deep operations, and determining if there are any "show stoppers." As the division plan is developed, the effort switches to how to provide fire support for each specific option. The key issues for this cell include the positioning, targeting, fire planning and resource allocation. The cell also determines the weight of resources being dedicated to deep operations for each phase of battle.

e. **G3 Arty AD Plans** is responsible for developing COAs for divisional AD coverage. This entails coordinationwith other formations and initially concentrates more on a concept for coverage and critical issues. One member of the cell works directly with the division staff on the development of their COAs –ensuring the link between the air defence plan and the manoeuvre plan. As the manoeuvre plan is developed, the planning emphasis switches to the provision of support to each COA. The key issues for this cell include aerial IPB, positioning, command and control, and resource allocation.

f. **G4 Arty**. The G4 Arty is responsible for developing COAs for the logistic and administrative support of div arty. The most important part of the G4 responsibility is to determine how to ensure a steady flow of ammunition forward to the regiments. Whenever the flow of ammunition is going to be insufficient for the operation, the G4 must explore options to reduce the impact on the divisional battle – this must be done early since any limitations will greatly affect the fire support plan.

16. The plan is developed in the following sequence:

a. **Receipt of the Planning Directive.** On receipt the planning cells begin the development of their plans. Representatives from the field artillery and AD plans cells work with the division plans cell on the development of the manoeuvre courses of actions. The remainder of the cells concentrate on planning the artillery plan. The field plans cell concentrates on the development of a deep operations plan, in conjunction with the DOCC, and produces the AMA trace. The AD plans cell looks at AD coverage within the division area concentrating on AD priorities and an initial assessment of tasks. The G4 cell studies the logistic impact on the plans. The DAIO will be working in conjunction with the Division G2 and developing the enemy COAs.

b. **Division Information Brief**. The G3 Arty or the members from the two plans cells will represent the artillery at this brief. In either case, the representatives must ensure that they have enough information to state whether the plan can be supported by the artillery – this will not present a problem since the artillery representatives have been involved from the outset in the manoeuvre plan development.

c. **Div Arty Information Brief**. This will usually be chaired by the G3 Arty, it is designed as a forum for the passage of information between the cells and an update from the division information brief. It will

be conducted quickly and efficiently, bringing everyone up to date on the progress in the various planning cells and to begin the process of resolving critical issues. As such, the emphasis is on content not presentation style. Each cell will present a quick overview of what they have been working on and then bring up any outstanding or critical issues. The G3 Arty will conclude with direction to the staff. As early as possible following the information brief the G3 Arty will bring the CDA up to date on the progress of the fire support planning.

d. **Following the Information Brief**. The fire support planning staff focus their attention on developing fire support courses of actions to support the various manoeuvre COAs. Usually, this requires the development of only one fire support option per manoeuvre option. These options will be war gamed during this stage of planning. The representatives of the field and AD plans cells continue to work with the division planning staff as they refine and further develop their courses of action. These representatives must maintain contact with their respective planning cells to ensure that any changes in the manoeuvre plan are noted quickly and to respond to questions from either the division planners or the artillery planning cells.

e. **Division Decision Brief**. The CDA will represent the artillery at the decision brief. The CDA needs to be informally briefed by the G3 Artillery and the planning staffs prior to attending the decision brief. At the division decision brief the CDA will bring forward any major concerns.

17. **Step 4: Decision**. At the conclusion of the division decision brief the division commander makes a number of decisions. These decisions are based upon information and recommendations provided by the staff. The commander is responsible for making the decision, the staff then implements it. For the artillery, this stage begins with the decisions by the CDA at the div arty decision brief.

18. **Div Arty Decision Brief**. This is a formal briefing addressed to the CDA. It is designed to provide the CDA with enough information to make decisions on the options being presented for fire support, air defence and locating. Although this is formal, it must still be conducted quickly and the emphasis is on content. The G3 Artillery will open the briefing by outlining the required decisions. Each cell will brief on their plan to support the **chosen** divisional COA. Any issues requiring input or action by the CDA must be brought forward. At the end of the briefing the G3 Arty will get the CDA's decisions on the various plans being presented. The CDA will provided further direction or clarification as required.

19. **Step 5: Plan Development**. Once the decision has been made, the staff refine and add detail to the chosen option. This involves participation in the division plan war game by members of the division artillery staff – probably the G3 Arty – while the rest of the staff work to resolve problems and implement the direction provided by the CDA. After the division plan war game is complete, the targeting team convenes to finalize the AGM. Once this is finished, the G3 Arty conducts a quick update briefing to the staff on the outcome of the division plan war game and the targeting meeting. The G3 Arty also provides the staff with a copy of the DST and the synchronization matrix.

20. Concurrently, the staff must prepare the various orders and annexes that will be required for the division operation order. The staff produces a fire plan, ammunition expenditure rates, a draft AGM and any other decision aids required. The intent is to have all of these products ready for issue immediately following the division orders group.

21. It is during this stage that the CDA normally passes orders to subordinate artillery commanders and staff. The CDA can conduct orders formally or informally. Formal orders are longer, but will ensure that all of the commanders and key staff fully understand the plan and the key events. Informal orders stress the critical aspects of the plan and their implications without tying up key staff for a long time. In either case, the CDA needs to bring out the key issues and ensure that subordinate commanders understand his intent and concept of operations. This is the opportunity for the CDA to personally inspire and influence subordinate commanders and staff.

22. **Step 6: Plan Review**. Planning does not finish with the issuing of orders. It is imperative that the coordinationand integration between the different levels of command and between the various combat functions continue. This will invariably result in changes to the plan, which then have to be transmitted to all those affected. This is both a staff function of monitoring the implementation of the plan and a command function as the commander visits subordinate units and staffs and garners an understanding of how they intend to fight. This is a very important stage in new CF doctrinal approach of direct control.

23. During this step the CDA has the opportunity to conduct a rehearsal. Rehearsals are very important technique to ensure that the staff and subordinate commanders understand all aspects of the plan. Whenever possible the CDA shall conduct a rehearsal involving subordinate commanders prior to the launching of an operation.

24. There are six steps in the OPP, but the importance is not the process, but the end product. The CDA and G3 Artillery need to keep the staff focused on the problem and on deriving solutions. The process is a guideline. The G3 Artillery can add or postpone briefings at any time to make the process function better within the time lines given by the division commander.

SECTION 2
SUPPORTING PROCESSES AND TOOLS

INTRODUCTION

25. There are a number of tools and processes that have been developed to assist commanders and their staff during the planning and the execution of the plan. They are integrated into the OPP by the commander to optimize efficiency and effectiveness.

ARTILLERY INTELLIGENCE PREPARATION OF THE BATTLEFIELD

26. One of the more important processes used during the planning process is IPB. It is a systematic, continuous process of analyzing the threat environment in a specific geographic area for the

purpose of understanding the battlefield and the options it presents to friendly and enemy forces. The IPB process helps the commander to selectively apply and maximize combat power at critical points in time and space on the battlefield.

27. Within division headquarters, the G2 section completes the IPB products and makes them available to the rest of the headquarters as they are finished. These products are important as they assist in ensuring that the entire formation staff is using the same environmental and threat baseline.

28. The artillery staff uses the IPB products prepared by the G2 staff as a common frame of reference and build upon it in fire support planning. The artillery IPB is an extension of the division IPB products focusing on fire support, survivability, and mobility issues for artillery units. It assists the planning staff in determining positioning, resource allocation and fire planning requirements.

29. The artillery IPB is conducted by the artillery planning staff – with the assistance of the DAIO's staff. Threat artillery tactics and doctrine are dealt with by the DAIO, whereas the rest of the process and products are an FSCC responsibility. For the most part, the DAIO's contribution occurs within the division IPB process through interaction with the G2. The artillery IPB, is divided into field artillery IPB, which is discussed below, and aerial IPB, which is discussed in B-GL-372-002 *Air Defence Artillery Operational Procedures*.

30. The artillery field planning staff follow the four steps of the IPB as follows:

a. define the battlefield environment;

b. describe the battlefield effects – terrain and weather analysis;

c. evaluate the threat; and

d. determine threat COAs.

31. **Define the Battlefield Environment**. The definition of the battlefield environment completed by the formation G2 staff is quickly reviewed. Only in very rare circumstances is it be modified.

32. **Describe the Battlefield Effects – Terrain and Weather Analysis**. The terrain and weather overlay produced by the G2 is used as the start point for this part of artillery IPB. The terrain is examined with artillery deployment concerns rather than manoeuvre problems. In certain areas, towns or built-up areas are considered restricted terrain for manoeuvre, yet these areas are not restricted for the purposes of deploying artillery. Furthermore, there are areas considered unrestricted terrain for manoeuvre forces that might be restricted to the artillery – especially if the artillery is wheeled while the formation is mostly in tracked vehicles. For classification purposes:

a. severely restricted – causes extreme difficulty for weapon emplacement and firing; and

b. restricted – hinders emplacement and firing to a lesser degree and probably requires a detailed reconnaissance to locate suitable gun positions.

33. Division IPB products do not normally include details on elevations that may cause problems for firing units, thus the crest clearance and other obstacles need to be highlighted to ensure units can achieve the ranges required by the fire support plan. Additionally, any areas with large slopes[12] need to be identified; a detailed study is not normally required, just a general overview to ensure that AMAs are suitable.

34. The end result of this step of the process is a better understanding of the terrain and how it will affect artillery operations. Areas causing mobility and deployment problems for the artillery are identified. This information is useful in planning the deployment of artillery units, their movement routes and determining any negative

[12] A slope of 90 mils or 5 degrees is the maximum for all series of howitzers and MLRS launchers, therefore any slope greater than this amount renders the area as Severely restricted for artillery.

effect on their resupply capability. The trace or overlay that is produced from this step is the potential AMA overlay and can be used to build the final AMA trace.

35. Next, it is important to highlight areas that deny intervisibility. These areas are usually ridge lines, hills, built-up and forested areas. The intent is to identify areas hidden from the enemy for deployment purposes. While conducting this review it is important to verify the avenues of approach of the main enemy forces, along with their likely objectives. Wherever possible, artillery units are deployed away from where the enemy is intending to manoeuvre. Units that are placed on an avenue of approach shall be warned about the potential threat, so they can adequately prepare for this eventuality (local defence, visibility and sentry traces).

36. **Evaluate the Threat**. So far, the main effort of the artillery IPB effort has concentrated on positioning requirements and the selection of suitable AMAs. The next step is to study the formation situation templates developed by the formation G2 staff. These templates are used to assist in fire planning, positioning, and resource allocation.

37. During this stage, the arty intelligence staff will concentrate on looking at enemy fire support resources and their likely deployment areas and timings. This will help identify positioning and resource allocations required for the acquisition and attack of the enemy fire support system. Possible radar and sound ranging positions will be determined along with timings for their movement and the amount of fire support resources needed to defeat the enemy fire support system, can be identified.

38. The field artillery planning staff concentrates on enemy COAs and the situational templates depicting key events. Using these templates, the planning staff produces groups and series of targets for inclusion on the fire plan.[13] The size of the groups and series of

[13] For example, if the enemy is attempting a river crossing, a group of targets could be placed along the crossing site where the enemy is likely to bunch up. A series of targets might be placed along the likely avenues of approach once the enemy has crossed the river. For more information on groups and series of targets see Chapter 5.

targets need to be taken into consideration as the allocation of resources is completed.

39. The combination of situational and event templates provide insight into the time lines for the battle. These timings can be used as planning figures for determining the movement plan of various fire support units and for ensuring that adequate fire support is available throughout the operation. All of this can be grouped together in the development of an artillery DST.[14]

40. The artillery DST is one of the most important products of this process. It ties together the fire support plan. It outlines the important timings and events throughout the battle along with key decision points for moving firing units, engaging enemy forces and switching tactical tasks. The artillery DST uses the target areas of interest (TAIs) and the named areas of interest (NAIs) highlighted on the manoeuvre DST.

TARGETING

41. Targeting focuses fire support on the priorities established by the manoeuvre commander. The increasing range, accuracy and lethality of weapon systems, a greater capacity for acquiring targets at longer ranges and more stable, capable communication systems combine to increase our ability to shape the battlefield well before the tanks and infantry even begin to fire. This in turn raises the importance of well directed, effective and efficient fire support. The targeting process is a critical element of well directed, effective and efficient fire support.[15]

42. Targeting consists of four functions: **Decide, Detect**, **Deliver** and **Assess**. The targeting process determines which targets are to be

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[14] Fire support activities are marked on the manoeuvre DST. The artillery DST expands upon the necessary decisions that the artillery commander must make to ensure that the fire support plan is executed in accordance with the manoeuvre commander's intent and concept of operations.

[15] The process is described in detail in 300-7 *Firepower* Chapter 3.

acquired and attacked, when they are to be attacked, and what is required to defeat the target. A target is an enemy function, formation or equipment, facility or terrain, planned for destruction, neutralization, or suppression in order to delay, disrupt, or limit enemy capabilities. At each phase of the battle, targeting combines intelligence, planning, command, weapon selection, operational execution and combat assessment to identify resources that the enemy can least afford to lose. Denying these resources to the enemy strips him of the initiative and forces him to conform to friendly battle plans.

43. Targeting is an all arms function, but its coordinationis the responsibility of the artillery commander. It is a dynamic process and must keep up with the changing face of the battlefield.

44. **Targeting and Planning**. Targeting is an integral part of the planning process. The targeting process begins with the receipt of a task for the formation or unit. In the initial stages it involves providing information to the commander and the continued development of IPB and the development of DSTs and high value targets (HVTs). During the war gaming process, the HVTs are analysed and some are upgraded to the high payoff targets (HPTs). At the same time, the commander provides more detailed guidance. The targeting team then convenes and completes the decide function.

45. The division executes close operations at the same time as conducting deep and rear operations. This is the highest echelon where field and rocket artillery provide the majority of the fire support systems. It is also the lowest to plan extensively on the use of air and aviation.

46. The targeting team at the division is composed of the following personnel:

a. core members:

(1) division commander/chief of staff,

(2) division G2,

(3) division G3,

(4) G3 Deep Ops (chair),

(5) G3 Plans,

(6) CDA/G3 Arty,

(7) targeting officer; and

b. supplementary members:

(1) G3 NBC,

(2) AD rep (CO or Ops O),

(3) electronic warfare (EW) rep,

(4) GS Avn,

(5) legal advisor, and

(6) CO TA regiment.

47. The targeting team meets twice daily, or more often if required, and fulfils the following functions:

a. synchronize close, deep, and rear area targeting;

b. provide input to the G3's DST;

c. develop target selection standards (TSS);

d. identify requirements for detection of HPTs;

e. nominate targets for attack;

f. allocate acquisition and attack assets;

g. request assistance from higher headquarters;

h. recommend and determine attack guidance (within established rules of engagement);

i. co-ordinate and direct lethal and/or non-lethal attack of approved targets;

j. identify requirements for assessment;

k. receive and evaluate assessment; and

l. recommend changes to the operation order.

48. The division commander directs the divisional targeting effort. The process begins with the commander's guidance, during mission analysis, on what are the most important targets and what general effects the commander wants to have on those targets.

49. The targeting team incorporates the mission statement, the commander's intent and the concept of the operation into the target valuation process. By analyzing the enemy COAs, the targeting team develops basic HVTs. These HVTs are then translated, by the targeting team, into HPTs during the war gaming of the friendly COAs. Once the commander selects the final COA and issues further guidance, the targeting team:

a. refines and prioritizes the HPTs;

b. develops the AGM; and

c. submits these products to the commander for approval.

50. Once approved, the high payoff target list (HPTL) and AGM form the basis for the targeting team activities. It is essential that the intelligence, operations, plans and fire support cells incorporate these products into the operation order and its various annexes. For example, the AGM includes tasks to subordinate units, co-ordinating instructions, and priority intelligence requests (PIRs) and/or intelligence requests (IR). The targeting team will also distribute TSS to the FSCC and the G2 cell. The AGM and TSS are distributed as follows:

a. div arty:

(1) DCPO,

(2) div arty G3,

(3) DAIO,

(4) div arty regiments (to the CO, Ops O and RCPO), and

(5) any additional units;

b. G2;

c. G3:

(1) G3 Aviation, and

(2) G3 Air;

d. brigades;

e. division reconnaissance regiment; and

f. corps G3 and corps G3 Arty.

51. In determining the "WHEN TO ATTACK" part of the AGM, the targeting team must consider the resources they have to attack targets. The use of “immediate” attack will be very rare. “Immediate attack” means that fire support assets would have to immediately switch targets, regardless of the tactical situation, and reduces the flexibility of the fire support system. Examples of targets warranting immediate attack are NBC delivery and storage facilities. If enemy multiple rocket launchers have demonstrated extreme effectiveness against friendly forces, then they may be considered for immediate attack.

52. The "planned" attack shall be considered to assist synchronizing the attack of enemy assets with manoeuvre actions, or when multiple attack systems are to be used in attacking the target. In either case, the aim is to maximize the effect of the attack, and to increase the damage inflicted. This in turn increases the disruption to the enemy's plans, slows his tempo and assists the friendly forces in seizing or maintaining the initiative. For example, the attack of an enemy headquarters could be planned so that it occurs just prior to launching a countermove, rather than attacking right away after it is located which could give the enemy time to reorganize and recover.

53. The targeting team also determines the targets that require battlefield damage assessment (BDA). Although BDA is to be conducted routinely, only the most critical targets are selected and indicated on the AGM, because valuable assets must be diverted from observation tasks or situation development to perform BDA.

54. Once these activities have occurred, the targeting team will meet on a continuing basis usually twice daily. At these meetings the HPTL, AGM and TSS are reviewed and any changes are recommended. Otherwise, the targeting effort is guided by the targeting officer, who monitors the execution of the process.

55. As the situation develops, the G2 and DAIO work together to determine whether reported enemy assets are targets or suspected targets and pass the relevant information to the targeting officer and any other organizations. The targeting officer informs the targeting team when major changes in the tactical situation warrant re-evaluation of the HPTL, the AGM and the TSS.

56. When targets are acquired, the information is passed to the targeting officer who decides on the appropriate action, based upon the AGM and the current tactical situation. The targeting officer analyses the target and, using the AGM and TSS, determines an appropriate attack system. Planned attacks are then coordinated with the appropriate staff at the FSCC. The targeting officer co-ordinates the requirement for BDA with the G2 - often with the assistance of the DAIO.

57. Targets and missions beyond the capability of division resources are passed to corps for action. The targeting officer must know when the requests have to be submitted for consideration within the corps planning cycle. The synchronization of these missions with ongoing operations will be critical to the success of the division's mission. Therefore, close coordinationbetween the various components is essential to ensure vertical integration and synchronization of plans.

58. Once the AGM has been finalized it is compared to the ISTAR plan. The ISTAR plan supports the AGM and ISTAR resources taskings must cater to AGM requirements.

59. During the entire process, the division commander, G2, G3 and CDA exert considerable influence. Targeting is a process that involves the entire staff. Commanders must keep the targeting effort focused so that the energy of the targeting team is directed at the right points.

60. **Targeting Officer**. The targeting officer is an artillery officer, usually a major, working in the G3 Arty cell. The targeting officer is the second in command of the DOCC and assists the G3 Deep Ops with the conduct of deep operations[16]. The targeting officer is also responsible for co-ordinating the targeting effort throughout the battle and works very closely with the DAIO, G3 Arty and the G3 Deep Ops to ensure the smooth passage of information and the rapid engagement of targets. The targeting officer is assisted by two artillery technicians (warrant officer/sergeant) to permit 24/7 operations.

61. The targeting officer's duties include:

a. developing targets and potential targets from available information;

b. working with the G2 and DAIO to integrate field artillery requirements with the overall division collection plan;

c. advising the CDA on matters and status of TA assets;

d. working with the G2 and DAIO to develop and perform target value analysis (TVA);

e. helping develop the HPTL, the AGM and the TSS; and

[16] This is an evolving concept, with the DOCC conducting deep operations for the division commander. The G3 Deep Ops is responsible for the planning and execution of the deep battle and will likely be a combat arms LCol.

f. providing assistance in maintaining, updating and disseminating changes to the HPTL as the situation evolves.

62. **Corps and Division Synchronization**. The focus at the corps level is on deep tactical and operational targets. These targets must be engaged to shape the battlefield for close operations at division level and below. The corps deep assets must be integrated and synchronized with joint force systems. At the same time, the corps commander must support the detect and deliver requirements of subordinate units. Corps and perhaps division HPTs are located throughout the depth of the battlefield. Corps and division commanders set the targeting priorities, timing and effects considerations with the higher commanders' guidance. Mission analysis and plan development establish what conditions must be achieved for success. The mission analysis determines the combat activities, sequence of activities, and application of resources that will achieve the conditions for success. While all conditions may not be met, commanders are responsible for coordination and synchronization of supporting service and joint assets in their area of responsibility.

63. The corps ensures subordinate divisions and separate units understand the corps' mission and concept of operations. Each division plan supports the corps commander's intent and guidance. Corps deep operations establish the conditions for the divisions to successfully fight the corps commander's close operations. This understanding between corps and division means that each command supports the other. Missions and targets may be passed from corps to divisions as the more appropriate executor. The divisions may also have missions and targets that are beyond their capabilities that require corps to provide support. This is important considering the limited range of division assets to detect and attack targets. The corps may coordinate attack of corps HPTs in a division area; similarly, the division may ask the corps to acquire division HPTs that are beyond the capability of the division. This mutual support must be coordinated and synchronized during the decide phase of the targeting process. Synchronization includes all of the following:

a. coordinating the acquisition, tracking, and reporting of targets of concern at either or both levels;

b. vertical exchange of target information;

c. attack of targets outside the area of responsibility of a unit or formation - an example is the acquisition of a corps HPT by division assets that is reported to corps and attacked by corps assets;

d. target engagement criteria;

e. allocation of assets; and

f. establishment of communication links between sensor systems, decision makers, and attack systems.

64. The corps and division artillery FSCCs and subordinate unit LOs play key roles in this synchronization process.

WAR GAMING

65. War gaming is an interactive simulation of combat conducted to support decision making. The artillery staff participates at the manoeuvre war game and normally conduct their own war game afterwards. The artillery war game concentrates on the key activities and events within the fire support plan.

66. The war game provides the CDA, and staff, an opportunity to finalize the fire support plan. The war game brings the fire support staff together, provides a common vision of the operation, tests the plan against an array of possible enemy actions and identifies required decision points and branches in the fire support plan. Issues identified by the war game are used to improve the fire support plan.

67. As the war game is conducted, the information and decisions are recorded. One of the easiest ways to do this is to create a DST and synchronization matrix concurrently with the war game.

DECISION SUPPORT TEMPLATE

68. The DST is essentially a combined intelligence and operations estimate in graphic form. It relates the detail of the event template to decision points that are significant to the commander. It identifies critical battlefield areas, such as NAIs and TAIs and events

and activities that require tactical decisions by time and location. The DST is based on assumptions about the enemy's COAs and the dynamics of the operation that were developed through the IPB and war gaming process.

69. The artillery staff has a copy of the formation DST. After the artillery war game is complete, the artillery staff shall either add the required decision points for the fire support plan to their copy of the formation DST or create their own DST, the latter option is the recommended option.

SYNCHRONIZATION MATRIX

70. The ability to master time, space and the impact of these factors on the modern battlefield is a basic requirement for commanders. Modern technology provides more lethal firepower, enhanced manoeuvre, improved command, control and communications and enhanced intelligence collection and dissemination capabilities. The result is that commanders can no longer depend on the manoeuvre-fire support relationship as the critical event in the conduct of operations. The enhanced capability of the other arms and services requires their integration into operations. Success on the future battlefield depends on the commander's ability to synchronize the effects of all battlefield activities.

71. Synchronization is the arrangement of battlefield activities in time, space and purpose to produce overwhelming combat power at critical points on the battlefield. It begins with the commander's intent – which assures unity of purpose throughout the command. Close, deep and rear operations are often conducted simultaneously and continuously. In order to achieve concentration of force, one of these will be the main effort at any given time. This requires anticipation, coordination and sequencing in time and space. All the combat capabilities must be included if their combined consequences are to be felt at the decisive time and place. Commanders must possess mental agility and become masters of the time-space resource relationship. In the end, the product of effective synchronization is maximum use of every resource where and when it will make the greatest contribution to success.

72. The synchronization matrix is usually built during the war game. It translates the key battlefield activities into time and then links them using decision points. It is produced in conjunction with the DST. The intent of the matrix is to assist in synchronizing the key activities across the battlefield. During planning stages, it identifies activities requiring de-confliction or coordination.

73. As with the DST, the artillery staff will receive a copy of the formation synchronization matrix.The fire support synchronization matrix is developed as the fire support DST is created during the fire support war game. This matrix outlines the key activities of the fire support system along the same timeline as the formation synchronization matrix.

74. Synchronization is a mental mindset and the matrix is but a means, not the end. Commanders must retain flexibility and balance in order to act decisively when the enemy fails to react as predicted in the plan. As such, the synchronization matrix is an ideal tool which can be used to assist commanders during the conduct of operations

ANNEX A
FIRE SUPPORT PLANNING IN THE FIELD REGIMENT

INTRODUCTION

1. Fire support to brigades is coordinated, planned and executed by the command element of the DS regiment[17]. The CO of the DS regiment is the principal fire support advisor to the brigade commander and is also a unit commander. The CO of the DS regiment must be able to conduct his own unit planning while contributing to the brigade commander's planning as well.

FIRE SUPPORT COORDINATION CENTRE

2. At brigade, the FSCC is based on the operations staff of the DS regiment. The FSCC coordinates the activities of the fire support system on behalf of the CO and the brigade commander. The FSCC is comprised of the following:

a. operations officer (Ops O);

b. operations staff;

c. BAIO –likely to be collocated with the Brigade G2 staff;

d. BC, and staff, from the DS air defence battery – if there is one - forming the basis for an ASCC;

e. air liaison officer (ALO);

f. G3 Aviation; and

[17] There will be cases where a brigade does not have a regiment in DS for a phase of an operation, for example, if their affiliated unit is DS to the reconnaissance regiment. However, the regimental command element (CO, Ops O and FSCC) and the majority of the BCs and FOOs will likely be OPCON to the brigade to initiate fire support planning for the brigade.

g. a naval gunfire support officer, if allotted.

FIRE SUPPORT PLANNING

3. Brigades use the OPP to develop their plan. However, the DS regiment does not have a staff large enough to conduct its own OPP, therefore, the CO, along with the Ops O, conducts the estimate process. The estimate process usually is conducted over an extended period of time, as some of the information becomes available later in the process (e.g. the selected COA for the brigade will not be available until after the brigade decision brief). The keys to successful fire support planning are the same as highlighted earlier in this chapter.

4. The key timings for the CO are the brigade information brief, brigade decision brief and the brigade orders group. Thus, the CO must have the necessary information ready for the two briefs and then be ready at the orders group to give out the artillery concept, groupings and tasks.

5. As the CO is probably accompanying the brigade commander on command visits, it is likely that the Ops O conducts the majority of the estimate process and be the artillery representative at the brigade information brief. The BAIO is also available to provide input into the estimate. The CO needs to provide the Ops O with enough guidance and direction to ensure that the Ops O can effectively participate in the planning process. This is done by conducting the mission analysis and then verbally briefing the Ops O.

6. The Ops O must be involved in the development of the brigade COAs. Fire support planning must be done in conjunction with manoeuvre planning and the two plans must be meshed together. For this to occur, the planning must be done together. At the same time, the Ops O needs to take time to conduct the fire support estimate. It is likely that the Ops O attends the brigade information brief. Having been involved in the development of the COAs, the OpsO has no problem in stating that they are supportable by the artillery and is able to bring forward any critical issues that must be resolved in order to provide the required fire support.

7. Following the brigade information brief, the Ops O briefs the CO and then assist in the war gaming of the COAs. The Ops O also

needs to finalize the estimate. Just prior to the brigade decision brief the Ops O needs to bring the CO up to date on the estimate and how fire support can be used. The CO normally attends the decision brief and is ready to brief a general overview of the fire support concept and any critical issues still needing resolution. Following the decision brief, the CO and Ops O finalize how the fire support resources are going to be deployed to support the brigade's plan. By brigade orders the CO has determined the guidance for fire support, grouping, fire plan, priorities of fire and positioning requirements for the regiment. The CO normally conducts an informal orders group immediately following brigade orders to pass on the intent and concept directly to the BCs.

8. If an operation is on going at the same time as the planning process, the Ops O may have to delegate some responsibilities to the A/Ops O or to the Ops WO—probably the conduct of the current operation while the Ops O continues with plan development. The Ops O must also stay aware of the progress in the brigade plans cell and the impact of those developments on the fire support plan. Finally, the Ops O needs to keep up with the current battle to ensure that any developments are understood and do not affect the ability to provide fire support for the upcoming operation.

9. Once again, it is the final result that matters – the fire support plan. The CO makes the decisions involving how the plan is going to be developed and the degree of staff involvement. The CO must take current operations and future outlooks into mind in deciding how to plan the upcoming operation.

THE ESTIMATE

10. The artillery estimate of the situation is similar to other military estimates. It is the orderly analysis of a problem leading to a reasoned solution, a process by which the artillery commander defines the aim, considers the factors affecting the accomplishment of this aim and decides upon an outline plan.

11. The CO's estimate is done in conjunction with the brigade's OPP. The brigade staff requires many of the deductions reached in the artillery estimate during their planning. It is likely that the Ops O

conducts the estimate on behalf of the CO. The CO provides the initial direction and supplement it throughout the process.

12. The four principal parts of the estimate are:

a. mission analysis,

b. factors,

c. courses open, and

d. plan.

13. It is important that all assumptions are listed at the beginning of the estimate. This permits others to understand the context within which the estimate was prepared.

MISSION ANALYSIS

14. Mission analysis is the initial step in the estimate process. This is the process by which the CO translates the tasks (and limitations) received from the division commander and CDA into the aim for the estimate. Additional tasks or constraints are received from the brigade commander, and may have an important influence on the statement of the aim. Where there is no practical alternative to these, they must be included as stated limitations to the aim.

15. Mission analysis assists the CO in understanding the tasks assigned and in determining the essential task. It provides the framework within which the regiment operates. Finally, mission analysis done on a continual basis assists the CO in seizing opportunities during the conduct of the battle.

16. The CO usually assists the brigade commander as the latter conducts the brigade mission analysis. This provides the CO with insights on how the brigade commander visualizes the upcoming operation. The CO merges this understanding along with the information received at division orders. Mission analysis comprises the following steps:

a. **Division Commander and CDA's Intent**. The purpose is to establish what effect or result the regiment has to achieve within the division commander and CDA's concept of operation. This requires an understanding of the division commander's main effort and end-state. It is also important that the corps commander's intent and concept of operations be understood. Finally, the brigade commander's mission analysis and approach need to be considered.

b. **Assigned and Implied Tasks**. Assigned tasks are those stated in the directives or orders received from the CDA. Implied tasks are other activities that must be carried out in order to achieve the mission, including the requirement to support the division commander and CDA's main effort. A list of all the routine tasks inherent in most tactical missions is not required.

c. **Constraints**. The identification of specific tasks including those of time, space and resources which have been tasked or restricted and which limit the way in which the CO can execute the mission.

d. **Mission Statement**. At the conclusion of mission analysis, the CO confirms the mission statement. It must be clearly defined and within the bounds of immediate planning. An example mission statement for 11 Fd Regt could be: To support 11 CIB's block along GOAL LINE, in support of 12 CIB and 13 CAB defensive preparations along HIGH STICK.

THE FACTORS

17. A factor is defined as a circumstance, fact or influence contributing to a result. In an estimate it is an element which will influence the execution of the operation. It is essential that all relevant factors be identified and examined. When factors have been selected they shall be arranged in a logical order (normally enemy, environment, forces/resources available, time and space).

18. Examination of the factors will logically lead to one or more deductions or reasonable assumptions which are relevant to achieving the aim. An initial deduction often yields other deductions. If a factor produces no deductions, or if it does not bear upon the aim, it is discarded.

19. **Deductions**. Deductions result from the examination of the factors, they are not simply restatements of principles or fundamentals. They must lead to decisions and concrete actions. In other words, deductions lead to decisions that will appear in the plan. For the most part a deduction results in a grouping, tasking or coordinating instruction in the final plan.

20. Once the factors have been considered and before completing the assessment of tasks, it is usually a good idea to review the deductions. This can be done by highlighting the major deductions or by writing a summary of deductions.

21. **Assessment of Tasks**. The purpose of this factor is to consolidate all deductions made from the study of the other factors and to draw the appropriate conclusions as to the nature and scope of tasks that may have to be accomplished to achieve the aim. From this it is possible to establish the type and size of the forces that may have to be assigned to each task. The tasks that are listed must come from the deductions made during the examination of the factors.

COURSES OPEN

22. Based upon the deductions, and the COAs of the brigade commander, a number of different courses of action for the fire support plan are evident. A COA contains a written statement of the concept of operation, a grouping and the phasing of the operation. If possible each COA is depicted graphically and includes advantages and disadvantages.

23. The courses open to the enemy are also analyzed. These COA are derived from the brigade G2's determination of enemy options. They are further developed to focus on fire support issues. Once again, a concept of operation and the advantages and disadvantages, from the enemy's perspective, are required.

24. Selection of the best COA is the culmination of the estimate procedure. To do so a comparison of the opposing courses of action is necessary. The comparison involves checking whether friendly COA stand the test of all of the identified enemy COAs. This comparison will clearly bring out the **advantages** and **risks** of each friendly COA in face of each enemy COA. At the end of the comparison, it is possible to:

a. assess possible enemy reactions during each phase of a course;

b. assess flexibility of friendly COAs in the face of enemy reactions;

c. identify critical areas and possible changes, either in the planning or execution phases; and

d. confirm the best COA open to the regiment.

25. The selection of the best COA is now possible. A simple statement of the selected COA and a summary of the main reasons that led to it suffices. If this estimate is being prepared by the Ops O for the CO, then the choice is a recommendation to the CO, not a decision. The CO takes the recommendation and accept it or modify it as required.

THE PLAN

26. Once the COA has been chosen, it must be furthered developed and refined into a plan. This plan must fully achieve the aim. Initially, an outline plan will be drafted. It includes:

a. the mission stated in full;

b. intent and concept of operations;

c. general outline;

d. tasks organization; and

e. essential coordinating instructions.

27. From this outline plan, the actual orders are drafted. The form of the orders depends upon how the CO wants to issue them and follows the formats laid out in Annex C of this chapter. Within the regiment, it is the norm that an artillery sub-paragraph will be inserted into the brigade operation order. Other artillery and fire support information are distributed verbally, either in person or over the radio, or by dispatch rider.

ANNEX B
TARGETING AT THE BRIGADE LEVEL

GENERAL

1. The targeting process at the brigade level assists the brigade commander by determining which enemy assets must be acquired and attacked to ensure the success of the mission. The brigade battle is essentially the division close operation. It is shaped by the targeting actions of the corps and division. The brigade staff receives and uses the targeting products of the division. Division level taskings are integrated into the brigade targeting process. However, brigade targeting focuses assets under brigade control. The focus of the targeting effort comes from:

a. the division plan and/or order;

b. the brigade mission statement;

c. the brigade commander's intent; and

d. the brigade commander's targeting guidance.

BRIGADE TARGETING TEAM

2. The brigade targeting team is composed of the following personnel:

a. core members:

(1) bde comd/bde G3,

(2) G2,

(3) ALO,

(4) DS regiment CO/Ops O (chairman),

(5) BAIO; and

(6) targeting officer;

b. supplementary members:

(1) bde G3 Plans;

(2) Engr rep; and

(3) AD BC.

3. The targeting team fulfils the following functions:

a. develop the HPTL and AGM, and establish the TSS;

b. nominate targets to division headquarters;

c. develop and synchronize the reconnaissance and surveillance plan;

d. synchronize manoeuvre and fire support; and

e. receive and evaluate BDA.

TARGETING EFFORT

4. The brigade commander directs the targeting effort. He gives his guidance on the following:

a. what he expects the brigade to do;

b. what must be accomplished, along with timings and reasoning;

c. how he intends to shape the battle in terms of both time and space;

d. the critical enemy vulnerability that will lead most directly to mission accomplishment;

e. places and times in the battle that are critical;

f. desired end state respecting time, force, enemy, and terrain;

g. guidance on what he thinks are the most important targets and what general effects are desired; and

h. BDA requirements.

5. The targeting team prepares the HPTL. Once the commander has approved the list, targets that cannot be acquired or attacked with brigade assets are forwarded to the division targeting team for consideration. The targeting team then develops the AGM and submits it to the commander for approval. As the battle progresses and more information becomes available, the commander may have to change his guidance to react to changes.

6. The AGM is distributed as follows:

a. DS regiment:

(1) RCPO,

(2) Ops O,

(3) BAIO,

(4) BCs, and

(5) Ops O and RCPO of any R or GSR units;

b. G2;

c. G3;

d. battle groups;

e. brigade reconnaissance squadron; and

f. Div G3 and Div Arty G3.

7. The AGM reflects the divisional AGM as it includes the targets from the division AGM that are likely to be acquired within the

brigade's area of interest. This means that the division AGM does not have to be disseminated within the brigade, but that the targeting requirements are. Furthermore, the HOW TO ATTACK column will be filled with the entry "DIV" to indicate that it is a division HPT and shall be attacked by a division resource. If the target is also a brigade HPT, then the entry would include the appropriate attack system within the brigade.

8. In determining the WHEN TO ATTACK column of the AGM, the targeting team must consider the resources they have to attack targets. The "immediate" attack option should be used very rarely as the availability of resources is so limited. However, if a target is of such importance to the brigade commander that is has to be included as an immediate target, then the firing of that target would take precedence over any other ongoing fire mission. For example, if C/S 19 has priority of fire of the regiment, and C/S 22 identifies a target that has an "I" on the AGM in the WHEN TO ATTACK column, then for the time required to engage that target, C/S 22 has overriding priority of fire. Any mission being fired by C/S 19 would be terminated and C/S 22 would receive the fire. The RCPO can attempt to get more fire units to continue to provide support the to C/S 19.

9. The "planned" attack shall be considered to assist in synchronizing the attack of enemy assets with manoeuvre actions, or when multiple attack systems are to be used in attacking the target. In either case, the idea is to maximize the effect of the attack, thereby increasing the damage inflicted. This in turn increases the disruption to the enemy's plans, thereby slowing his tempo and assisting in the seizing or maintaining of the initiative.

TARGETING OFFICER

10. The targeting officer is an artillery officer to whom the CO has assigned the responsibility for co-ordinating the brigade targeting effort throughout the operation. The targeting officer works very closely with the BAIO and Ops O to ensure the smooth passage of information and the rapid engagement of targets. The targeting officer is assisted by a technical sergeant (sergeant/master bombardier) to permit 24/7 operations.

11. The targeting officer's functions include:

a. developing targets and suspected targets from available information;

b. working with the G2 and BAIO to integrate field artillery requirements with the overall brigade collection plan;

c. advising the CO on matters and status of TA assets;

d. working with the G2 and BAIO to develop and perform target value analysis (TVA);

e. helping develop the HPTL, TSS and the AGM;

f. providing assistance in maintaining, updating and disseminating changes to the HPTL as the situation evolves; and

g. passing targets received to the appropriate attack systems in an expedient manner.

ANNEX C
ARTILLERY ORDERS AND INSTRUCTIONS

INTRODUCTION

1. Depending upon the level of command there may be a requirement for the artillery staff to prepare several types of orders:

a. fire support annex to a formation operation order;

b. an artillery sub-paragraph to the EXECUTION paragraph of a formation operation order;

c. an artillery operation order;

d. a fragmentary order (Frag O);

e. artillery overlay order;

f. artillery operation instructions; and

g. warning and movement orders.

2. Whatever orders are produced, they must follow a specific format for reasons of clarity and efficiency. These formats are described in B-GL-303-002/FP-000 Operational Staff Procedures, Staff Duties in the Field.

3. **Methods of Distribution**. Written orders or instructions may be issued by the following methods:

a. **Liaison Officers**. This is generally the best method as LOs can be fully briefed on the tactical situation and can give any additional orders that the commander wishes.

b. **Dispatch Rider**. The formation signals staff must be forewarned well in advance when the services of dispatch riders are required.

c. Electronic Communications Systems such as facsimile or teleprinter.

4. **Formation Fire Support Annexe and Appendices**. Distribution of these documents is the responsibility of formation headquarters. However, their existence permits artillery addressees to be given more copies of the Annexe than the formation operation order itself. This allows for a wider distribution of the fire support plan within the artillery staffs at each level.

5. **Artillery Operation Order**. Only in rare circumstances is an artillery operation order produced. In these circumstances it would be published to amplify the information contained in the fire support annex.

6. **Planning Directive**. A planning directive provides the commander's guidance to the staff during the planning process. The number of copies required by the recipients of a planning directive will depend on the subject. An example is shown at Appendix 1.

7. **Operation Instructions**. These are usually restricted to single copies for the addressees named, with office copies for the file and war diary only. They are usually used at levels above division.

8. **Annexes to Artillery Orders and Appendices to Fire Support Annexes**. The principle to be observed in distributing annexes is that only those who need them shall receive copies with their orders, directives or instructions. The annexes of an artillery operation order or the appendices to a fire support annex might concern the following subjects:

a. **Target Lists**. The same distribution principle as above applies to target lists. However, if a target overlay is issued to supported commanders, they will also need a target list since target locations taken from overlays are not accurate.

b. **Grouping and Task Matrix**. This shall be used to outline how the artillery is allocated throughout the operation.

c. **Ammunition Allocation**. This outlines the distribution of ammunition throughout the operation.

d. **Overlays or Overprinted Maps**. Overlays, illustrating the fire support plan, are given to the formation G3 staff by the artillery G3 staff for distribution with formation operation orders. Copies shall be included with the artillery operation orders to permit distribution to artillery officers working with those commanders. If time does not allow their inclusion in the formation operation order, sufficient copies shall be sent to close support regiments for their supported commanders. Fire plan overlays shall always be accompanied by a target list.

e. **Artillery Manoeuvre Areas**. AMAs are distributed down to battery command post level.

9. **Distribution List**. If the distribution list is short, it may be included after the authentication and list of annexes in the order or instruction itself; otherwise it shall be on a separate sheet. It shall show the copy numbers of the order or instruction and all annexes to be issued. The listing of formations and units follows the normal order of precedence.

THE FIRE SUPPORT ANNEX TO A FORMATION OPERATION ORDER

10. It is normal practice to issue a fire support annex as part of the formation operation order at division level and higher. The fire support annex is used to give the formation commander's direction to fire support commanders. It informs supported troops of the fire support (including air, artillery, naval, and special weapons) that they will receive. Furthermore, it gives necessary details for fire coordination and, in particular, the part they play in such coordination.

11. Since it is an annex, it need not rigorously repeat data from the formation operation order itself, although it may be desirable to expand on a few specific aspects of the order. The guideline to be used in deciding the content of the annex is the realization that

principal addressees will also have received the order, while subordinate addressees may only receive a copy of the annex itself.

12. The annex must therefore be intelligible to both types of users, but not be overburdened with detail. The general format used in operation orders is followed where at all possible. An example is shown at Appendix 2.

THE ARTILLERY PARAGRAPH AND SUB-PARAGRAPH

13. An artillery headquarters is responsible for coordinating all artillery and fire support at each given level of command. In order to ensure that the formation understands the role fire support is fulfilling during an operation, an artillery paragraph (division) or sub-paragraph (brigade) is included in the formation operation order.

14. The sub-paragraph need not slavishly repeat the formation's artillery ORBAT. Its purpose is to provide subordinate commanders with information about the resources available and policies adopted. The normal order of precedence is followed. A specimen example of an artillery paragraph in a divisional operation order is at Appendix 3.

THE ARTILLERY OPERATION ORDER

15. An operation order is a commander's order to subordinate commanders for the coordinated execution of an operation. The order includes only as much detail as is necessary to enable subordinates to issue their own orders and to ensure coordination. Details of the artillery role in an operation are issued in an artillery operation order.

16. Artillery operation orders are most likely to be used at division. For a corps artillery operation order to be written, the frontage and numbers of units involved would have to be small enough for corps to command the battle effectively. At brigade level, operations are usually controlled by oral orders.

17. The method of issue adopted depends on the type of operation, the time available, the staff available, and state of training and other circumstances existing at the time. In mechanized operations during high intensity operations, the formal written order may well be

confined to the planning and opening stages of a campaign. Once the campaign is under way, time will seldom permit subsequent orders for each operation to be issued other than orally. In low intensity conflict and in more static warfare, formal written operation orders are likely to be used more frequently.

APPENDIX 1 TO ANNEX C
EXAMPLE PLANNING DIRECTIVE

Copy Number _____ of _____

Name of HQ

Location of HQ

Dec 00

OPS nnnn

PLANNING DIRECTIVE (for operation, op plan or a number)

References: A.

B.

MISSION

1. **Aim**. A clear and concise statement of the mission – as derived during mission analysis.

2. **Tasks**. These are derived during the mission analysis portion of either the estimate or OPP.

a. **Assigned Tasks**. These are the tasks laid out in the corps operation order and the CCA's Fire Support Annex

b. **Implied Tasks**. These are other activities that must be carried out to achieve the mission, including the requirement to support the corps commander's and CCA's main effort. It is not a list of all routine tasks inherent in most tactical operations.

COMMANDER'S ANALYSIS

3. This paragraph contains the commander's analysis of the mission and, in broad terms, how the mission is to be conducted.

4. Outline, in broad terms, the phases of the operation

ASSUMPTIONS

5. State the commander's assumptions necessary to continue planning. These assumptions are treated as facts by the staff and subordinate commanders.

6. This is not a final list; assumptions may be added, dropped or changed throughout the planning steps.

7. **Forces Apportioned**. Provide information on the type, availability and C2 relationships of assigned and augmentation forces.

8. **Guidance**. Any special or specific guidance is provided in this section. A commander might specify some of the following:

a. centre of gravity and vital ground;

b. any special orders or direction for specific operational and administrative actions or activities that must be completed as a matter of priority prior to or during the operation;

c. critical timings;

d. any special operations/weapons policies;

e. limitations on preparations or preliminary movements; and

f. administrative requirements or arrangements.

9. **Tasks**. This paragraph outlines the staff responsibilities which are peculiar to this particular planning process. If the tasks do

not change from well established operating procedures, there is no need to dwell on them.

COORDINATION

10. Planning Schedule:

a. planning conferences timings (information and decision briefs).

b. planning completion times (Wng O, outline plan, fire plan).

c. other key timings.

d. liaison.

e. acknowledge instructions: ACKNOWLEDGE

Name of who will sign
Rank of who will sign
Comd or for Comd

Authentication: (as per B-GL-303-002, Chap 6, Sect 2, para 33)

Name
Rank
Appointment

Appendixes:

Appendix 1

Appendix 2

DISTRIBUTION: (next page).

APPENDIX 2 TO ANNEX C
EXAMPLE OF A FIRE SUPPORT ANNEX TO AN OPERATION ORDER

Copy Number _____ of _____

Name of HQ

Location of HQ

Jul 00

OPS (number)

ANNEX A - FIRE SUPPORT - TO OPERATION ORDER NUMBER nn

References: A.

B.

C.

Time Zone: (This is the time zone used throughout the order.)

1. **SITUATION**

(If the annex is issued with the formation operation order, there is no requirement to include this paragraph. Notwithstanding,, if there are items of interest that were not covered in the formation operation order that are pertinent to the fire support plan, they can be included here.

a. Enemy Forces. The appropriate annex to the operation order may be referred to here. Include enemy air, artillery, naval, chemical and nuclear capabilities.

b. Friendly Forces.

(1) Outline higher unit/formation plan.

(2) Outline higher and adjacent unit/formation fire support plans.

(3) Note additional air, naval and nuclear resources supporting the unit/formation.

c. Attachments and Detachments. (List fire support resources attached to the unit/formation by higher headquarters along with any unit/formation elements detached to under command or control of the higher headquarters or adjacent units/formations — differences will exist between national command relationship terminology.

2. **MISSION**

To support 4 Div's defence on HOT WALL in support of 52 US Div flanking attack.

3. **EXECUTION**

a. Concept of Operations. This includes the CDA's intent and concept of operations and a break down of the phases of the operation.

b. Offensive Air Support. (Include a description of where the air force main effort is being directed and their concept of operations.)

(1) General.

(2) Allocation. (Allocation of air sorties during the operation, including any priority or specific control arrangements. This is usually done in sorties/day)

(3) Miscellaneous.

c. Artillery Support.

(1) Field Artillery.

(a) Grouping. (Attached and detached field artillery unit/sub-units are listed here. This is usually done using a Grouping and Tasks matrix, which would be included as an appendix.)

(b) Tasks. (Field Artillery tactical tasks are listed here.)

(c) Deployment Areas.

(2) Locating Artillery.

(a) UAV.

(b) SRG.

(c) Met.

(d) Rdrs.

(3) AD Artillery.

(a) Grouping. (Attached and detached air defence artillery units/sub-units are listed here. AD units are grouped into systems and listed by order of precedence. The three main systems groups are ordered as follows:

i. high-level systems,

ii. medium-level systems, and

iii. low-level systems.

(b) Within low-level systems, the order is:

i. area missile systems, and

ii. close air-defence weapons, including missiles, and guns.

(c) Grouping is usually done through the grouping and tasks matrix, which would be included as an appendix.)

(d) Tasks. (AD artillery tactical tasks are listed here.)

(4) Coordination.

(a) Ammunition Allocation. (This can be done in an appendix.)

Ser	Tasks	RPG
(a)	(b)	(c)

(b) Counterbattery/Countermortar Policy.

(c) Air Corridor/Low Level Transit Route.

(d) Weapons Control Status.

(e) AD Units.

(f) All-Arms Air Defence.

(g) AD Emission Control.

(h) AD Priority.

(i) Other sub-paragraphs as required.

d. Naval Gun Fire Support.

(1) General. (Concept of employment, including limitations are listed here.)

(2) Allocation. The grouping/organization for combat, including:

(a) allocation of observers,

(b) allocation of ships to units/formations.

(3) Miscellaneous. Some points to include if applicable are

(a) trajectory limitations,

(b) frequency allocation,

(c) reference to naval gun fire support order/appendix.

e. Co-ordinating Instructions.

(1) fire coordination measures, e.g., fire support coordination line (FSCL), No Fire Line (NFL), restricted fire line (RFL;

(2) timings to include H-hour and timings for the completion of the refinement of fire plans;

(3) coordinating instructions on targets to be engaged by more than one delivery system; and

(4) modification instructions.

4. **SERVICE SUPPORT**

a. reference to administrative/logistic orders;

b. dumping programme;

c. location of ammunition supply points; and

d. daily maintenance requirement/expenditure rates for each weapon system.

5. **COMMAND AND SIGNAL**

a. Locations.

(1) location of main and alternate headquarters; and

(2) location of formation artillery command post and/or fire support coordination centre.

b. Signals.

(1) communications-electronics operating instructions (CEOI)-refers to separate signal instructions;

(2) electronic silence;

(3) Code Words. Code words and nicknames must be listed alphabetically, starting with the code words. It is permissible to have a separate subparagraph for the code words and for the nicknames. This is preferable when there are several of them. For nicknames, neither of the words selected may be a colour or a code word and the words **exercise, operation, project,** and **route** shall not be used.

Ser	Code Words	Meaning	Issued By
(a)	(b)	(c)	(d)

(4) Nicknames.

Ser	Nicknames	Meaning
(a)	(b)	(c)

Acknowledge Instructions: ACKNOWLEDGE

Name of person who will sign

Rank of person who will sign

Comd or for Comd

Authentication: (B-GL-303-002, Chap 6, Sect 2, para 33 e refers).

Appendixes:

Appendix 1

Appendix 2

DISTR : (If annex is issued separately from an operation order)

APPENDIX 3 TO ANNEX C
EXAMPLE OF THE ARTILLERY PARAGRAPH OF AN OPERATION ORDER

d. Artillery. (As with any of the support arms, if an annex is issued with this order, this sub-paragraph would refer to the annex instead of repeating the information here.

(1) Field Artillery. (A short description of the intent of fire support is included here.)

(a) Grouping. (Attached and detached field artillery units/sub-units are listed here. The grouping reflects the arty tactical tasks which have been assigned to all arty units.)

(b) Tasks.

i.	11 Fd Regt	DS 11 CIB
ii.	12 Fd Regt	DS 12 CIB
iii.	13 Fd Regt	R 11 Fd Regt
iv.	14 GS Regt	R 12 Fd Regt
v.	15 MLR Regt	GS
vi.	2-661 FA (MLRS) Bn	GS
vii.	2-662 FA (MLRS) Bn	GS
viii.	2-631 FA (155) Bn	GSR 11 Fd Regt

(c) Coordination. Any special co-ordinating instructions are listed here.

(2) Locating Artillery.

(a) UAVs.

(b) SRG.

(c) Met.

(d) Rdrs.

(3) AD Artillery.

(a) Grouping. Attached and detached air defence artillery units/sub-units are listed here. Air defence units are grouped into systems and listed by order of precedence. The three main systems groups are ordered as follows:

i. high-level systems;

ii. medium-level systems; and

iii. low-level systems; and

(b) within low-level systems, the order is:

i. area missile systems, and

ii. close air-defence weapons, including missiles, and guns.

(c) Tasks:

i.	161 Bty	DS 11 CIB
ii.	162 Bty	GS
iii.	163 Bty	DS 12 CIB
iv.	164 Bty	GS

(4) Coordination.

(a) Ammo alloc

(b) CB Policy

(c) Weapon Control Status:

i. AD units.

ii. All-Arms Air Defence.

(d) AD Priorities.

(e) other sub-paras as required

ANNEX D
SUPPORT TO BRIGADE OPERATIONS

GENERAL

1. A DS regiment is subject to many of the same constraints and limitations that the tactical situation has imposed on the brigade commander. The friendly and enemy situation, the weather and the availability of logistical support will determine what fire support the regiment can provide. A critical role of the CO, and the staff is to assess what the fire support system can and can not do and to present this information to the brigade commander in a clear and forthright manner, throughout the planning process.

2. To provide effective fire support to the brigade, the CO must understand the division commander's and CDA's intent and concept of operations, as well as the brigade commander's intent and concept of operations. This section discusses the fire support requirements for the different types of operations and the transitional phases.

OFFENSIVE OPERATIONS

3. In the offence, if the brigade commander is to successfully accomplish the mission the fire support system must:

a. allocate responsive fire support to leading elements;

b. allocate fire support to neutralize bypassed enemy forces;

c. provide preparatory fire, when required, to weaken enemy resistance;

d. plan targets to protect assaulting troops by neutralizing or suppressing enemy direct fire weapons;

e. plan fires beyond objectives to prevent enemy reinforcement during the attack and to support

friendly consolidations once the objective has been seized; and

f. use permissive fire support coordinating measures well forward to preclude endangering friendly forces.

4. To support brigade offensive operations, the CO shall plan and implement the following tasks:

a. Co-ordinate fire support:

(1) coordinate and synchronize available fire support systems;

(2) destroy, neutralize and/or suppress enemy direct fire system and mortars;

(3) suppress and slow down mobile armour formations;

(4) provide fire support to assist attack helicopters, close air support and joint air attack team operations;

(5) provide suppression of enemy air defence (SEAD) fire;

(6) isolate the battlefield to prevent enemy withdrawal or reinforcement of forces in contact; and

(7) identify and engage deep targets that affect the operation.

b. Acquire targets:

(1) use available sources to locate targets – according to the ISTAR plan and AGM;

(2) co-ordinate/co-operate with the division TA resources for the identification and acquisition of targets; and

(3) plan for the frequent repositioning of TA assets to keep pace with the speed of the offence.

c. Deliver artillery fire:

(1) provide artillery fire at the time and place required by the manoeuvre commanders;

(2) be prepared to receive and execute fire plans; and

(3) plan for reduced accuracy of met data, or more frequent movement of the met station as the advance progresses. Some of the options available include pre-planning registration points and laser points.

d. Move:

(1) complete terrain management coordination early;

(2) position firing units well forward to permit the engagement beyond objectives; and

(3) plan and consider alternate routes to bypass enemy obstacles or bypassed forces. Consider requesting engineer mobility support.

e. Maintain and supply:

(1) co-ordinate with G4 Arty the stockpiling of ammunitions for preparatory fire;

(2) ensure that enough ammunition, of the right nature, is far enough forward to keep the batteries firing; and

(3) coordinate the movement of the echelon with the brigade G4, ensuring the ability of headquarters and services battery to maintain the batteries.

f. Survive:

(1) plan for frequent movement;

(2) coordinate the passage of tactical information, including bypassed enemy locations and good gun locations from the observers; and

(3) consider deception techniques to confuse the enemy's intelligence-gathering assets. This must be done within the framework of the overall deception plan.

ADDITIONAL CONSIDERATION FOR OFFENSIVE OPERATIONS

5. The tasks mentioned in the preceding paragraphs are general in nature and must be planned and implemented during any offensive operation. In addition to these general comments the following highlights some of the unique requirements for the different types of offensive operations and the transitional phases associated with the offence.

6. **Advance to Contact**. Considerations for supporting this type of transitional phase is as follows:

a. Locate the enemy and provide immediately responsive fire to leading elements. Give priorities of fire to the lead elements.

b. Attack deep targets with massed fire to prevent reinforcements. This will be synchronized with the brigade plan, especially the ISTAR and AGM portions of the plan.

c. Anticipate frequent movement of batteries. This may require pushing recce well forward and if the tempo of the advance is fast the use of quick actions.

d. Keep ammunition on the vehicles. During the initial preparatory fire, ammunition can be dumped, but all of the ammunition for the actual advance must remain on wheels. Fire the ammunition on the trucks before the ammunition in the gun or its ammunition vehicle.

e. Produce a continuous fire support plan (CFSP) for the advance. Include targets on the flanks to assist in their protection. Consider providing the flank protection force with an artillery advisor (FOO).

f. Provide the brigade Recce Sqn with an artillery advisor (FOO) to assist in the attack of targets in the enemy's depth.

g. Place an No Fire Line (NFL), well forwards of friendly troops. Plan on having NFLs on order along the phase lines to facilitate rapid shifting as the forces move.

7. **Hasty Attack**. Considerations for supporting the hasty attack are:

a. anticipate immediate suppression of enemy forces;

b. expect to rapidly shift the priorities of fire to exploit the enemy's weak point; and

c. use the maximum number of firing units possible in the early moments of the attack to suppress and neutralize the objective.

8. **Deliberate Attack**. Considerations for supporting the deliberate attack are:

a. ammunition dumping plan;

b. position the firing units well forward to permit them to reach deep beyond the objective; this will assist the force when a breakthrough occurs, since fire units will not have to start moving immediately;

c. preparations to support the deception plan by massing fires and dropping smoke on forward enemy units not in the area of the main attack before the main attack begins; and

d. attack deep targets to delay, disrupt and destroy reserves and/or reinforcements.

9. **Exploitation**. One of the keys to successful exploitation is a plan that considered the likelihood of exploitation and is flexible. Many of the considerations for the advance to contact and the hasty attack apply in addition to the following:

a. Exploit gun locations that permit firing on wider areas. This will permit fire support to forces in contact with enemy located out of the usual zone. Remember, the battle will be very fluid and fire support must remain very flexible.

b. plan for frequent moves and quick actions to keep pace with the advance of the brigade's lead elements. There is liable to be more bypassed enemy elements than usual so information passage is critical.

c. Plan for firing large, short duration concentrations of fire. The enemy's will to fight is likely already reduced, and he is fighting out of unprepared positions, therefore the effect of artillery fire is amplified.

d. target deep to sever escape routes or to prevent reinforcements. Plan on using helicopters for observing forward and along the flanks. Be prepared to use field artillery delivered scatterable mines to slow withdrawing forces or reinforcements.

10. **Pursuit**. Considerations for supporting this type of operation are as follows:

a. Maintain pressure to demoralize the enemy with massed fires. The lack of resistance reduces the likelihood of counter attacks.

b. Plan targets on enemy high-speed avenues of withdrawal. Coordinate with the brigade G2 the observation along these routes.

c. Streamline the batteries to permit quicker movement.

d. Try to keep the guns as well forward as possible so that effective fire can be delivered promptly. Do not forget that the divisional artillery will want to push GS units forward, try and keep space available for them, as they will make your effort easier as the operation proceeds.

DEFENSIVE OPERATIONS

11. The fire support system allows the defending commander to attack the enemy before he moves within range of direct fire weapons, to maximize the effectiveness of combined arms killing zones and to economize manoeuvre forces for other operations.

12. In the defence, if the brigade commander is to successfully accomplish the mission, the fire support system must:

a. provide adequate fire support to the security forces, forces engaged in the main defensive battle and forces conducting deep and rear operations;

b. plan and prosecute targets to disrupt the enemies preparations for an attack;

c. plan for TA and attack, on all avenues of approach to disrupt enemy attacks;

d. continue the fire until the enemy is forced to break off the attack; and

e. use permissive fire support coordinating measures close enough to open up as much of the battlefield as possible, without interfering in friendly operations.

13. To support brigade defensive operations, the CO shall plan and implement the following tasks.

a. Co-ordinate fire support:

(1) coordinate and synchronize all available fire support systems;

(2) destroy, neutralize and/or suppress enemy direct fire system and mortars;

(3) suppress and slow down mobile armour formations;

(4) provide fire support to assist attack helicopters, close air support and joint air attack team operations;

(5) provide SEAD fire;

(6) isolate the battlefield to prevent enemy withdrawal or reinforcement of engaged forces; and

(7) identify and engage deep targets that affect the operation.

b. Acquire targets:

(1) use all available sources to locate targets – according to the ISTAR plan and AGM; and

(2) co-ordinate/co-operate with the division TA resources for the identification and acquisition of targets.

c. Deliver artillery fire:

(1) provide artillery fire at the time and place required by the manoeuvre commanders; and

(2) be prepared to receive and execute fire plans.

d. Move:

(1) complete terrain management coordination early;

(2) position firing units well forward to permit the engagement of the enemy early; and

(3) consider how to provide fire support to the countermoves force.

e. Maintain and supply:

(1) coordinate with G4 Arty the dumping of ammunition;

(2) ensure that enough ammunition, of the right types, is far enough forward to keep the batteries firing; and

(3) coordinate for forward triage of wounded personnel and forward repair of damaged equipment to return both to combat effectiveness rapidly.

f. Survive:

(1) place firing units away from enemy avenues of approach;

(2) consider when to unmask the guns to achieve the maximum advantage from the additional fire support opening up;

(3) plan for engineer support to prepare dug-in positions; and

(4) consider deception techniques to confuse the enemy's intelligence-gathering assets. This must be done within the framework of the overall deception plan.

ADDITIONAL CONSIDERATIONS FOR DEFENSIVE OPERATIONS

14. The tasks mentioned in the preceding paragraphs are general in nature and must be planned and implemented during any defensive operation. In addition to these general comments the following highlights some of the unique requirements for the different types of defensive operations and the transitional phases associated with the defence.

15. **Mobile Defence**. The mobile defence is characterized by an extremely fluid tactical situation in which friendly and enemy units may often be intermixed. To support the mobile defence, the DS regiment must:

a. position batteries in depth to ensure continuous support as forward batteries displace;

b. position batteries off the likely avenues of approach for the enemy;

c. track the battle constantly and keep the regiment informed as the situation develops;

d. plan for rearward moves and coordinate routes and recognition signals with the supported manoeuvre units; and

e. pre-position ammunition for firing throughout the defence;

f. consider streamlining the batteries to permit faster movement.

16. **Area Defence**. This is less fluid and the DS regiment must be prepared to:

a. position batteries to ensure that fire support is available to security forces;

b. dig in the batteries to the maximum extent possible; request engineer support; and

c. use wire communication to the maximum extent possible.

CHAPTER 5
FIRE PLANNING

Few would argue that the goal of fire support is to provide timely, accurate fires in depth in keeping with the commander's intent. If fire support systems are successful in this regard, they'll attrit the enemy's critical combat systems to such a degree that friendly forces can attack, defend or counterattack with highly favourable force ratios at the point of penetration.

Col J.A. Gloriod and LCol S.E. Nahrwold, "Targeting—Keep it Simple", ***Field Artillery*****, Feb 92.**

INTRODUCTION

1. One of the most important functions in the artillery is fire planning. At all levels, the artillery commander is responsible to advise the supported arms commander on fire support matters, co-ordinate the fire support and execute it. This is a very complicated issue, involving multiple weapon systems and resources. These resources must be employed so that each is used to its best advantage, in the most effective and efficient manner, and such that all conflicting demands are resolved. However, the fire plan is a command issue; that in it is the responsibility of the operational or tactical commander. The fire plan produced by div arty is really the division commander's fire plan and the division commander needs to provide its focus and approve the concept of fire support.

2. The Canadian Land Force adopted mission planning, mission command, IPB and targeting to increase the tempo of operations, improve the synchronization of combat functions and ensure that the aim of the commander is fully supported by all the subordinate plans.

> The practical expression of the combat functions is **combat power**—the total means of destructive and/or disruptive force which a military unit can apply against an opponent at a given time and place. Combat power is generated through the integration of the combat functions by the application of tempo,

the designation of a main effort and synchronization.[18]

3. The aim of fire planning is to synchronize fire support effectively into battle plans in order to optimize combat power. To accomplish this aim, fire support planning is done concurrently with manoeuvre planning. It is done at all levels and for deep, close and rear operations. Fire planning must be flexible to accommodate the unexpected in combat and to facilitate rapid change. It anticipates the massing of fire support resources, changes in the force mission, resupply, TA and target execution.

4. Fire planning involves more than just planning where the guns are going to fire. Fire planning is synchronizing fire support to achieve a collective and co-ordinated use of indirect fire weapons, armed aircraft, and other lethal and non-lethal means in support of a battle plan. Lethal fire support includes mortars, field artillery, naval gunfire, and air delivered weapons. Non-lethal means include EW and psychological operations. The manoeuvre commander employs these means to support the manoeuvre plan; to mass firepower; and to delay, disrupt, or destroy the enemy in depth. Fire support destroys, neutralizes, and suppresses enemy weapons, formations and indirect fire systems.

5. Fire planning, targeting and positioning are three separate processes for the artillery staff to complete. There is considerable overlap between them. Targeting determines the priorities of the commander, and fire planning determines where and when these targets are going to be engaged. Positioning determines where the guns are going to be placed to support the manoeuvre force. The three are closely intertwined, and each one must take into consideration any limitations imposed by the other two processes.

6. There are many tools available to assist artillery commanders in completing these processes. IPB products, resource allocation and commander's guidance help focus the attention on the requirements of the manoeuvre force and drive where and when targets are going to be engaged and where the arty has to be positioned

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[18] B-GL-300-002/FP-000, *Land Force Tactical Doctrine*, Chap 1.

PRINCIPLES OF FIRE PLANNING

7. The fire planner almost invariably has two main problems to overcome:

a. there is never enough time; and

b. no plan ever survives contact.

8. These difficulties can normally be overcome by following five straightforward principles:

a. **Simplicity**. This applies equally to fire planning as to most other military undertakings. A simple fire plan is quicker to arrange, it allows less room for error or misunderstanding.

b. **Flexibility**. To cater to the unexpected, some fire must be earmarked so that its removal at any time does not leave planned targets uncovered. This fire is not held in reserve but is superimposed on the most important target.

c. **Concentration of Fire**. There will seldom be sufficient fire available to strike all targets the commander would like covered simultaneously. Fire must be concentrated on the most dangerous areas using the optimum weight of fire and type of ammunition to achieve the commander's aim. It must not be so widely and thinly spread that, although all targets may be engaged, it is largely ineffective.

d. **Surprise**. Adjustment and preparation fire give away surprise. Thus, a trade off between the degree of guarantee of accuracy required for any target and the importance of surprise to the overall plan must be determined.

e. **Cooperation**. The fire support available may involve not only the artillery, but also other elements

of the fire support system. Fire plan preparations must be carried out with maximum coordination with other fire support elements to ensure that the operation is launched swiftly and with the required fire support. Cooperation between the fire support elements is vital.

FIRE PLANNING

9. Fire planning is a deliberate process starting at the highest level (usually division or brigade) working its way down to the FOOs allocated to combat teams. Each level completes its portion of the fire plan to support their manoeuvre commander's plan. They then pass it to the next lower level, where it is further refined by extracting and adding targets and appropriate guidance. This process continues from div arty to the regimental Ops O, to the BCs and then to the FOOs. Refinement is carried out as required at each level in a continual process.

10. The fire planning process ensures that:

a. The fire support effort is focused exactly where the superior manoeuvre commander intends to fight the battle. The senior artillery commander at each level in conjunction with the manoeuvre commander develops the fire support plan.

b. The concept for fire support is developed early, permitting artillery and manoeuvre commanders to plan for battle concurrently - thereby maintaining the tempo of operations.

c. Guidance from the artillery commander to each subordinate artillery commander is built-in, along with the allocation of resources.

d. Target execution responsibility and modification authority is assigned.

e. A plan is developed in a relatively short period of time.

f. The movement of artillery (positioning) is integrated into the movement plan of the supported manoeuvre element to ensure that the firing elements are in position to support the commander's intent.

g. The fire plan for each level is completed in time for the orders group and for subsequent rehearsals. This helps to synchronize the fire plan with the manoeuvre force. The rehearsal also identifies any potential problem areas, permitting them to be resolved before they become critical. Overall, rehearsals help ensure that the fire plan supports the manoeuvre commander's intent.

11. One of the keys to fire planning is the input from the manoeuvre commander. The manoeuvre commander provides the artillery commander with the objectives for fire support – what fire support is to achieve. This permits the artillery commander to develop the fire support plan in conjunction with the needs of the manoeuvre commander.

FIRE PLANNING PROCESS

12. **Division Level**. Fire planning begins when the division commander and the CDA receive the mission from higher and begin discussing how they see their portion of the battle being fought. The OPP is based on concurrent activity and the operations and artillery staffs begin planning immediately. The process involves the development of COAs for both the friendly and enemy forces. For each div arty COA the CDA and CDA staff develop a fire support concept and a recommendation for the division commander's intent for fire support.

13. If time permits, the manoeuvre force's COAs undergo war gaming to determine which is the best option. At this point, the division commander will provide detailed direction for fire support. Once the COA has been determined the actual selection of targets is started.

14. Each target is selected to support the division commander's plan and intent. During defensive fire plans, targets are selected to

force the enemy to adopt an approach that is favourable to the manoeuvre force. Other targets are placed to support divisional level countermoves and contingency plans. For offensive operations, targets are selected to neutralize the enemy, prevent the movement of reserves and assist the movement of friendly forces. It is important to place targets throughout the area of responsibility. Most of the division level targets are directed towards supporting deep operations, but some targets can be placed within the brigade and rear areas if they support the division commander's intent. The number of targets placed by the division depends upon their knowledge of enemy locations and intentions, the ammunition available per phase of battle and the amount of additional fire support resources available to support the division commander's plan. The final result is a fire plan that supports and is synchronized with the superior manoeuvre commander's plan.

15. As targets are selected, it is important to record the aim, the trigger event, execution and modification authority for each target on the fire support task table (FSTT) – refer to Annex A. At the division level, the fire plan is created by the div arty planning cell and then executed by the div arty operations cell. The FSTT gives the operations cell and the Ops O of the DS regiment insight into the reason that targets were selected and how they support the overall plan. It is distributed in conjunction with the target list or fire plan table.

16. The fire plan is normally ready for distribution at the same time as the operation order. It is sent to the flanking formations' artillery commanders. This allows the fire plan to be exercised during the division commander's rehearsal, ensuring better comprehension of the way that fire support will be used to support the plan. The various artillery commanders have the division fire plan ready for their rehearsals and for questions. The fire plan also includes detailed commander's guidance and an allocation of resources, which are included in the div arty paragraph in the operation order.

17. The fire planners (G3 Arty Plans) at div arty now turn their attention to the contingency plans being produced within the divisional headquarters. The G3 Arty Ops cell takes responsibility for the fire plan from the G3 Arty Plans cell at this point. The Ops cell is now charged with accepting or refusing any refinements and with making any necessary modifications as the situation progresses. They are assisted by the information included on the FSTT.

18. **Brigade Level**. The CO of the DS regiment receives the fire plan and FSTT from division. The CO refines targets received from division as required and adds the required targets to support the brigade plan. For targets that the regiment has been tasked as executor, the CO can reassign that responsibility and/or modification authority down to a BC, the BAIO or any other resources the regiment has been allotted. The Ops O prepares and issues a fire support matrix - a graphic representation of the operation outlining execution responsibility, which is portrayed in annex B.

19. As it is developed in conjunction with the brigade manoeuvre plan, the fire plan is totally synchronized with the brigade manoeuvre plan. It should be completed before orders are disseminated to the BCs. The commander's guidance and the allocation of resources will be included within the arty para in the brigade Op O. The fire plan, commander's guidance, sequencing of fire support and the allocation of resources will be further discussed by the CO and BCs following orders group to clear up any issues and ensure that everyone understands their tasks and responsibilities.

DEFENSIVE FIRE PLANNING

20. The procedure outlined above is particularly oriented to defensive fire planning. The key is for each level to complete their portion of the fire plan in time for orders. This permits the implementation and rehearsal of the fire plan by the arty commanders and their subordinates.

OFFENSIVE FIRE PLANNING

21. Fire plan in offensive operations is more decentralized than in defensive fire planning with more flexibility to the lower levels. Once again the procedure outlined above is followed. A time schedule could be completed at the same time as the rest of the fire plan. Each subsequent level then adds more detail to the fire plan timings. The FOO with the lead combat team will be able to brief the supported arms commander on how the artillery will be supporting the entire operation, and then on how the combat team will be supported within the bigger picture. This does not restrict the ability of the FOO, or the

BC, to conduct fire plans or missions to support their manoeuvre commander.

THE DELIBERATE FIRE PLAN

22. The deliberate fire plan is used for large, complex actions normally initiated at brigade level and above and which involve the fire power of several units.

23. The deliberate fire planning process often begins with the receipt of a mission from higher headquarters accompanied by an allotment of artillery and other fire support resources to support the assigned mission. In some cases, it is initiated as part of the division or brigade mission. The fire plan begins at the level planning the operation. The artillery commander and staff select targets required to support the manoeuvre plan as previously highlighted.

24. The responsibilities of the artillery commander issuing the fire plan include:

a. allotment of guns and ammunition;

b. allotment of fire units to tasks;

c. counterbattery policy;

d. allotment of locating tasks;

e. circulation of target data;

f. preparation and issue of fire plan tables;

g. updating survey and meteorology data, and

h. overall control of the fire plan.

25. The fire plan enables the artillery commander to ensure that all required targets are allotted to units and subsequently engaged as required. A complete deliberate fire plan consists of:

a. a target list;

b. an FSTT;

c. a target overlay, if time permits;

d. one or more fire plan tables; and

e. written orders, if required.

26. In complex situations, separate fire plans may be issued to cover each phase of an operation. For a divisional defensive battle there may be a deep operations fire plan, a counterbattery fire plan, a defensive fire plan for the covering force, a defensive fire plan for the main battle position, and a fire plan to support each blocking operation or counter-attack. Each of these will have its own overlay and fire plan table or tables, and may have a separate target list and FSTT.

27. It is often necessary to issue orders in instalments, so that the technical work of producing gun data for the fire plan can be started as early as possible. These may be:

a. oral orders, including warning orders concerning the guns and ammunition required, and orders for the adjustment of targets; and/or

b. written orders including target lists, FSTT, artillery fire plan tables and overlays for the fire plan.

THE QUICK FIRE PLAN

28. Quick fire plans will be used primarily in offensive operations, normally at battle group or lower levels. Only rarely will the divisional staff be involved, and even then their participation will be limited to the allotment of additional fire units and ammunition if required and if available. Quick fire planning is fully discussed in B-GL-371-002/FP-001, *Duties of the Battery Commander and the Observer*.

MODIFICATION TO TIMED FIRE PLANS

29. A fire plan is designed in accordance with a tactical plan. Few operations, however, go exactly according to the plan, and the progress of the battle may dictate certain modifications to the original fire plan. These modifications might affect the allotment of artillery to tasks, amount of fire, the nature of ammunition, or timings for the delivery of fire.

30. The authority for ordering such modifications will usually be retained by the headquarters initiating the fire plan. This authority may, however, be delegated to officers specially nominated in the fire plan orders. Subordinate headquarters may request such modifications as they consider necessary to the appropriate modifying authority.

31. A fire plan must be flexible. The simpler it is, the easier it is to modify. It is often possible to anticipate where modifications are likely to be required and to make preparations accordingly by:

a. dividing the plan into phases, each with a nickname;

b. arranging for “on call" targets to be engaged by units superimposed on the fire plan;

c. grouping targets;

d. using authorized observers with special communications; and

e. authorizing officers to order specific modifications, if required.

32. Before ordering a modification, the authorizing officer must ensure that the order can reach all participating units in sufficient time for its implementation. As a rough guide, one minute is required for each radio net through which the order has to be retransmitted, and two or three minutes are required at the level at which the order has to be executed.

33. Modification of orders and terms used in fire plans are fully covered in B-GL-371-002/FP-001 *Duties of the Battery Commander*

and the Observer, and in B-GL-371-004/FP-001 *Duties at Regimental Headquarters and the Gun Position*.

TYPES OF DEFENSIVE FIRE TARGETS

34. Defensive Fire (DF) targets are required in defensive as well as in offensive operations. DF targets are planned so that enemy attacks are continually subjected to artillery fire.

35. There are three types of DF:

a. **DF in Depth**. These depth fire tasks are planned at brigade or higher level, and are designed to disrupt enemy preparations for the attack. Likely targets are routes, headquarters, reserve areas and assembly areas. Depth DFs are selected beyond battalion or battle group areas of influence.

b. **Close DF**. These tasks are designed to disorganize the enemy from his assembly area forward. Close DFs are planned at battle group and combat team levels, and coordinated at brigade and division levels. When time permits, the combat team commander selects DFs in the combat team area.

c. **Final Protective Fire (FPF)**. FPF are used as the last measure to stop an enemy attack on a position. Only one FPF per fire unit can be allocated. Usually, FPFs are regimental size – although battery FPFs are valid, a brigade with a DS regiment and a reinforcing regiment can place two FPFs. The infantry battalions can have FPFs assigned to their mortar platoons as well. During most operations the battle plan is divided into phases; if required, different FPFs can be designated for each phase. This helps ensure that the artillery is laid on targets that are likely to be engaged.

36. The weight of fire to be provided on any DF or FPF task, and details concerning authority to order engagement, must be specified in formation and unit SOPs.

FIRE PLANNING AIDES

37. **Target Numbers**. The total number of targets placed to support a unit or formation must be kept down to a manageable number. The divisional fire plan will be kept to between 45 and 60 targets. Although the computing devices can store an almost unlimited number of targets, the control procedures for large numbers of targets quickly becomes cumbersome. If modifications to target locations are lost, or if targets are cancelled when they are still required, the fire plan will fail. To simplify the control of target records, the number shall be kept to a minimum.

38. To support the manoeuvre commander's plan while keeping the number of targets to a minimum, observers must make each and every target count. Only those targets that directly support the plan are chosen. Each target is chosen for a specific reason. It shall be remembered that targets of opportunity can, and should, be engaged.

39. **Refinement**. Critical to the success of manoeuvre fire planning is the concept of refinement. During the planning process, targets are planned on the basis of map spots and situational templates. Targets must be continually refined through reconnaissance, occupation of terrain, and updated intelligence. The refinement process caters to changes to the fire plan, as well as to the concerns of each level of command. These concerns usually arise over the location of targets.

40. **Target Location**. It is important to note that the positioning of observers is driven by the requirement to observe and engage targets and not the other way around. Any target that is in the wrong location to achieve its stated purpose will be moved. Equally, if a different location can better achieve the aim of the target then the target location shall be modified There are two situations where this can happen:

a. The observer has modification authority. In this case the observer cancels the original target number and issues a new target number to avoid confusion. The observer must ensure that the change in location does not affect the stated purpose of the target.

b. The observer does not have modification authority. In this case, the observer recommends that the target be cancelled and recommends a new target. This is passed up to the modification authority for a final decision.

41. The object of target refinement is to make only the required changes to ensure the success of the fire plan at that particular level.

TOOLS FOR FIRE PLANNING

42. In order to simplify the passage of the fire plan a number of different products have been designed. These products articulate the thought process of the planners into an easy to read and understand format for executors and manoeuvre commanders. The advantage of the tools listed below, is that they assist arty commanders in keeping track of all the pertinent information about the fire support plan.

43. **Fire Support Task Table**. The FSTT is used within div arty to pass the intent for targets from the G3 Plans cell to the G3 Ops cell and to the Ops Os of the units within and supporting div arty. It outlines the planner's intent for fire support and for each target, shows resources and responsibility for execution of targets. An example of a FSST is shown at Annex A. It assists in synchronizing the execution of the fire plan with the manoeuvre units and by phase of the battle. The FSST ensures that the executor understands the reason a target was selected. Used properly it provides planners and executors with a common understanding of how the battle is being fought. It synchronizes resources, ammunition and guns with the manoeuvre.

44. **Fire Support Matrix**. At the regimental level, the Ops O will use a fire support matrix to outline the details of the fire plan to the battery and manoeuvre commanders. An example fire support matrix is shown at Annex B. Its intent is to disseminate fire support instructions and coordinating detail.

45. Fire planning is a very important part of the planning for any operation. The fire plan must be completed in a manner that ensures it supports the commander's intent, maintains the tempo of operations, and is fully synchronized with manoeuvre plan. The process produces a fire plan concurrently with the manoeuvre plan. It is completed

early enough to be included at orders, thereby allowing time to fix problems and conduct rehearsals. The input of artillery commanders at all levels is essential to the process adding their experience and expertise to the development of the fire plan, as well as keeping the fire plan synchronized with the manoeuvre forces at each level.

FIRE PLANNING—DEEP, CLOSE AND REAR OPERATIONS

46. The artillery is the only weapon in the corps and division that regularly fights deep, close and rear operations simultaneously. Artillery engages the enemy throughout its depth to create the conditions that are favourable for friendly manoeuvre forces and increase the chances for success. Engaging the enemy with massed and synchronized firepower disrupts and delays the entire enemy. Successful integration of deep, close and rear fire support hastens the enemy's defeat by accelerating their disorganization, disintegration and destruction. The enemy commander is faced with multiple threats throughout his force and this can overwhelm his ability to react and cope. Thus, we are able to dictate the tempo of the battle.

47. Successful deep, close and rear operations require detailed planning and coordination. What targets are to be attacked needs to be determined. These targets need to be detected using available TA means and then attacked. The resources available to fight these battles encompass the entire fire support and ISTAR systems. This effort must be properly orchestrated to ensure that the right system is engaging the right target. This requires a high degree of cooperation within the fire support system. Furthermore, it is essential that commanders provide clear guidance on how fire support is to be used.

48. **Deep Operations**. Deep operations are conducted by the division in the area beyond the line of sight and extend out to the limits of the divisions' area of influence. They focus on the disruption of enemy operations and the attrition of his forces. Deep operations seek to restrict the freedom of action of the enemy commander through pre-emption, disruption of the coherence and tempo of his actions, and dislocation, destruction or neutralization of selected elements of his force. This is accomplished by rendering ineffective the enemy's indirect fire and ground based AD capability, reducing the enemy's strength, or delaying the movement of enemy forces to a point where our forces can expect a reasonable chance of success.

49. Attacking throughout the depth of our area of influence allows us to control the tempo of operations. This provides an opportunity to seize and retain the initiative, thus hastening the defeat of the enemy. Deep operations facilitate the accomplishments of operational and tactical objectives. They shape the battlefield by setting the conditions for operational manoeuvre and help dictate the terms for the close fight.

50. Within the division, deep and close operations will often be conducted concurrently. Therefore, it is essential that deep operations be planned to have a specific effect on the enemy. For example, delaying the second echelon, to permit a forward brigade the time to destroy the first echelon force. There are rarely enough fire support resources for either deep or close operations, therefore, it is essential that the relative importance of targets be considered when allocating resources to locate and engage targets.

51. In the offence, deep operations are conducted to isolate, immobilize and weaken the enemy in depth in order to sustain the momentum of the attack. A priority target could be the enemy's reserve. Targets are selected to block the movement of these forces. The intent is to delay their movement, disrupt their organization and destroy their combat power; that is, to reduce the enemy's ability to influence our operations.

52. The fire planner selects targets that support the division commander's plan. During the offence, likely targets include:

a. second echelon forces – to fix them in location, disrupt their cohesiveness and begin their destruction;

b. army tank brigades/ or divisional independent tank battalions—to disrupt their organization, delay their introduction and reduce their combat power;

c. artillery—to reduce the threat to our manoeuvre and artillery forces;

d. attack helicopters (AH)—to reduce their ability to interfere in our operations;

e. logistic elements and facilities—cutting off the enemy's supplies reduces their freedom of action and disrupts their cohesiveness;

f. command and control facilities—to disrupt their operations. These attacks shall be synchronized with close operations to maximize the benefits of a headquarters being out of action; and

g. SEAD—to disrupt their operations, thereby reducing the threat to friendly air and aviation assets.

53. In the defence, deep operations are conducted to disrupt the enemy's plans. By attacking him throughout his depth, friendly forces can reduce the cohesiveness of enemy formations and disrupt the execution of the enemy plan. Deep operations are aimed at separating enemy echelons, attriting, delaying or disrupting enemy fire support systems, and disrupting his command and control facilities. All of this influences the timing and location of close operations and our chances for success.

54. Based upon the division commander's intent and concept of operations, deep operations focus on the forces moving towards the forward edge of the battle area (FEBA). Attacks are centred along the enemy avenues of approach, especially wherever the enemy is forced to concentrate – defiles, river and obstacle sites. IPB products can greatly assist the target and location selection. The enemy is engaged at these points so as to delay, disrupt and destroy his forces. The gaps created between the enemy echelons allow the friendly brigades greater opportunity to engage and destroy the enemy forces deployed against them.

55. Overall, deep operations set the stage for future operations. They must be synchronized with close operations to ensure that fire support is being used in the most effective and efficient manner. Deep operations are focused against those enemy capabilities which most directly threaten the success of projected friendly operations.

56. **Close Operations**. The brigades within the division conduct close operations. Within the fire support system, the COs of the DS regiments are responsible for supporting these operations. They are

allocated additional resources by the CDA, and then plan and execute their fire support plans to provide the support to the brigades.

57. **Rear Operations**. Rear operations are those activities required to assure the freedom of action for the division. The CDA must consider the threat to rear areas and how best to provide fire support advice, planning and execution. Although fire units are unlikely to be dedicated to rear operations, they must be able to respond immediately to major threats as they develop in the rear areas.

58. **Suppression of Enemy Air Defence**. The effective employment of air and aviation assets is extremely important and is a powerful source of fire support. Friendly air and aviation operations permit the division commander to quickly influence deep, close and rear operations – adding depth to the battlefield. SEAD neutralizes, destroys, or temporarily degrades surface based enemy air defence by destructive and/or disruptive means. SEAD is a critical function, which must be accomplished quickly and efficiently.

59. SEAD operations must be coordinated with all elements of the fire support system to produce maximum effect. The division FSCC is responsible for coordinating and executing SEAD within the division. They determine the availability of acquisition and suppression systems. A SEAD fire plan is produced to suppress enemy air defences along the routes to and from the attack objective, as well as the systems surrounding the objective. If the division SEAD capabilities are exceeded, support is requested from corps.

60. One of the best methods of conducting SEAD is the use of electronic warfare (EW). Current friendly EW capability is quite high and when directed against enemy air defence command and control nets, can reduce the effectiveness of the enemy air defences considerably.

COMBINATION OF TARGETS

61. Targets are combined in groups or series to facilitate their engagement. As the battle progresses, different series or groups are adopted. Target combinations reduce the time required to engage the targets.

62. **Groups**. When targets are tactically related, they may be grouped for simultaneous engagement and given an alpha numeric combination (for example: D9P). Each target within the group has at least one fire unit assigned to it. The G3 Arty assigns fire units to the targets of a group. Groups can be used to provide fire on areas where it is anticipated that the enemy will concentrate his forces. For example, if the enemy must cross a river, a group of targets could be placed over the expected crossing area. Since this is likely to be a large area, a number of targets could be placed to provide better coverage of the entire area and then assigned to fire units. When the trigger event occurs, the group would be fired and each fire unit would engage its target.

63. **Series of Targets**. A series of targets is a number of targets that are liable to be fired in succession, and is indicated by a nickname (for example: HOT DOG). Using IPB products, series of targets are placed along the enemy approaches. As the enemy enters the approach the series is adopted. This facilitates rapid response and tracking of the enemy.

ANNEX A
EXAMPLE FIRE SUPPORT TASK TABLE

Target ID	Originator	Intent	Trigger Event	Responsibility	Remarks
ZU 1200	Div Arty	Delay en forward elements along river	As the Forward Security Element (FSE) crosses the river	DAIO	
D3P	Div Arty	Fix enemy main body in KZ 1	Lead elements reaching 23 Northings (Eastern boundary of KZ 1)	11 Fd Regt	
ZU 4580	Div Arty	Destroy bridging across KEEN BLADE	Fire once bridges are in-place	Stay behind OP (54A)	
Hot Dog	Div Arty	Delay MRR as it moves along HWY 401 approach	MRR passes DP 3	13 Fd Regt	

ANNEX B
FIRE SUPPORT MATRIX

1. Comd's Intent for Fire Support

   a.

   b.

2. Fire Support Execution Matrix (Note 1)

	Nasty Kid	Long John	Hot Tub	Big Daddy	Little Angel
Recce Sqn				ZT 3100 ZT 3101 ZT 3102	
E & K Scots		ZT3103 ZT3105 ZT3106 ZT 3185 BIG BEN	ZT 3185		
1 C Scot R		ZT 3184 ZT 4551	ZT 3104		
1 RMR					
Bde					
FPF	2 FPF 1 RMR	2 FPF E&K Scots 1 FPF C Scot R	1 FPF E&K Scots 1 FPF C Scot R	2 FPF Recce Sqn	
NFL	Long John	Hot Tub	Big Daddy	Little Angel	

3. Co-ordinating Instructions.

   a. Fire Support Coordination Measures.

   b. Target Allocation. (NOTE 2)

   c. Refinement Cut-Off Time.

4. Critical Information

a. **Tasks**. (Note 3)

b. **Ammunition**. (Note 4)

Unit	DPICM	HE	HE	VT/Time	Smoke	Illum
	Regt 3	Regt 3	Adj Rds	Regt 3	mins	mins
E&K Scot	9	12	80	9	30	20
1 C Scot R	4	8	60	4	20	20

5. Special Instructions.

NOTES:

1. The Fire support execution matrix is used to graphically depict responsibility and sequencing of activities. Phase lines or events can be used to delineate the fire support plan. The table could also include the air allocation.

2. Target number guidance. This para gives some guidance from the Ops O to the BCs on the number of targets they, and their observers, can place.

3. This para contains information on the tactical tasks and allocation of observers of the units and observers supporting the brigade.

4. The Ops O uses this chart to issue guidance and direction to the BCs about the number of regimental fire missions, broken down by ammunition type, they can each expect to fire during the upcoming operation. The fire missions are listed as regimental fire missions with three rounds in FFE. The assumption is that this is the normal volume of fire required to complete a mission. Missions that do not break easily into 3 round FFE blocks, such as smoke and illumination, are broken into lengths of time, for example 10 minutes.

ANNEX C
TARGET LISTS AND OVERLAYS

THE TARGET LIST

1. The target list is usually prepared at the same time as targets are read from the fire plan table for plotting on the map. The transfer of data to map, target list and, if possible, overlay must be independently checked. As soon as the target list and overlay are completed and checked, they shall be reproduced for immediate distribution in advance of fire plan tables. It is completed in accordance with the directions given in B-GL-371-002/FP-001 *Duties of the Battery Commander and the Observer*, and B-GL-371-004/FP-001 *Duties at Regimental Headquarters and the Gun Position*. However, the following entries on the target list shall be noted:

a. **List Status**. If the target list supersedes and cancels previous lists instead of supplementing them, this shall be stated above the body of the list. "Target List No. 5 (cancels Target List No. 4)".

b. **Source and/or Accuracy**. (Optional) If required, the source and/or accuracy of the information concerning the location of the target is given (normally included for CB targets).

c. **Remarks**. (Optional) Special considerations for attack of the target and further amplification of the description of the target may appear here. Groups and series are indicated in this column.

OVERLAYS

2. The overlay or trace is intended to supplement and confirm the target list. Its use is not essential, but it does represent the fire plan in a convenient form for transfer to operations maps, and thus the overlay saves time in command posts and headquarters.

3. If G3 Arty staff have decided, based on their time appreciation, that they can produce an overlay or trace showing the

fire plan in outline, it will be prepared to the same scale as the operations maps in use. In preparing overlays, the following points shall be noted:

a. Targets are identified on the overlay by a "+" and a target number. Since reproduction of the overlay may cause inaccuracies, the target locations in the target list are authoritative, and the overlay is annotated "Not to be used for prediction".

b. Groups and series of targets are represented by solid lines encircling the targets concerned and are indicated by their nickname or reference number.

c. When time and resources allow, the overlay can be replaced by a map on which targets are marked directly.

ANNEX D
TARGET NUMBERS

GENERAL

1. The objective of the target numbering system is to identify, with alphanumeric characters, points or areas which are to be fired upon or referenced. Such a system must uniquely identify each point or area and must be compatible with automatic data processing equipment. Target information associated with the target number will include the target location, a description of the target, its size, its attitude or layout on the ground, its altitude above mean sea level, and other pertinent engagement information.

2. Targets are assigned numbers so that all levels of command and control, FSCCs, command post and forward observers, will have a means of ready reference to them. This allows for both clarity and speed in the engagement or re-engagement of numbered targets on the battlefield. Programmes of fire can be planned and acted upon without misunderstanding in a coherent and expeditious manner.

3. The target numbering system is based on STANAG 2934 and QSTAG 1168.

4. A target is designated by six characters consisting of two letters and four digits as follows:

a. **Letters**. The letters indicate the level to which records of a target are kept. The first of the letters is always Z and indicates this target numbering system (the US does not use Z as a first letter). The second letter indicates the level of classification as follows:

(1) as desired - ZA through ZN (I and O are not used);

(2) battery targets are designated in accordance with the battery's seniority in the regiment (this level target shall rarely be used as it does not assist in the concentration of fire):

(a) A Battery (Senior Battery) - ZP,

(b) B Battery - ZQ,

(c) C Battery - ZR, and

(d) Z Battery - ZS;

(3) regimental targets - ZT;

(4) divisional artillery targets - ZU;

(5) corps artillery targets - ZV;

(6) army (or force) targets - ZW;

(7) as desired - ZX; and

(8) not used - ZY and ZZ.

b. **Target Number Blocks**. These are randomly selected blocks of numbers. Classified blocks, each of ten consecutive four-digit numbers and designated by the first number in the block (which always ends in zero, e.g., 1430, 2160, 7790), are allotted to the regiments by the CDA, and are sub-allotted to batteries by the RCPO.

c. **Reserved Blocks**. The 8000 to 8900 numerical blocks are reserved for CB targets and controlled by the DAIO. The 9000 to 9990 numerical blocks are reserved for special targets.

CHAPTER 6
AMMUNITION

INTRODUCTION

1. The planning, control and supply of ammunition is an essential factor in the effectiveness of artillery formations and units. It is important that all artillery staff officers have a clear understanding of how the system works.

TERMINOLOGY

2. The terms used to define ammunition holding and the rate at which it shall be supplied are covered in AAP-6 (V). They are

a. **Required Supply Rate**. The RSR is the amount of ammunition, expressed in terms of rounds per gun, per day estimated to be required to sustain operations of any designated force without restriction for a specified period,

b. **Available Supply Rate**. The ASR is the rate of consumption of ammunition that can be allocated considering the supplies and facilities available, for a given period. Once again it is expressed in rounds per gun per day. The ASR is determined by the amount of ammunition that can be delivered by the logistic system.

AMMUNITION PLANNING

3. Artillery ammunition resupply is an operation and not anadministrative function. The planning of ammunition expenditure is the responsibility of the CDA and div arty G3 staff in conjunction with the division or brigade G4 staff.

4. One of the most important factors of operations planning is ammunition planning. Having the right number of rounds at the right time and place is essential. There are many decisions that need to be

made early in the planning process to ensure that the artillery is able to provide the required level of fire support. These decisions include the amount and types of ammunition, the requirement for dumping, and restrictions on firing certain types of ammunition.

5. Figure 6-1 shows the planning figures for the expenditure of ammunition during different phases of war. These rates are based on historical and operational studies and are planning figures. They need to be updated and modified during real operations to incorporate actual data. The figure outlines the number of rounds per gun that are required to ensure success. These figures form the basis for calculating the RSR for artillery ammunition.

6. The RSR is then compared with the ASR. The ASR is usually forecasted into the future and is based upon:

a. the number and types of rounds available or arriving in theatre;

b. the lift capacity of the vehicles within the division or brigade group; and

c. the distance or time required to transport the ammunition from the corps ammunition dumps to the desired locations within the divisional or brigade group area.

Operation	Nature of Operation	Day	Div Arty alone		Div Arty + 1 FA Bde		Div Arty + 2 FA Bdes	
			155mm How RPG	MLRS 227 salvo[19]	155mm How RPG	MLRS 227 salvo	155mm How RPG	MLRS 227
Offensive	Deliberate attack	First	450	12	375	4	325	3
		Succeeding days	300	9	250	3	215	2
	Pursuit		200	7	170	3	145	2
	Exploitation		220	8	185	3	160	2

[19] One salvo equals to 12 rockets per launcher. Each salvo is sub-divided into two rocket pod containers (RPC) consisting of six rockets each. Ammunition resupply for MLRS is achieved by dropping RPCs at reload points throughout the AMA.

Defensive	Covering force		200	8	170	3	145	2
	Main defence battle	First	500	15	420	5	360	3
		Succeeding days	325	10	270	4	235	2
	Counter-attack		350	10	295	4	250	2
Delay			200	7	170	3	145	2
Transitional phases	Withdrawal		250	7	210	3	180	2
	Advance to contact		220	8	185	3	160	2
Inactive situation			100	3	85	1	75	1

Figure 6-1: Daily Expenditure Rates

7. The lift capacity of the main ammunition vehicle, the heavy logistic vehicle wheeled (HLVW), is outlined in Figure 6-2, while Figure 6-3 outlines the overall lift capacity within the doctrinal division outlined in the Electronic Battle Box. If the RSR is greater than the ASR, then a dumping program will probably be required. Otherwise, there is not an immediate requirement to dump ammunition, although a dumping program can still be conducted, if required to support future operations.

8. If a requirement for dumping exists, the G4 Arty will contact the division services group (DISGP). The G4 Arty needs to provide the following information:

a. location of dump(s) and the length of time required;

b. nature and quantity of ammunition required at each dump site;

c. security arrangements for dump sites; and

d. requirement for guides.

9. The DISGP organizes the dumping program. If there are any problems they coordinate with the G4 Arty to resolve outstanding issues. The dumping program is controlled by the DISGP throughout its operation, but the G4 Arty must constantly remain aware of its progress. If problems occur, the G4 Arty shall be ready to present options to the CDA to resolve the problem. The solutions can include daylight dumping, re-distribution of ammunition within the regiments and/or stricter controls on the expenditure of ammunition.

BASIC AND MAINTENANCE LOADS

10. For artillery purposes the basic load is the amount of ammunition that can be carried by the howitzer and its ammunition carrier, and the battery and regimental echelons. The maintenance load is carried by the Artillery Ammunition Transportation Company in the DISGP or at the service battalion in the brigade group. The basic load should remain untouched, if at all possible. Instead, the ammunition brought forward from the maintenance load in the DISGP or brigade service battalion or from a dumping program should be

fired first. The intent is that the basic load is always available in an emergency.

Ammunition	Quantity per pallet	Number of pallets per load	Number of rounds per load
MLRS (227mm)	1/2 salvo (1 RPC)	4	2 salvos
155 mm	24	9	216

Figure 6-2: Lift Capacity (HLVW)

Formation /Unit	Source	Number of Vehicles	Capacity/ veh	Rounds per Gun (RPG)/ Launcher	Remarks
Div Arty	2x M109 Ammo Pl DISGP Tn Bn	100	216 rounds	240	
	MLRS Ammo Pl DISGP Tn Bn	40	2 salvos	4	
Fd Regt	Tpt tp	12	216 rounds	108	
	Bty Tpt Sect (4 per regt)	6	216 rounds	216	
	Gun Tp – forward artillery ammunition support vehicle (FAASV)	6	96 rounds	96	
	Gun Tp – M109	6	36 rounds	36	Within the Regt there is lift for 456 RPG

Formation /Unit	Source	Number of Vehicles	Capacity	Rounds per Gun (RPG)/ Launcher	Remarks
GS regt	Support Tp	12	216 rounds	144	
	Bty Support Tp (3/regt)	6	216 rounds	216	
	Gun Tp – FAASV	6	96 rounds	96	
	Gun Tp – M109	6	36 rounds	36	Within the regt there is the lift for 492 RPG
MLRS regt	Support Tp	18	2 salvos	2	
	Bty Support Tp	6	2 salvos	2	
	MLRS Tp (2/bty)– Ammo Sect	3	2 salvos	2	
	MLRS Tp (2/bty)– MLRS	3	1 Salvo	1	Within the regt there is the lift for 7 salvos per launcher

Figure 6.3: Lift Capacity in X Allied Corps

11. The composition of the artillery ammunition loads depends upon the tactical situation and the availability of ammunition. However, a planning mix could consist of:

dual purpose improved conventional munitions (DPICM)	60%,
high explosive (HE)	25%;
scatterable mines (SCATMIN)	5%;
precision guided munitions (PGM)	4%;
smoke	3%, and
illumination	3%.

12. Throughout operations, the division and corps artillery impose daily expenditure rates. The daily expenditure rate imposed by the CDA can not be exceeded without approval. In some cases, the expenditure rates will be lower than the ASR – during the build-up of ammunition for an operation; in other cases it will be higher – during the firing of dumped ammunition.

13. Artillery units provided by the corps OPCOM or OPCON to the division have their ammunition dumped by corps resources. The G4 Arty provides the Corps G4 Arty with the RSR, and the required dumping site. The Corps G4 Arty along with the Corps Support Command (COSCOM) is responsible for organizing the dumping program.

14. If the DISGP or brigade group service battalion is unable to move the RSR, they have a number of options available to them. They can request more time or the lifting of certain restrictions – such as dumping only at night. Another option is to request vehicles from corps for a period to complete the task, or to take vehicles from elsewhere within the division. If a satisfactory solution is not found, the DISGP or G4 staff will inform the G4 Arty about the ASR.

15. If the ASR is less than the RSR, the expenditure of ammunition must be watched carefully. The CDA can place expenditure limits on the various units for phases of the operation, or the CDA can maintain a larger reserve, which forces the units to maintain a stricter control on the expenditure of ammunition.

CHAPTER 7
DEPLOYMENT

INTRODUCTION

1. Fire support planning takes the fire support plan, the fire plan requirements and information from artillery IPB and synthesizes it into a coherent plan for the movement of the field artillery units. It involves both locations and timings for movement. Several factors will influence the deployment plan. These include:

a. the tactical situation with particular reference to:

(1) fire planning - the target areas; weights of fire required, duration of fire and timings, and

(2) artillery IPB - survivability; considering the enemy threat;

b. real estate availability, taking into account topography, routes, weather and other users;

c. the characteristics of the artillery system available; and

d. CSS.

TERRAIN CONTROL PROCESS

2. Co-ordinating the deployment of a vast array of modern artillery systems has always posed a serious problem to formation staffs at all levels and in all phases of war. There is such considerable demand for real estate during operations that it is inevitable that artillery deployment areas will overlap with another unit's present or planned deployment. During the planning process the div arty staff select AMAs in conjunction with the division G3 staff. The AMAs are then issued to the brigades in the operation order. The detailed coordination for the deployment of artillery occurs at the brigade level. Deployment of division and corps artillery assets forward of the

brigade rear boundaries is coordinated by the DS regiment in whose area the AMA lies.

3. **Artillery Manoeuvre Areas**. The AMAs are a grouping of potential gun positions into a deployment area. AMAs vary in size[20] depending on the ground, phase of battle, or the number of elements which will deploy into the area. The div arty staff selects the AMAs during the planning process – using artillery IPB. The AMAs are then distributed to the regiments for the detailed coordination with the manoeuvre force.

4. AMAs are not solely reserved for the artillery, rather, they delineate those areas in which the artillery is afforded priority for deployment. The AMA process assists in the planning of the deployment of artillery by establishing a basis for resolving terrain conflicts at the lowest levels.

5. **Artillery Reserved Areas (ARAs)**—ARAs are not Canadian doctrine; however, they are used by the UK artillery along with AMAs to assist in the deployment of artillery units. ARAs are areas, normally designated by grid squares, reserved for the exclusive use of artillery. Batteries using static deployment methods must be allocated ARAs. So too must any artillery element of sufficient size to preclude use of that area by another unit, e.g. an ammunition control point (ACP). A battery ARA would, typically, be one square kilometre.

6. **Terrain Control Process —**Terrain control begins early in the planning process. During the formulation of the fire support plan, the CDA and div arty staff determine the positioning requirements of the artillery units. The positioning of fire units must take into consideration fire planning and targeting requirements along with the intent of the CDA.

7. The AMAs are refined by the artillery staff in coordinationwith higher artillery HQs, division operations staff and the engineers. An AMA trace is issued with the artillery orders – usually as part of the fire support annex.

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[20] An AMA can be large enough for only a battery, or it can be big enough to accommodate a Regiment while leaving room for alternate positions within the AMA.

8. The detailed coordination of the AMAs is completed by the DS regiment and the brigade staff. The Ops O will clear any and all requests for use of an AMA with the brigade G3. Deployment of division and corps artillery resources is co-ordinated by the Ops O. Once the Ops O has the clearance, the concerned unit is informed and the movement into the AMA can take place.

9. **Movement Control**. The movement of artillery (within a formation) is likely to pose major coordination problems. The CDA will need to resolve conflicting requirements, such as the need to maintain coverage (by moving small numbers of guns at one time) and the need for GS units to keep up with the formation. Where a formation is operating on a broad front, the CDA will need to ensure that balance and coverage is retained. From the outset the div arty is likely to require constant use of routes, in both directions, for resupply. It would be usual to establish artillery reserved routes to ensure that this is possible.

GUN BATTERY DEPLOYMENTS

10. **Deployment Methods**. Gun batteries deploy using a specified deployment method and type. The deployment methods are as follows:

a. **Static**. In static deployments guns usually remain on the same platform throughout their time in a particular gun area. However, alternative positions/platforms will be prepared for use in emergencies. This method is adopted when the CB threat is low, or the high tempo of movement reduces the risk of effective CB fire being brought to bear. Paradoxically this means that static deployments are likely to be used during mobile operations because they permit greater speed and control of movement between positions which are separated by some distance.

b. **Hasty**. Hasty deployments occur when a gun group is forced to occupy and fire from an unprepared position. Deployments from the line of march will employ such a method.

11. **Deployment Types**. There are two general types of deployment, close and dispersed. Close positions have a battery deployed in an area of approximately 250 x 250 metres. Dispersed positions involve a battery deployed over a wide area in two or three gun sections. Distances between sections are normally limited to 400 to 600 metres to aid C2 and local defence. However, this can be increased if the threat warrants it.

12. **Choice of Deployment Method and Type**. Whenever possible, a static close position is preferred for reasons of C2, ease of ammunition resupply, survey, local defence and morale. Provided the tactical situation permits such a deployment, this option provides a quicker deployment. However this must be balanced against the increased risk in the case of CB or air attack. This situation can be improved, somewhat, by digging and use of urban areas. Static dispersed positions shall be adopted only when the air and CB threats outweigh the ground threat. Hasty deployments are normally adopted only in an emergency. Nevertheless in certain situations, it may be appropriate to plan the use of such deployments.[21]

MLRS DEPLOYMENTS

13. **Introduction**. MLRS is primarily a deep operations weapon system but its use in support of the close and rear battles may well be appropriate on occasions. It can achieve a devastating weight and burst rate of fire, but its distinctive firing signature and reload cycle means that it adopts 'shoot and scoot' deployment tactics.

14. **Deployment**. There are two broad deployment options for MLRS. In the event of an appreciable CB threat, MRLS are deployed dispersed as single launchers. In rapidly moving operations, or those in which the CB or air threat is not significant compared with the ground threat, it will be more appropriate to deploy MLRS in troops of three launchers. It is conceivable in some circumstances that it may be appropriate to deploy MLRS in batteries.

[21] The Americans used this type of deployment during the Gulf War.

a. **Dispersed**. When deploying dispersed, an MLRS battery occupies an AMA some 15 x 5 kilometres and is split into three troop AMAs approximately five kilometres square (see Figure 7-1). Each troop AMA, typically, contains 12 close hides/firing points, six reload points, a troop RV including a survey control point (SCP), and an emergency RV (see Figure 7-2). MLRS does not require the exclusive use of an area, however, the distinctive firing signature makes collocation with other units undesirable because of their vulnerability to retaliatory attack. Local liaison is important and the formation commander needs to make clear the degree of priority to be accorded to MLRS deployment within the formation area. In addition, an area is required for battery and regimental ACPs – the UK artillery would use an ARA for the ACP. These are not usually within the AMA of a battery, but are sited close to an main supply route (MSR).

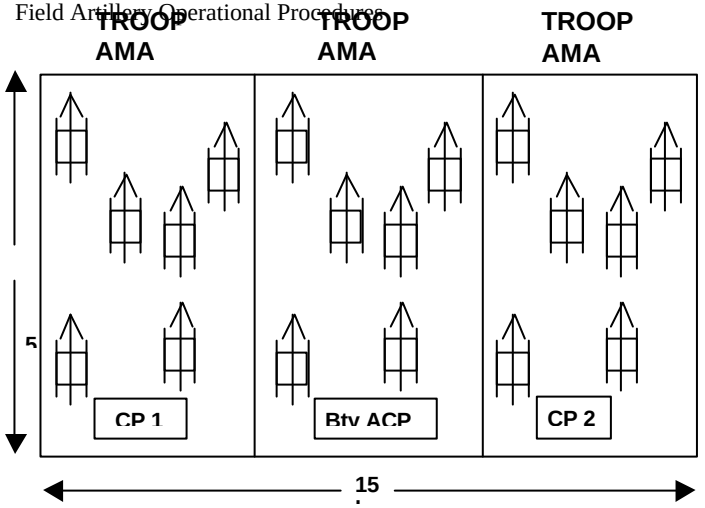
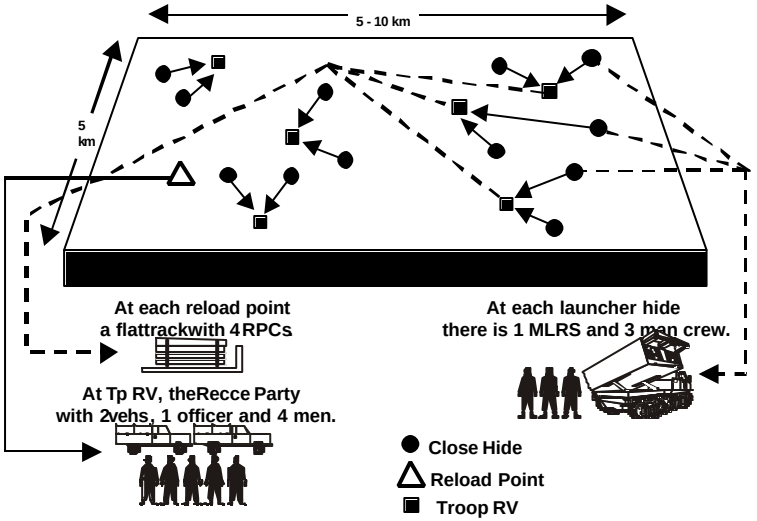


Figure 7-1: Battery AMA

Figure 7-2: Troop AMA



b. **Troop Tight**. In appropriate circumstances MLRS may deploy in troops. This deployment method is known as the troop tight method and has two options:

(1) **Option 1**. Three MLRS deploy to a hide together with the troop reconnaissance party and a number of ammunition vehicles.

(2) **Option 2**. The troop resources are split; a launcher location with three MLRS and the troop commander, and a step up location with the ammunition vehicles and the troop staff sergeant. The step up location could be in a different battery AMA.

c. In principle, the troop (Option 1) or the launchers and troop commander (Option 2) move to a different hide after each fire mission, but much will depend upon the nature of the CB and air threats. Launchers may reload en route and if necessary the ammunition vehicles return to an ACP to collect more ammunition. This method is particularly appropriate to operations such as the advance and the delay. It offers better command and control (particularly important in highly mobile operations), improved local defence, speed of reconnaissance, reduced crew fatigue and a reduction in the amount of radio traffic. Both options are shown diagrammatically at Annex B.

15. **Rest**. Each MLRS has a three man crew and individual launchers cannot sustain continuous dispersed operations. Account must be taken of the need for crew rest and essential vehicle maintenance.

CHAPTER 8
EXECUTION OF OPERATIONS

To pull the lanyard was to invite death … we couldn't fire our artillery; if we did the steel rain would come.

Iraqi Prisoner of War

INTRODUCTION

1. It has often been said that a plan gets everyone to the line of departure – from that point on the operation will go in many different directions – many of which were not mentioned in the plan. Plans do go awry, the enemy does not always co-operate and unexpected opportunities arise. While every effort is required to implement the plan, seizing fleeting opportunities to place the enemy into a disadvantageous position could be critical to the success of the operation.

2. The execution of artillery operations is directed, at division, by the G3 Arty Ops cell on behalf of the CDA. They coordinate, recommend changes and execute the plan developed by the planning staff. To achieve the intent of the plan, the ops staff must understand the intent of the division commander and the CDA. Furthermore, they need to completely understand the concept of operations and the details of the plan they have received.

SIMULTANEOUS MISSIONS

3. The efficient handling of simultaneous fire missions is an essential element of providing effective support. The artillery has always had to deal with the problems of simultaneous calls for fire. Comprehensive and thorough planning seeks to ensure that artillery resources are allocated correctly to support the manoeuvre commander's plan. The flexibility of rapidly shifting fire is a critical factor of success on the battlefield. Despite thorough pre-planning, procedures must have the inherent flexibility to make rapid changes.

4. During the planning phase for an operation, artillery commanders must determine how fire support is going to be allocated

and controlled. The guiding principle for planning fire support is the commander's intent and concept of operations. The allocation of fire support is disseminated through orders to subordinates - providing the initial direction and framework for fire support. At division, tactical tasks are usually used to allocate artillery resources. The AGM also has an influence on which target has priority for engagement – this is detailed in the 'How to Engage' column.

5. Once the battle is engaged, the priorities for engagement may become more fluid and may need to be amended through requests to the G3 Arty by the COs or their Ops Os. This changing of the tactical tasks or priorities of fire can be for a pre-determined period of time or for a phase of an operation. The G3 Arty Ops cell make the necessary decisions based on the tactical situation, the intent and concept of operations of the division commander, and the capabilities and number of fire units available.

6. The DCPO responds to the calls for fire sent by the RCPOs whenever the regiments have more missions than fire units. If possible, the DCPO directs that a fire unit engage the target and selects GS units first followed by GSR and then R units. If no fire units are available, the DCPO can send the fire mission to corps arty or can inform the concerned RCPO that no fire units are available.

EMPLOYMENT OF MLRS

7. MLRS is an armoured, self-propelled, tracked rocket artillery loader/launcher. A single launcher load consists of two RPCs each containing six rockets. An MLRS launcher will normally fire its 12 rockets in 55 seconds using the standard interval of 5 seconds – this is also the minimum interval. The MLRS currently can fire the following munition:

a. **M77 Bomblet**. This rocket contains bomblets that are effective against targets ranging from lightly armoured vehicles to dismounted infantry. The maximum range of this munition is 32 km. A single launcher firing all 12 rockets is equivalent to 18, 155mm guns firing five rounds fire for effect (FFE). The accuracy range for this munition is 11.5 to 25 km.

b. **AT2**. This rocket carries scatterable belly-attack anti-tank mines. The maximum range of this rocket is 39 km. The standard planning barrier is 1000 by 1000 metres and this requires two launchers at ranges of 10 to 15 kms, three launchers at ranges of 15 to 30 km and 4 launchers at distances greater then 30 km.

c. **(US) Army Tactical Missile Systems**. ATACMS is an MLRS launched missile. It is usually held at corps level. The MLRS can carry only one ATACMS missile at a time. It has a range of around 150 kms.

8. **Battery Response State**. A battery will normally be loaded with M77 bomblets and be at one of the following response states:

a. **State Low**. At least three launchers to be at launcher state of readiness (S of R) 2, 3 or 4. All other launchers may be at S of R 5. When AT2 SCATMIN munitions are ordered, the battery is still to maintain three launchers at S of R 2, 3 or 4 loaded with M77 Bomblet ammunition. Only if insufficient launchers are available, will the three launchers be loaded with AT2 SCATMIN.

b. **State Normal**. At least three launchers to be at launcher S of R 1, 2 or 4. All other launchers may be at S of R 3 or 5. When AT2 SCATMIN munitions are ordered, the sub-unit is still to maintain three launchers at S of R 2, 3 or 4 loaded with M77 Bomblet ammunition. Only if insufficient launchers are available, will the three launchers be loaded with AT2 SCATMIN.

c. **State High**. All serviceable launchers are at S of R 1, 2 or 4.

9. **Launcher States of Readiness**. A launcher will normally be at one of the following S of R:

a. **State 1**. The launcher is loaded and ready to fire. It is assumed to be in a close hide, ideally within 100 m, but not more than 500 m or three minutes travelling time from its firing position. Reaction time, from receipt of fire mission to first rocket launched is six minutes. The detachment commander is to ensure that the reaction time can be met.

b. **State 2**. The launcher has reloaded and is enroute from the reload point to close hide. It is available for immediate tasking, firing off the line of march. Reaction time is six minutes.

c. **State 3**. The launcher is in a close hide and loaded. The stabilization reference package is run down. Reaction time is 15 minutes.

d. **State 4**. A launcher is unloaded and is between a firing position and a reload point. Reaction time shall not exceed 35 minutes by day and 45 minutes by night.

e. **State 5**. The launcher is in close hide and loaded, but is at 20 minutes notice to move. Reaction time is 30 minutes.

f. **State 6**. A launcher is unavailable for tasking for reasons of rest, maintenance, repair or relief of crews. This state is normally ordered for a specific time window.

ANNEX A
EXECUTION OF OPERATIONS AT BRIGADE LEVEL

1. The CO and the Ops O direct the conduct of the artillery battle and prepare for future operations. The CO is likely to remain with the brigade commander and monitors the flow of the battle and provides command direction whenever required to the Ops O and the BCs. The artillery CO relies upon the Ops O to execute the plan.

2. The Ops O, and the ops staff, are responsible for conducting the battle. They modify the plan keeping it integrated with the brigade plan, changing the allocation of resources and priorities of fire as required. The Ops O makes changes based upon the CO's intent and also based upon the information received during the operation from the BCs and FOOs, the CO and the brigade staff. In some cases, depending upon the relationship with the CO, the Ops O refers a decision to the CO along with a recommendation.

3. The Ops O also orders the movement of gun batteries[22] to ensure that they can provide continuous fire support to the brigade. Terrain control is a vital process that is conducted almost continuously. The Ops O must clear the deployments into AMAs within the brigade sector of all artillery units – including GS regiments or batteries, locating equipment and air defence elements.

4. The control of ammunition is another important function. The Ops O, assisted by the RCPO, must maintain track of ammunition expenditures and ensure that the expenditure rates outlined in the operation order are not exceeded.

5. The RCPO is responsible for the minute to minute control of fire missions. The RCPO ensures that calls for fire are responded to quickly and by the appropriate size fire unit. If all of the fire units are engaged and a new call for fire is received, the RCPO attempts to find resources from div arty.

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[22] The Ops O moves all batteries for which the regiment has positioning authority. All reinforcing regiments will have their batteries moved by the Ops O.

SIMULTANEOUS MISSIONS

6. As the FOOs begin to call in fire missions it is likely that the demand for fire units will outstrip the number fire units. It is at this point that the BC must step in and ensure that the FOOs and the RCPO understand which targets are the highest priority and those that can be dealt with later on. This is not to say that FOOs that have not been allocated resources may not send fire orders. The FOOs can send the fire orders, but the fire orders are executed as fire units come available.

7. The Ops O monitors the situation and ensures the adequate resources are available to provide fire support to the BCs in contact. The Ops O also switches the priorities of fire if the need arises. The RCPO uses the regiment to engage the priority targets first. Other targets are engaged as soon as units become available or sent to div arty for engagement. If they are unable to engage the target, then it is either passed to corps or the RCPO is informed that no additional resources are available.

8. Within the command post, the difficulty of prioritizing missions means that more careful coordinationis required. As fire missions are initiated, the RCPO engages the priority targets first. For example, C/S 19 has the priorities of fire from the regiment. C/S 21 initiates a regimental mission, this is quickly followed by C/S 12 initiating another regimental mission – since C/S 19 has the priorities of fire C/S 12's mission will take precedence. The RCPO would then attempt to find another fire unit to engage C/S 21's target. If an "IMMEDIATE" target from the AGM is reported then the RCPO would initiate its engagement – if the DS regiment and all reinforcing regiments are engaged, then one regimental mission would be stopped permitting the attack on the "IMMEDIATE" target.

9. To properly control the engagement of targets the following procedure is used. Using the regimental level as an example, the first mission is copied onto a "mission strip" and placed in a "stack". The batteries copy down the mission as it comes in over the radio as per normal. Shortly thereafter, another regimental mission comes in over the command net. In order to avoid confusion and the overloading of the battery command posts, the batteries do not copy down any regimental missions once they are involved in the first one. The RCPO copies down the mission, onto a mission strip, and places it in

the stack in accordance with the priorities of fire. At this point, the RCPO has several choices:

a. place the mission in priority so that the regiment can deal with it in turn;

b. send the mission to a reinforcing regiment (if one is allocated);

c. send the mission to division. If division cannot or will not deal with the mission, they can send the mission back down by stating "Resources not available". If the division is unable to engage, the RCPO places it in priority for engagement.

10. Missions shall not remain in a "stack" for more than 10 minutes without the RCPO confirming if the target location is still valid. Observers can also cancel missions if they are no longer required.

11. At the regimental level, the RCPO will maintain at least two "stacks"; one for the missions to be shot – either with the DS regiment or with any reinforcing regiments, and one for missions sent higher. The point is to be able to shuffle missions as priorities, tactical tasks and the AGM change, as well as keeping track of which units are dealing with which missions.

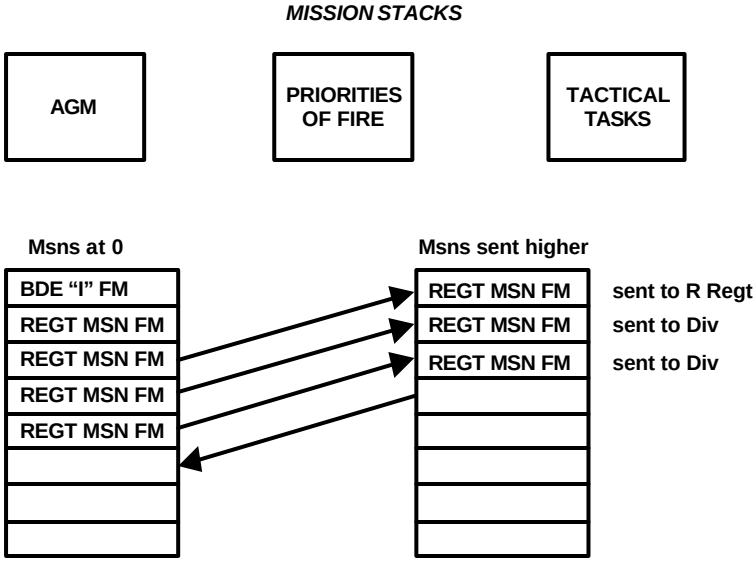

Figure 8-1: The Disposition of Fire Mission at the Regimental Command Post

MISSION STRIPS

Time	Obs	Wng O	Tgt Loc	DIR	Tgt Descr	Type	Traj	Ammo	Distr	AMC	Method	Results

Figure 8-2: Mission Strip

COMMUNICATIONS PROCEDURES

12. In order for the above manual system of dealing with simultaneous missions to work, the following communications procedures must be followed.

a. to avoid overloading command posts, batteries ignore all regimental calls for fire if they are already engaged in a regimental mission;

b. the RCPO will send subsequent missions on fire orders net;

c. as much as possible, observers will join the nets of the fire units providing the support in order to minimize traffic on command nets;

d. if FOOs/BCs are required to join another gunner net, they will leave their battery net, and maintain listening watch on their own regt command net;

e. if artillery command posts at any level are incapable of dealing with fire orders then the order "resources not available" is sent to the lower CP so that missions can be placed back in the command posts "stack";

f. only the commander who established an IMMEDIATE target on the AGM can authorize a delay on firing it.

DIFFERENTIATING BETWEEN CRITERIA

13. At brigade, where artillery resources are limited, IMMEDIATE targets on the brigade AGM take priority over a BC who has been granted the priorities of fire. The use of IMMEDIATE targets on the brigade AGM shall be very rare. Nevertheless, when targets in the AGM are PLANNED or AS ACQUIRED, the priorities of fire specified in orders take precedence. Lastly, requests for priorities of fire shall be weighted carefully, since once granted they

shall, if at all possible, not be taken away prematurely since this may result in a loss of confidence by manoeuvre commanders in their artillery representatives and may also jeopardize the execution of plans in progress.

14. The Ops O must monitor the situation and if the decisions made by the RCPO do not follow the intent of the brigade commander or CO, then the Ops O shall rectify the situation. Furthermore, if the RCPO is continually sending fire missions to the division for engagement, the Ops O shall contact the G3 Arty and attempt to change the tactical tasks to provide more guaranteed fire support to the brigade.

PROTOCOLS

15. The following protocols apply to prioritizing calls for fire:

a. under the priorities of the fire support system, artillery commanders can only change the priorities of fire of those resources allocated to them by the higher artillery commander;

b. commanders may request changes to priorities from the next higher commander;

c. commanders with the authority to set tactical tasks are the only ones authorized to change the priorities of fire set in those tactical tasks;

d. lower artillery commanders can request permanent or temporary changes to the priorities set in tactical tasks from the authorized commander; and

e. immediate targets take precedence on the artillery resources at the level at which the immediate target was established in the AGM (for example, a brigade immediate target takes precedence over whatever missions the brigade DS regiment is conducting at the time, and thus the use of immediate at brigade level is the exception).

16. This procedure provides direction to artillery commanders and staffs on how to prioritize and control fire missions. The use of the procedures described ensures that the artillery focuses its efforts on the right targets, at the right time, and in the most efficient manner possible.

CHAPTER 9
DEEP OPERATIONS

In most instances, fire supporters take the first fight, striking the enemy targets as they present themselves in depth. So fires must move on the battlefield to respond to my fire distribution – they must be focused to achieve the effects I want.

MGen W.M. Boice, Comd 1 Armd Div

INTRODUCTION

1. Deep operations expand the battlefield in time and space, disrupt enemy manoeuvre and protect the force by restricting the enemy's offensive capability before it can be brought to bear. The enemy is delayed, diverted from his main effort and elements of his combat power are destroyed. Deep operations are essentially offensive and are usually conducted at long range over a protracted time scale against the enemy's forces or resources not currently engaged in close operations. Initially, deep operations are often the commander's main effort but the integration of deep and close operations within a single design is fundamental. Deep operations focus selectively on key enemy vulnerabilities and embrace three principal activities: deception, ISTAR and fire support.

2. While fire support plays an essential role in the conduct of deep operations, its integration with manoeuvre makes a deep attack capability effective. Success is founded on the synchronization of all assets at all echelons. Terms such as limit, disrupt, delay, divert, and destroy are used to describe the effects of attack on enemy capabilities. The terms are not mutually exclusive. Actions associated with one objective may also support other objectives. These terms are defined as follows

a. **Limit**. Limiting enemy capabilities applies to reducing the options or courses of action available to the enemy commander. For example, the commander may direct the use of air interdiction and fire support to limit the use of one or more avenues of approach available to the enemy. The

commander may also direct interdiction to limit enemy fire support from interfering with friendly operations.

b. **Disrupt**. Disruption denies the enemy the efficient interaction of his combat and combat support systems. It forces the enemy into ineffective tactical dispositions and degrades the movement of material and forces.

c. **Delay**. This objective alters the time of arrival of forces at a point on the battlefield or the ability of the enemy to project combat power from a point on the battlefield. In interdiction doctrine, delay results from disrupting, diverting, or destroying enemy capabilities or targets.

d. **Divert**. This addresses the commander's desire to tie up critical enemy resources. Attack of certain targets may result in the enemy commander's diverting capabilities or assets from one area or activity to another. The diversion of these resources indirectly reduces the capability of the enemy commander to continue with his plans.

e. **Destroy**. As an objective, this action calls for ruining the structure, organic existence, or condition of an enemy target that is essential to an enemy capability.

3. The commander’s battle plan for deep operations requires several special considerations. Manoeuvre forces may be required to exploit the result of large-scale, conventional fire support or to set the conditions for deep attacks. The successful conduct of deep operations requires careful analysis of enemy capabilities to interfere with friendly operations and of enemy vulnerabilities. Only those enemy targets that pose a significant threat to friendly forces or those which are essential to the accomplishment of a critical enemy capability, are potential targets for engagement. Examples of such targets include: command and control facilities, fire support, air defence systems and ISTAR assets, weapons of mass destruction and logistic installations.

PLANNING AND STAFF PROCEDURES

4. The key to success in deep operations is the efficient use of resources in a concerted and continuous attack on the enemy's fighting power and hence his cohesion. In effect, divisional deep operations constitute, in the main, a continuously evolving targeting and fire planning effort. The DOCC[23] is responsible to the division commander for conducting and coordinating deep operations. The successful prosecution requires a clear vision of the division commander's overall concept of operations and a detailed understanding of what enemy capabilities and vulnerabilities must be attacked to enable the mission to be achieved.

5. Armed with a well understood plan and a series of priorities for their use in achieving the objectives of the deep operations mission, the DOCC co-ordinates and integrates a variety of ISTAR and fire support systems. The DOCC is also responsible for exercising certain command functions over some of them, including deployment. The DOCC applies the direction received from the division commander and the CDA, along with outputs from IPB and targeting to plan their activities. A list of possible targets, the attack of which would seriously impair the enemy's ability to achieve his objectives and/or contribute significantly to the success of the formation plan, is created by the DOCC. As this depends on a careful analysis of enemy vulnerabilities and his ability to interfere with friendly operations, priorities are liable to change depending upon the nature or phase of operations. This work forms a basis for the deployment of ISTAR and fire support assets under formation command. The staff subsequently locate, identify and track targets, attack them with allocated strike assets and conduct post strike analysis. The intent is to take as many decisions as possible during the planning stage so that, once an operation has begun, action can be taken by the staff without the constant referral for decisions that could restrict the tempo of operations.

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[23] The DOCC is led by a Cbt Arms LCol who is assisted by a field artillery Maj on the G3 Arty staff, the latter in most cases will be the divisional targeting officer.

EXECUTION

6. **ISTAR**. The successful prosecution of deep operations requires a well coordinated ISTAR plan to acquire the targets. There are a wide variety of assets that can be used to conduct TA: unmanned aerial vehicles (UAVs), CB and countermortar radars, sound ranging, EW, the reconnaissance regiment and observation helicopters. The division also has access to information from other sources usually controlled at corps or higher. These may include:

a. electronic support measures (ESM) from space, airborne, and surface systems including direction finding equipment;

b. Special Forces (SF) and other HUMINT sources;

c. manned reconnaissance aircraft;

d. Joint surveillance and target attack radar system (JSTARS); and

e. satellite imagery systems.

7. For deep operations, the CO of the TA regiment coordinates with G3 Arty and the DOCC to ensure that all STA requirements are being met. In some circumstances it may be appropriate for TA regiment to be an authorized OP, permitting it to attack certain types of targets without further reference. It may be necessary to specify limitations as to the weapon systems and amount of ammunition to be used.

8. **Fire Support Systems**. The fire support resources available for division deep operations may include:

a. **Artillery**. MLRS, supplemented as necessary by guns, provides the bulk of the firepower likely to be readily available to a division to prosecute deep operations. It may also be supplemented by Naval Gunfire Support. ATACMS may be available to extend coverage out to ranges around 150 kilometres. However, ATACMS is far more likely to be fought at corps than divisional level and

requires very long range target acquisition assets such as JSTARS or SF to make the most of its potential. Its use also has implications for airspace control that must be taken into account at a high level of command.

b. **Attack Helicopters**. AH can be employed in deep operations to defeat armour and other targets. Their use should be synchronized with tactical air support, artillery and EW. Careful planning and coordination by the div arty staff is essential to ensure that air routes are cleared, AD systems adopt an appropriate weapon control status, plans are made and executed for SEAD and that tactical air support is coordinated into the plan. The detailed planning required to execute deep operations with aviation assets begins three to four days in advance of execution and generally in parallel with the air tasking order cycle. For less complicated or 'be prepared' missions, this process can be condensed to 24 hours or less. A pre-planned operation can be executed with 4 to 12 hours notice depending on the state of training and readiness of the constituent elements. Immediate operations may be possible and could be executed within two hours depending on the amount of risk the division commander is willing to accept. However, it may be difficult to coordinate adequate SEAD at such short notice.

c. **Close Air Support**. High performance aircraft can carry a wide range of weapons including bombs, rockets, cannon, EW assets, missiles, incendiaries, and precision guided or smart munitions

d. **EW**. EW provides the division commander with the capability not only to find the enemy using ESM, but also to fix and strike him using various electronic counter measures (ECM). Jamming, deception, and neutralization are the primary offensive ECM employed. Their use requires careful coordination to ensure minimum interference

with friendly forces' use of the electromagnetic spectrum.

CHAPTER 10
OFFENSIVE OPERATIONS

The victor will be the one who finds within himself the resolution to attack; the side with only defence is inevitably doomed to defeat.

M.V. Frunze

INTRODUCTION

1. The purpose of offensive operations is to defeat the enemy, imposing our will on the enemy by applying focused violence on the enemy's forward elements and throughout his depth. The real damage to his will to fight is caused by destroying the coherence of his defence and fragmenting and isolating his combat power. By doing so, the enemy capacity to resist is destroyed.

2. **Types of Offensive Action**. Examples of offensive actions are shown below. An offensive operation may consist of several such actions preceded, followed or linked by one or more of the transitional phases discussed in Chapter 13.

Type of Operation	Description
Reconnaissance in force	Making enemy respond to offensive action – so disclosing information about himself.
Raids	Disrupting the enemy.
Feints	Distracting the enemy by seeking combat.
Demonstrations	Distracting the enemy without seeking combat
Counter attacks	Defeating an enemy made vulnerable by his own actions.
Spoiling attacks	Directed at enemy offensives with the aim of disruption
Hasty attacks	Preparation time is traded for speed.
Deliberate attacks	Pre-planned and coordinated use of manoeuvre and firepower. Aimed at points of greatest weakness.

Figure 10-1: Types of Offensive Action

3. **Planning Considerations**. The CDA requires early target information from all available resources in order to participate in the division's planning process and to construct the fire plan. Specific considerations for the employment of fire support in offensive operations include the following:

a. determining priorities to ensure that the division's main effort receives the support it requires;

b. the closest possible integration and coordination of fire support assets available to support the attack;

c. deploying or employing ISTAR resources well forward to provide continuous support;

d. ensuring that where tactical air support and AH are deployed detailed air route planning is conducted and that appropriate AD weapon control status are promulgated in time;

e. flexibility and speed in the allotment and re-allotment of resources;

f. mobility/deployability of observers, other ISTAR assets, guns and rocket launchers; and

g. the retention of a balanced force.

4. Guns and launchers are deployed well forward for the break-in battle and follow assault forces so that there is no pause in supporting fire. Reconnaissance parties for such batteries will move behind the lead elements. A sound ammunition resupply plan, which lays down what stocks are to be held forward on wheels and takes into account the need for safe routes, is required. It is critical that the whole ISTAR system is coordinated and directed towards the acquisition of critical targets and that suitable weapon systems are able to strike them.

5. **Air**. Close air support is planned primarily with formation air staffs against enemy High Payoff Targets (HPTs) whose

destruction or delay unhinges the enemy commander's plan. Priority targets are likely to include enemy artillery and counter attack forces.

6. **Aviation**. The use of AHs during close operations must be closely coordinated with other fire support assets. AHs are particularly effective in providing screen, guard, flank or reserve forces and for attacking the enemy in gaps between ground manoeuvre units.

7. **Electronic Warfare**. EW is used to:

a. detect and locate enemy:

(1) artillery,

(2) Headquarters and communications centres,

(3) STA systems, in particular AD,CB and countermortar radars,

(4) reserve and counterattack elements, and

(5) ECM elements for subsequent physical attack;

b. isolate selected enemy forces electronically by disrupting communications with their flanking, higher and reserve formations and neutralizing selected key equipment.

APPLICATION OF FIRE SUPPORT

8. Diagrams depicting the possible employment of artillery, and the relevant fire support coordination considerations for a divisional hasty attack and a divisional deliberate attack are at Figures 10-2 and 10-3 respectively.

9. **Preparatory Fire**. Preparatory fire is delivered prior to an attack in order to achieve neutralization or destruction. It may also be used as part of a deception plan. The division commander directs whether preparatory fire is to be used (a silent fire plan may contribute

to surprise). Both brief and prolonged bombardments should be considered. It is important to remember that EW can be used to assist in the accomplishment of these tasks. Targets/tasks might include:

a. defensive positions;

b. Headquarters and communications centres;

c. artillery/mortars;

d. masking enemy observation;

e. SEAD;

f. Reserves; and

g. deception.

10. **Covering Fire**. The aim of covering fire is to isolate the close battle area by neutralizing enemy direct and indirect fire weapons which can engage attacking forces, and by preventing the enemy from reinforcing his positions. This task is performed by artillery, mortars, aviation, EW and tactical air support. Covering fire might includes the following:

a. **Scheduled Fire Plan**. The engagement of targets during a scheduled portion of a fire plan is synchronized in advance in accordance with the commander's plan for the attack. It may be modified if events so demand. Tasks might include:

(1) Fire at the point of break-in and on the objective to neutralize or destroy.

(2) Fire on the flanks and/or in depth, either to deceive or to isolate the close battle by engaging any enemy capable of interfering with the attack. Close support artillery tasks include mutually supporting direct fire weapon positions either bypassed or in depth, mortar positions and mobile/armoured reserves. GS artillery

might be used simultaneously to strike artillery and HQs and to fix reserves and second echelons.

(3) Fire to screen movement.

(4) Pre-planned targets on call to assist with fighting through and during consolidation on the objective.

b. **Opportunity Targets**. During an attack, FOOs need to be able to engage opportunity targets immediately. At least one fire unit shall be superimposed during a fire plan so that it can be directed on to opportunity targets without creating gaps in the fire plan.

c. **Defensive Fire**. Defensive fire may be required to defeat enemy counter attacks. Targets are selected in advance, included in the fire plan and then confirmed or supplemented as necessary during consolidation. Defensive fire tasks include:

(1) neutralizing threats from the flanks;

(2) engaging enemy counter attack forces; and

(3) blocking with scatterable mines, in concert with the formation plan.

11. **Bypassed Enemy**. It is important to note the location of bypassed enemy units as they can influence the deployment and movement forward of fire units.

12. **The Pursuit**. The mechanics of command and control for a pursuit are the same as for an advance, see Chapter 13. The imposition of necessary control measures must not cause undue delay. Accurate, timely intelligence is vital during a pursuit, as is a reserve of combat power to deal with the unexpected. Artillery (delivery means and ISTAR resources), close air support and AH are ideally suited to meeting this requirement. The CDA shall consider the following when preparing the indirect fire plan for such an operation:

a. attacking in depth, the enemy's reserves to prevent him from reinforcing;

b. providing intimate support to assist the division commander in preventing the enemy from disengaging; and

c. targets for hasty attacks.

13. **Deep Operations**. Deep operations are discussed in Chapter 9. However, it is important that deep operations be fully integrated into the close battle—especially during offensive operations.

CROSSING AND BREACHING OBSTACLES – OFFENSIVE OPERATIONS

14. Specific fire support considerations in such operations include the following:

a. **Silent or Noisy Crossing/Breach**. A decision must be made between conducting either a silent or a noisy crossing/breach. A noisy operation may be possible provided that the division commander is confident that there is sufficient fire support available and that the crossing/breach can be achieved too quickly for the enemy to react effectively. A more usual compromise is to keep the crossing/breach silent until either surprise is lost or a pre-determined moment such as the firing of explosive breaching equipment.

b. **Timing**. A daylight operation is likely to be possible only for a hasty crossing/breach or in very close country. In either case, local air superiority is required. A daylight operation may require quantities of smoke ammunition, although an enemy who has a significant thermal indicator or millimetric wave radar capability continues to be able to observe friendly forces. Early identification of this requirement and a decision on the fire units to

be employed is necessary to permit appropriate stocks of smoke to be delivered to the correct weapon positions in time.

c. **Deception**. A deception fire plan should be considered, together with other deception measures, to conceal the location of the real crossing/breach.

15. **Deployment**. Fire units shall be positioned so that they can provide continuous support during all stages of a crossing/breach. The early deployment of FOOs and MFCs into the bridgehead and the use of ISTAR resources beyond the bridgehead is critical.

16. **Tasks**. Likely tasks for artillery and mortars are:

a. to provide supporting fire for troops in the bridgehead;

b. to mask enemy observation of the crossing/breach sites;

c. deception; and

d. deep operations to fix enemy reserves or other forces capable of interfering with the operation, disrupt his communications, command and control and his artillery.

ANNEX A
FIRE SUPPORT FOR A DIVISION HASTY ATTACK

1. **Divisional Concept of Operations**:

   a. Recce encounters enemy in process of preparing defensive position.

   b. Ground and air manoeuvre elements, already tasked organized, prepare to conduct a hasty attack from the march.

   c. Division commander's concept is to fix the enemy with advance guard (lead brigade), remaining forces to conduct envelopment to enemy flank. He also retains a force in reserve.

   d. Deep operations: division and corps continue to look deep and provide early warning of enemy reinforcements or counter attack.

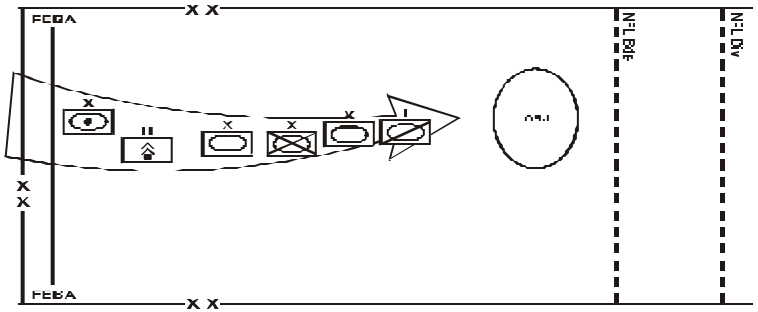


Figure 10-2: Division Hasty Attack

2. **Fire Support Actions**:

   a. Fd regts move forward close behind the lead manoeuvre elements. Guns to come into action as soon as contact is reported. Within the brigades, the priority of fire is given to the observers with the lead battle groups.

b. GS units are deployed fwd to enable the prosecution of deep operations. MLRS Regt moving as troops.

c. Deep operations. Division fights the deep battle using artillery, AH, EW and CAS. A No Fire Line (NFL) is established for lead brigade to allow safe conduct of division deep operations.

d. A division NFL is established in greater depth to allow corps deep operations to be conducted.

3. **Manoeuvre**:

a. Lead brigade takes up position to fix the enemy.

b. Aviation and recce resources conduct route recce for enveloping force and provide flank protection. They also ensure enemy are not trying to conduct their own envelopment.

c. Main body move on multiple routes to envelope enemy flanks.

d. As attack develops, AH and artillery isolate enemy by attacking enemy positions in depth or reserves and by sealing off escape routes.

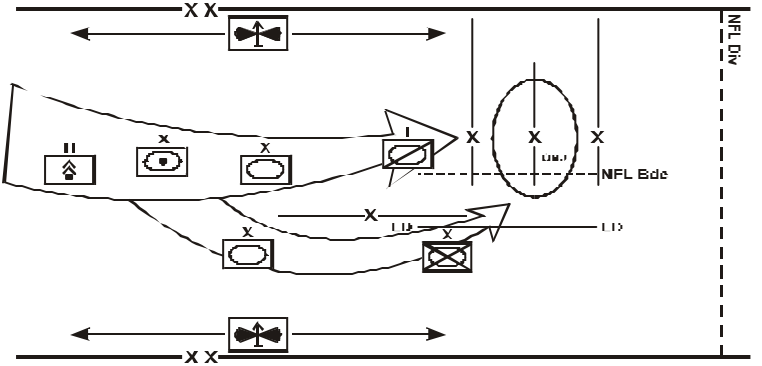


Figure 10-3: Division Hasty Attack Evolution

4. **Fire Support Actions**:

a. DS and R regiments continue to attack the enemy positions. The DS regiments to the assaulting brigades begin adjustment of fire plans.

b. GS units continue to prosecute deep operations, supported by tactical air , EW and AH. The aim is the isolation of enemy positions and the sealing off of escape routes.

c. Original brigade NFL is removed as the right assaulting brigade boundary becomes effective. A new NFL is established forward of the assaulting brigades.

5. **Attack**:

a. Fixing force is lead brigade.

b. Main attack on objective from the flank.

c. Recce moves to the rear of the objective to screen and prepare to continue advance.

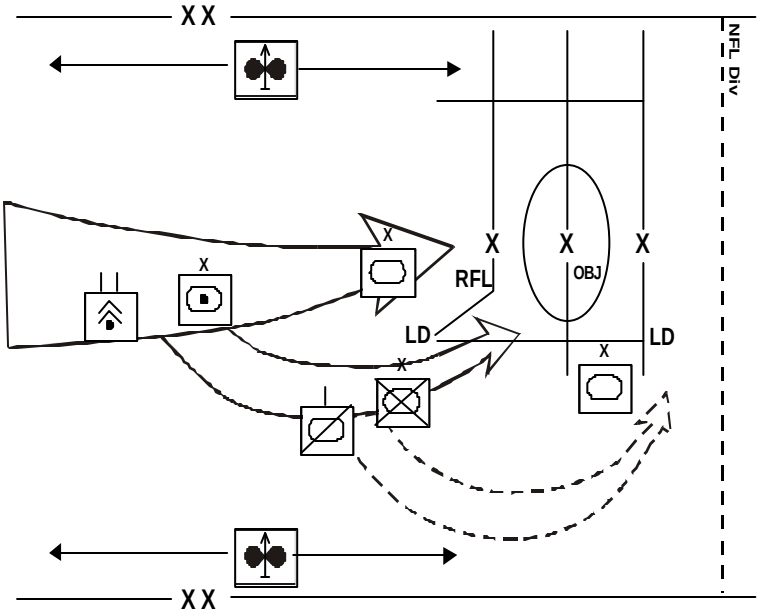


Figure 10-4: Division Hasty Attack Completion

6. **Fire Support Actions**:

a. Inter brigade boundary between assaulting brigades acts as a restricted fire line (RFL). Prior to H hour the assaulting brigade fire plans commence. The brigade NFL is cancelled.

b. The weight of the artillery is to the two assaulting brigades, with the main effort brigade getting the most resources. GS units continue deep operations, maintaining the aim of isolating the enemy positions.

ANNEX B
FIRE SUPPORT FOR A DIVISION DELIBERATE ATTACK

1. **Divisional Concept of Operations**:

   a. The northern brigade is conducting a supporting attack.

   b. A forward passage of lines is being conducted in the southern brigade area. The mechanized brigade will conduct a deliberate attack on the southern enemy positions.

   c. Corps fire support resources conduct deep operations against uncommitted enemy forces.

   d. Rear Operations: CSS is prioritized to maintain manoeuvre forces forward, the control of the MSR is critical throughout the operation.

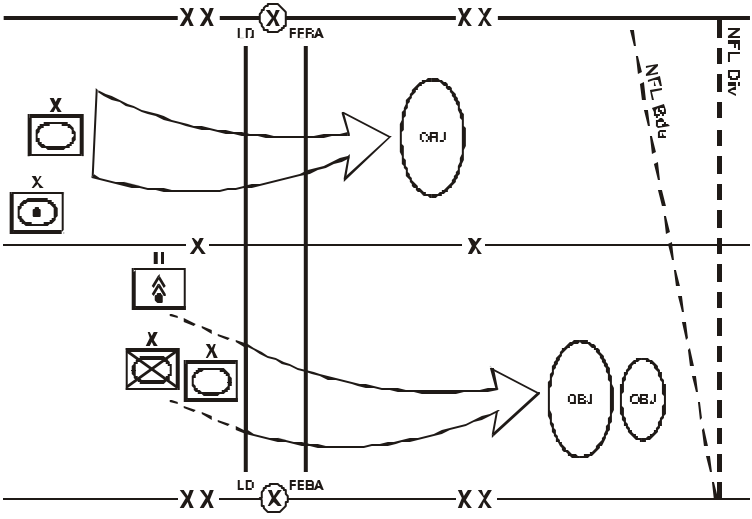


Figure 10-5: Division Deliberate Attack

2. **Initial Fire Support Plan**:

a. Fire Support Coordination Measures (FSCM): The rear boundaries of the assaulting brigades act as RFLs. An NFL is established for each assaulting brigade to simplify the prosecution of deep operations. A division NFL is established to permit corps deep operations to continue.

b. Since the main effort is in the south, it receives the majority of fire support resources. The division has a FA Bde OPCOM, with three MLRS regts/bn available and 5 gun regts/bn. In this case, the main effort has three regiments supporting it, while the northern brigade has two.

c. The MLRS units are deployed close to the FLOT to prosecute deep operations. The aim of the deep operations is to isolate the enemy positions and delay and disrupt the forward movement of any reserves, especially in the direction of the southern objectives.

3. **Manoeuvre** (focusing on the area of the main effort):

a. The in-place brigade assists by penetrating the enemy initial lines. Once achieved, recce pushes through and the combat forces widen the gap and maintain flank security for the main attacking force.

b. Recce units move forward to conduct area recce.

c. The main attacking force will then move through the gap and conduct the passage of lines.

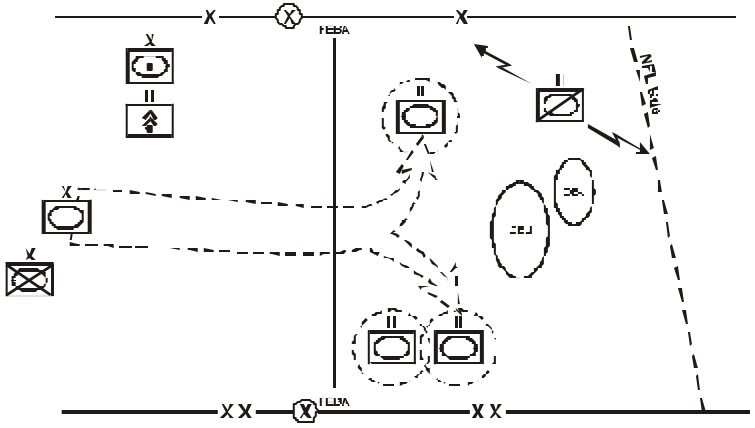


Figure 10-6: Evolution of the Division Deliberate Attack

4. **Fire Support Actions**:

   a. Initially, the majority of fire support resources in the South assist the armoured brigade's penetration of the enemy lines.

   b. FOOs accompany the mechanized brigade's recce forces as they move forward through the gap. They engage enemy forces disrupting the attack as soon as possible.

   c. As the mechanized brigade conducts its passage of lines, the fire support resources are switched to it.

   d. Deep operations continue to be prosecuted throughout the divisional area, with the main effort being directed in support of the objectives of the southern brigade.

5. **Attack** (concentrating on the mechanized brigade):

   a. Main attacking force conducts assault of objective.

b. In-place brigade maintains flank security initially, then follows up behind main attack force.

c. Once initial objective secure, main attacking force continues on to second objective or follow up force will pass through and continue the attack.

d. Aviation assets can be employed to protect vulnerable flanks.

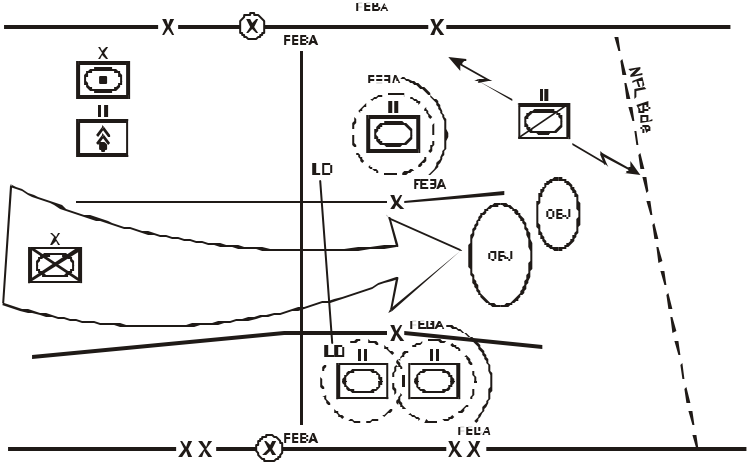


Figure 10-7: Completion of the Division Deliberate Attack

6. **Fire Support Actions**:

a. The majority of fire support resources supports the attacking brigade.

b. The MLRS units continue with deep operations. Their main effort is the prevention of enemy reinforcements or counter attack.

c. FSCM: The assaulting brigade boundaries impose restrictions as required on the engagement of targets by the in-place brigade (armoured).

CHAPTER 11
DEFENSIVE OPERATIONS

All defence must be aggressive, both to mislead the enemy and to retain the high morale of our own troops.

Field Marshal B.L. Montgomery

INTRODUCTION

1. The aim of defensive operations is to break the enemy attack, destroy his forces and stop him from accomplishing his aim. Defensive operations ultimately aim to establish the conditions for friendly forces to seize and maintain the initiative.and to return to offensive operations.

2. Offensive action is fundamental to the defence. The defence must be creative, with every opportunity being taken to grasp the initiative and to disrupt enemy cohesion. Defensive operations are conducted in order to:

a. destroy the enemy's offensive capability and cause his attack to fail;

b. fix the enemy in order to allow friendly forces to strike elsewhere;

c. gain time in order to complete the preparation for a counter-offensive; and

d. retain terrain and prevent the enemy from breaking through.

3. **Forms of Defensive Operations**. Defensive operations are conducted either as mobile defence or area defence:

Mobile Defence	Area Defence
Focus is on defeating the enemy vice holding terrain. Enemy allowed to advance to positions which expose him to attack and	Focus is on retention of terrain. Deny enemy access to designated terrain for specified time. Will not necessarily by

Mobile Defence	Area Defence
envelopment by striking force.	itself produce the defeat of enemy forces.
Own mobility greater than or equal to enemy	Mutually supporting positions forward and in depth. Own force usually less mobile than enemy.
Defend with minimum fixing force. Destroy enemy by fire and manoeuvre.	Defend with maximum force. Interlocking fire to destroy the enemy.
Striking force used at decisive point, often as much as two thirds of total force.	Smaller mobile reserve for local counter attacks, up to one third of total force.

Figure 11-1: Characteristics of Mobile and Area Defence

FIRE SUPPORT

4. **Coordination**. The effectiveness of the defence is largely dependent on the carefully planned fire of all weapon systems. This must be complementary and co-ordinated to have the maximum effect at the right place and and at the right time. A defensive operation may be preceded by a delaying operation involving a covering force, which then conducts a rearward passage of lines through the in-place forces. It may subsequently require a forward passage of lines, an advance and an attack by a countermoves force, which then makes a further transition to the defence. Detailed Fire Support Coordination Measures (FSCMs) and arrangements for fire control will be necessary if the transition between operations is to be achieved smoothly, without breaks in fire support and avoiding unacceptable risks of fratricide.

5. **Planning Considerations**. Fire support planning considers:

a. engaging the enemy early to disrupt the cohesion of his attack, reduce his ISTAR capability and his ability to mass combat power;

b. simultaneous support to deep, close and rear operations;

c. screening friendly movements; and

d. integrating fire with the obstacle plan.

6. **Supporting the Main Effort**. Whether engaged in mobile or area defence, fire support will concentrate on supporting the main effort. This is likely to vary according to the style of defence as follows:

a. **Mobile Defence**. The main effort in the mobile defence is normally where the division commander seeks to bring about a decisive result with the striking force, and requires continuous and concentrated fire support. The striking force must be supported by artillery and this may require resources to be moved forward or to be regrouped to it. Fire support resources can be critical in offsetting a lack of manoeuvre forces. They are also able to transfer indirect fire support rapidly from the fixing force to the striking force. FSCMs and sequencing arrangements must be implemented to prevent fratricide as the striking force nears the area whilst fire support systems are engaging.

b. **Area Defence**. In an area defence, fire support planning is likely to be concentrated on supporting that part of the defence covering the enemy's most likely avenue of approach. Once the main avenue of approach has been identified artillery has the ability to switch fire quickly to concentrate on the enemy in an unexpected area, thereby fixing him, and buying the division commander time to modify the plan, to manoeuvre forces or to deploy reserves.

7. **Artillery**. Whether mobile or area defence is chosen the task of fire support is to disrupt and destroy the enemy before and during his attacks and to support friendly forces in countermoves. Much of the defensive planning will be supplemented by defensive fire plans with pre-selected targets listed and fire units allotted.

a. A diagram showing the schematic deployment of field artillery in a divisional area is at Annex A.

Artillery is a powerful weapon in helping to slow down and break up the cohesion of an enemy attack. It is also used to shape the battlefield by encouraging the enemy to conform to the division commander's defence plan. The successful orchestration of both deep and close operations is therefore critical. The tasks of artillery might be as follows:

(1) Assist in battlefield surveillance and target acquisition. Tasks for FOOs arise from the brigade IPB and their deployment may well be coordinated at brigade, or even divisional level, to take full advantage of the capabilities of their STA equipment.

(2) Support the covering force and/or guard force.

(3) Assist with the handover of the battle from a covering force to the main defensive battle. This is a complex operation requiring the careful coordination of fire control and the imposition of appropriate FSCMs.

(4) Disrupt enemy preparations for attack. Planning should identify likely assembly areas, form up points and approaches, and included them in the DF plan.

(5) Attack enemy artillery and forward AD elements.

(6) Coveri barriers, gaps and open areas, including the use of scatterable mines to impede enemy movement, in concert with the overall obstacle plan.

(7) Support countermove forces.

(8) Maski movement and deception operations.

(9) Neutralize or isolate enemy forces that have penetrated the defensive area and impede the movement of enemy reserves.

b. The deployment and movement of artillery to support defensive operations must consider the threat to gun/launcher areas and the need to support each phase of the operation. Planing must ensure, particularly in the mobile defence , that adequate balance is maintained throughout. Where a significant CB threat leads to widely dispersed manoeuvre forces, the implications for coverage and the ability to concentrate fire at longer ranges must be considered. The planning process, and particularly the IPB , must identify those key target areas for which movement and deployment must be planned to achieve high concentrations of fire.

c. Control of ammunition is critical during defensive operations. The CDA must strike a balance between the need to have sufficient ammunition available to support the planned battle and contingencies and the risk involved in either ground dumping or holding forward on wheels large quantities of ammunition.

8. **Air**. CAS is most economically and effectively used against enemy forces concentrated in depth or advancing along lines of communication. However, in defence, the timing and extent of this requirement cannot be determined in advance with any great certainty.

9. **Aviation**. Aviation may be employed as part of deep operations. Elsewhere, where the division commander does not wish to commit ground forces, aviation may be used to close gaps in a defence plan. In close operations, the use of aviation must be coordinated with other fire support assets into a fire plan.

10. **EW**. As the enemy closes with the main defensive position, EW resources are concentrated on locating and jamming his command, fire control, target acquisition and intelligence gathering systems. They are also directed to locate enemy jamming assets so that these can be destroyed.

APPLICATION OF FIRE SUPPORT

11. **Area Defence**. A diagram indicating the targets that might be engaged by fire support assets in an area defensive battle is at Annex A. An example of the use of FSCMs in area defence is at Annex B.

12. **Mobile Defence**. The artillery plan must take into account the need for redeployment, allotment of tasks to regiments and batteries, and confirmation of targets by STA resources to conform to the division commander's plan. A diagram indicating the targets that might be engaged by fire support assets in a mobile defensive operation is at Annex C. An example of the use of FSCMs in mobile defence is at Annex D.

13. **Fire Support Coordination**. The imposition of effective FSCMs is required to resolve the differing requirements of those forces fighting close and deep operations. Within the close operations area, it is also often be necessary to impose FSCMs in addition to those implied by boundaries. Artillery fire controllers must also be clear about the detailed concept of operations if they are to ensure that mobile elements of the force may move in relative safety.

14. **Deep Operations**. Deep operations are covered in Chapter 9.

15. **Close Operations**. In close operations DFs are sited with the aim of breaking up the enemy attack during the approach, when it is forming up or during the assault. The siting of each DF must take account of the precise effect required, ammunition which it is intended to use and the coordination required with areas of engagement of local direct fire weapon systems.

16. **DF (FPF)**. The closest, or most critical DF tasks, or the most dangerous approaches may be selected as FPF. Fire units can have only one FPF task. Thus, the number of FPFs available within a formation depends upon the division commander's assessment of the minimum number of batteries required to achieve a satisfactory immediate result given the enemy that he faces. It is unusual for more than one FPF to be allotted to a battle group and, if several batteries are required on any one target, there may be as few as one FPF per brigade.

ANNEX A
TARGETS ENGAGED BY FIRE SUPPORT IN AN AREA DEFENSIVE BATTLE

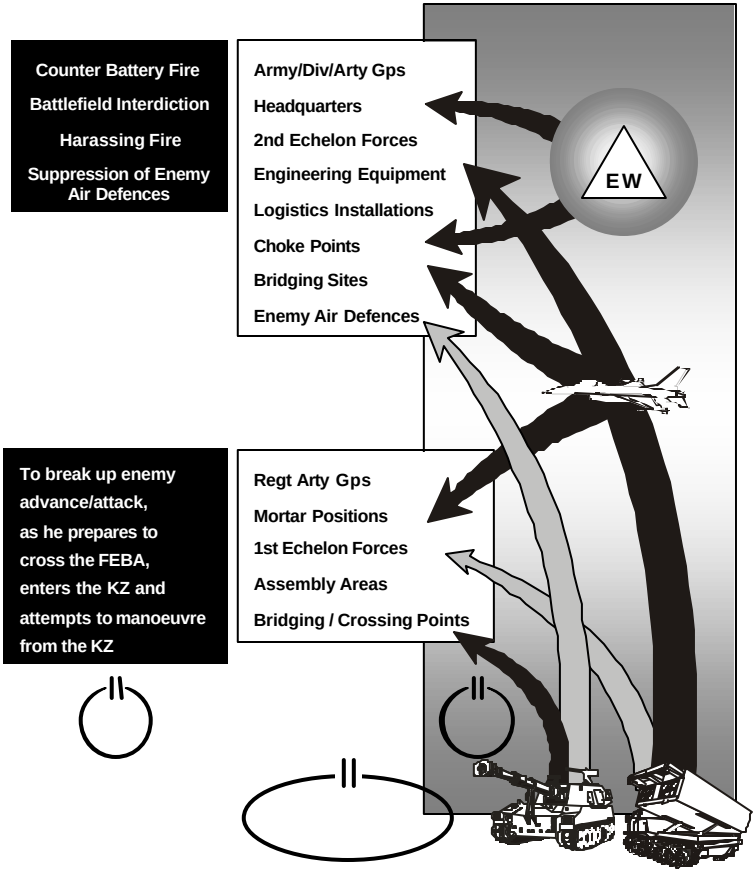


Figure 11-2: Targets Engaged by Fire Support in an Area Defensive Battle

ANNEX B
FIRE SUPPORT COORDINATION MEASURES IN AN AREA DEFENSIVE BATTLE

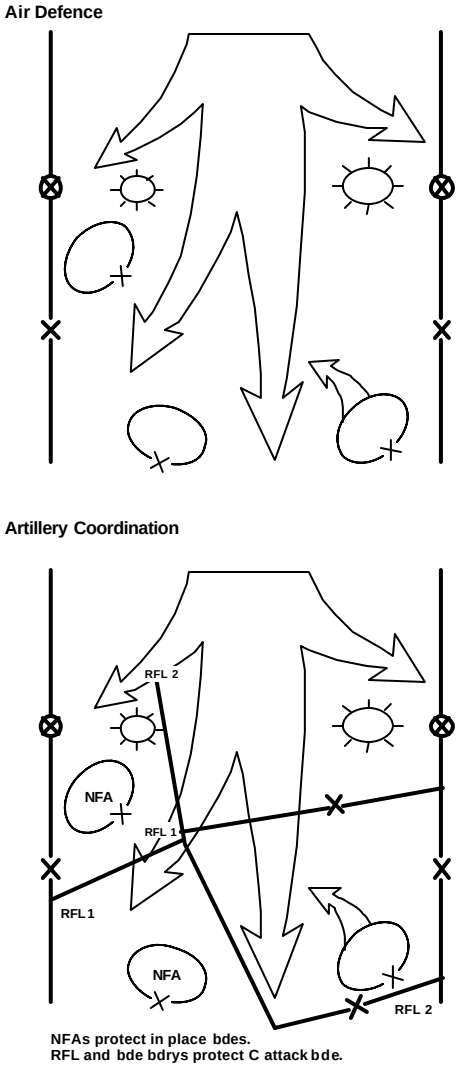
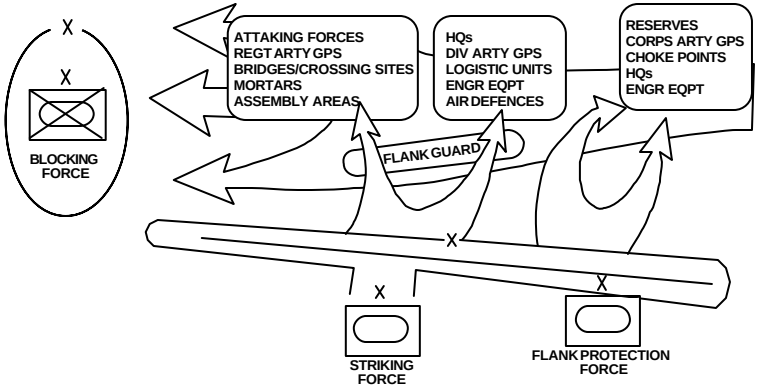


Figure 11-3: FSCMs in an Area Defensive Battle

ANNEX C
TARGETS ENGAGED BY FIRE SUPPORT DURING A MOBILE DEFENSIVE OPERATION



Phase 1: Preparation		Phase 2: Assault		Phase 3: Subsequent Ops	
Task	**Resources**	**Task**	**Resources**	**Task**	**Resources**
Block	DS arty CAS	Block	DS arty	Exploitation	DS arty AH CAS
Secure LD	DS arty	Break-in/ Destruction	DS arty AH EW	Deep Ops	GS arty CAS
CB	GS Artillery	CB/SEAD	GS arty		
Decep-tion	Corps Arty	Deep Ops/ Flank protection	GS arty CAS		

Figure 11-4: Targets Engaged by Fire support in a Mobile Defensive Battle

ANNEX D
ARTILLERY CO-ORD PLAN - MOBILE DEFENCE

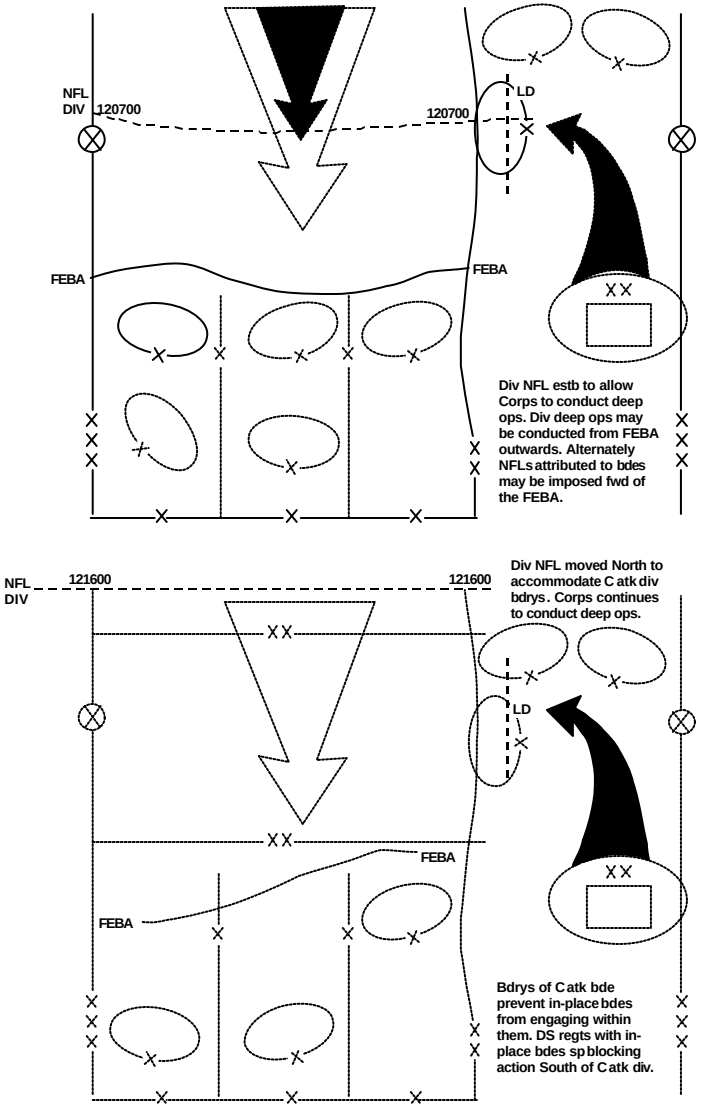


Figure 11-5: Artillery Coordination in a Mobile Defence

CHAPTER 12
DELAYING OPERATIONS

INTRODUCTION

1. **Purpose**. A delaying operation is one in which a force under pressure trades space for time by slowing down the enemy's momentum and inflicting maximum damage without, in principle, becoming decisively engaged. It is likely to be conducted in conditions of enemy air and ground superiority and with initiative held by the enemy. Every opportunity must be seized to initiate aggressive action , to seize the initiative from the enemy and to force him into a position for subsequent operations to be mounted against him.

2. **Likely Tasks**. A delaying operation can be conducted separately or as part of a larger operation, such as a covering or guard force action in a prelude to a defensive operation. It is quite likely to involve transitional phases including a withdrawal, a rearward passage of lines and possibly a meeting engagement. A division or brigade is likely to be tasked with such an operation as part of a higher formation plan in the following circumstances:

a. a covering force for defending or withdrawing main bodies;

b. the advance guard or covering force when encountering superior forces;

c. an economy of effort operation conducted to fix or contain an enemy attack on a less critical avenue of approach;

d. a deception measure to set up a counter attack; or

e. a fixing force in mobile defence.

3. **Outline Conduct**. Delaying operations are usually conducted as a series of linked defensive operations which may incorporate offensive phases (including counter attacks and spoiling attacks). Typically the delaying force occupies a series of pre-planned defensive positions, each designed to force the enemy to prepare to

attack or bypass it. In each position, the delaying force destroys as much of the enemy force and imposes as much delay as it reasonably can, but moves to a new position before the enemy can concentrate sufficient combat power to overrun or bypass it. Deliberate targeting of specific elements (HPTs) of the attacking formation will aid the main defensive battle by destroying the enemy's combined arms integrity and damaging his ability to react once he arrives at the main defensive area.

COMMAND AND CONTROL

4. A delaying action requires a series of handovers as elements of the delaying force pass through or around one another. This requires detailed planning and coordination linked to a sensible and well understood use of report lines, routes and axes and FSCMs. It may be difficult to maintain continuity of observation and the movement of FOOs will have to be coordinated carefully as will the deployment of field artillery and AD weapon systems.

5. The most critical part of the delaying operation is likely to be the final break of contact and the handover of the battle to another formation. This is particularly difficult if the delaying force is having difficulty disengaging. The overall operational commander needs to lay down a handover line. It is normally positioned forward of the feature from which the enemy can first engage the next defensive position with observed fire and is situated so that the crossings and defiles used by the force breaking contact can be protected.

FIRE SUPPORT

6. **Planning Considerations**. Fire support systems shall be used:

a. at long range, to wear down the enemy without close contact and decisive engagement;

b. to permit manoeuvring forces to withdraw from position to position at the critical moment;

c. to plug gaps, for example with scatterable mines, between elements of the delaying force to prevent them being bypassed;

d. to disrupt enemy communications either with EW or by attacking his headquarters with lethal weapons – such as artillery, air or AH;

e. to assist in the defence of successive defensive positions; and

f. to assist the handover.

7. **Artillery**.

a. **General**. Artillery makes a major contribution by striking the enemy with concentrated fire to inflict casualties at maximum range. Artillery can also inflict casualties and reduce manoeuvre with scatterable mines, weakening his offensive capabilities and creating situations which permit aggressive manoeuvre of friendly combat forces. Fire against follow on forces can help to further isolate close operations.

b. **Close Operations**. Artillery shall be used to slow or halt the leading elements of an enemy attack and to permit disengagement of elements of the delaying force. Artillery must be organized and positioned so that it can provide uninterrupted fire support throughout the delaying operation. Each element of the delaying force will require artillery support to carry out its tasks. This may necessitate the deployment of guns, MLRS launchers and ammunition forward. This may mean deployment within the delaying force area with the associated risks. The decision to commit artillery so far forward must take into account the likely mobility of operations, the requirement to position sufficient ammunition forward either ground dumped or held on wheels and the anticipated requirement for fire in subsequent stages of the battle since guns, launchers,

ammunition and ammunition resupply vehicles may be lost in the delaying operation.

c. **Deep Operations**. Long range ISTAR systems play a key role in locating the enemy, identifying his axes of advance and helping to deduce his future intentions. It may well be necessary to deploy GS artillery forward with the delaying force to take full advantage of the range of such ISTAR systems. The need for detailed coordination with other fire support elements involved in deep operations is likely to imply that, where the delaying force is a brigade or battle group, the control of the fire remains at divisional level. Movement still has to be co-ordinated with or by the delaying force. It is usually necessary for the delaying force commander to establish an NFL forward of the force and to roll it back as the delaying force withdraws, to permit GS artillery to be used responsively and to greatest effect by the HQ controlling it. This is shown at Annex A. It is essential that the delaying force artillery commander is kept fully up to date on the tactical situation and the immediate future intentions of the delaying force commander.

d. **Ammunition**. A flexible ammunition resupply plan is necessary to support artillery involved in both deep and close operations. It is likely to be relatively expensive in terms of logistic vehicle lift since all ammunition will probably have to be kept on wheels. The alternative of ground dumping may result in the abandonment of some ammunition. This potential loss has to be balanced against ammunition requirements for subsequent operations. In any event, for movement control reasons at least, the minimum number of logistic vehicles necessary to sustain the weapon platforms, in the deployment posture adopted, will normally be deployed to support each position.

8. **Air**. Air interdiction, particularly at crossings and defiles, can be used to delay, destroy or neutralize the enemy follow-on forces on their approach routes and thereby gain time to destroy the enemy's

leading elements. Tactical air may well be the only force that can delay an enemy penetration or advance until ground forces can be moved to engage them. The control and tasking of such missions is usually undertaken by the division DOCC. As with defensive operations it is possible to integrate CAS into the fire plan in delaying operations but the timing and extent of the requirement will be difficult to predict.

9. **Aviation**. Aviation plays an important role in disrupting the enemy's progress through a series of rolling ambushes. This produces a fluid and mobile defence throughout the enemy's depth which delays and shapes the enemy for close operations. Aviation can be effectively employed where the commander does not wish to commit ground forces to the delay. Its use shall be coordinated into the fire plan. Aviation also has a role in the control of indirect fire, using either the aircraft crew or an airborne FOO.

10. **AD**. The detailed, continuous coordination of AD is essential to permit the effective use of air and aviation assets in a rapidly moving operation of this nature.

11. **EW**. EW resources are used to fix, disrupt and confuse the advancing enemy by employing jamming and deception against reconnaissance elements, command nets and fire control nets whilst continuing to provide information about the enemy.

APPLICATION OF FIRE SUPPORT

12. **Fire Planning**. Much of the fire planning in a delaying operation is similar to that in a defensive operation and techniques appropriate to either mobile or area defence might be employed depending upon the phase of the battle. The withdrawal from successive defensive positions may require the provision of smoke to conceal movement, the use of HE, SCATMIN munitions to enable forces to disengage, and fire in support of a deception plan. Whilst forces are moving rearwards much may be achieved, in further delaying the enemy, by the use of an "on call" fire plan concentrating on choke points, defiles and crossings. The control of this may be effected by FOOs deployed with reconnaissance forces.

13. **The Handover**. When the delaying operation leads to a defensive operation, artillery resources from both the delaying and defending forces are organized and positioned so as to be able to provide the maximum fire support to the handover from the delaying force to the defending force. To avoid unacceptable risk of fratricide the defending force CDA must ensure that artillery fire is tightly coordinated while remaining totally responsive. An example of possible FSCMs in support of delaying operations is at Annex A. The establishment of a RFL forward of the handover line, but in clear view of FOOs from the in-place formation deployed on it, is likely to be necessary. The defensive fire plan in the area of the handover line typically, consists of a series of on call DF tasks. Target details are coordinated and disseminated by the defending force formation HQ. This may be done physically or electronically. As the delaying force approaches the handover line, FOOs from the delaying force ideally collocate on it with their opposite numbers from the in-place formation until the delaying force has withdrawn completely. Collocation of FOOs in positions of good observation allow fire to be brought down on both sides of the RFL as the handover battle draws to its conclusion.

CROSSING AND BREACHING OBSTACLES

14. A force required to conduct a major crossing or breaching during a delaying operation may be faced with a far greater problem than one moving forwards. Much depends on whether the delaying force is in close contact with the enemy and, during a crossing operation, whether sufficient bridges still exist. In general, a delaying operation crossing or breach, follow the sequences outlined below:

a. **Relief**. Units not required to fight the direct fire battle are withdrawn over the crossing as early as possible. All guns, launchers and ammunition vehicles are also withdrawn but deployed to provide the maximum possible fire support to the remainder of the formation.

b. **Delaying**. Forces engaged on the enemy bank are withdrawn under cover of fire from the home bank. By the end of this stage, all crossings will have been destroyed or removed.

c. **Withdrawal**. During the withdrawal stage, obstacles to movement on either side of the obstacle are improved or activated and the last vehicles are withdrawn by ferries, pontoons or by swimming. These are protected by an infantry screen supported by indirect fire. The last troops, including FOOs deployed with the screen, are withdrawn by boat, helicopter or any other means available.

15. Artillery fire can make a significant contribution to the success of this operation. Careful coordination, similar to that required at a handover line, including the use of appropriate FSCMs, may be necessary to ensure that FOOs forward of the obstacle and those on the home bank are all able to bring fire to bear safely. As in offensive operations, likely tasks for the artillery during this stage are:

a. provide supporting fire for troops on the enemy bank;

b. mask enemy observation of the crossing/breach sites;

c. deception; and

d. deep operations by GS artillery to fix enemy reserves or other forces capable of interfering with the operation, disrupt his C3 and neutralize or destroy his artillery.

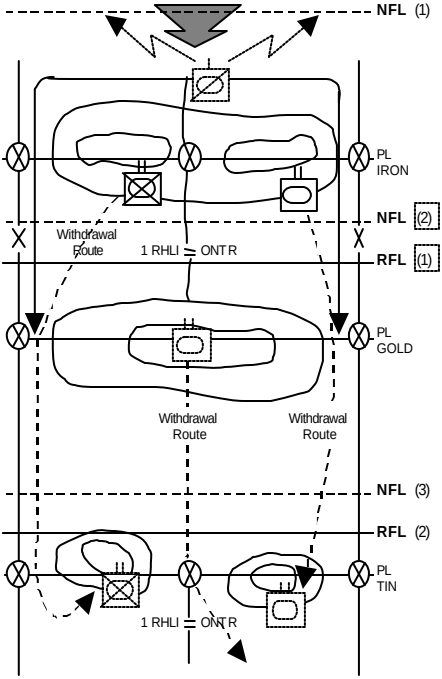
ANNEX A
ARTILLERY COORDINATION PLAN

Delaying Action-
Alternate Positions

NFL (1) and RFL (1) effective until forward battlegroups (BGs) on Phase Line (PL) IRON withdraw

NFL (2) and RFL (2) effective until forward BGs on PL Gold withdraw

NFL (3) and RFL (3) effective until forward BGs withdraw to PL TIN



Delaying Action-Successive Positions

NFL (1) effective at outset

NFL (2) effective on withdrawal of BGs to PL GOLD

NFL (3) effective on withdrawal of BGs to PL TIN

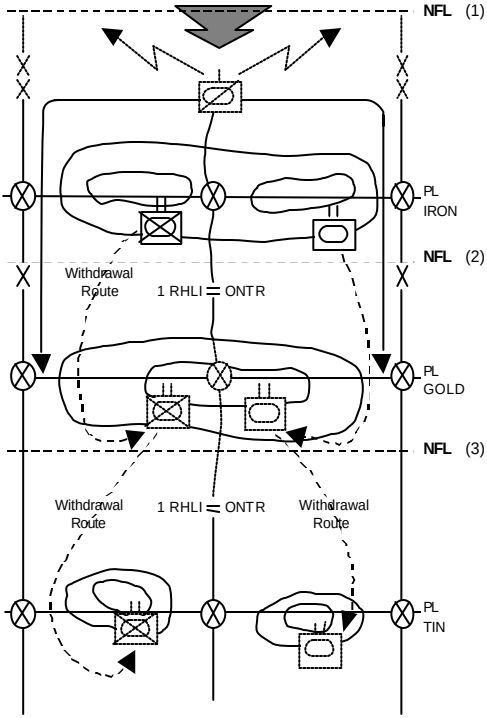


Figure 12-1: Artillery Coordinationin Delaying Operations

CHAPTER 13
TRANSITIONAL PHASES

Nathan Bedford Forrest encapsulated the secret of great generals when he said that the key to victory is "to get there first with the most".

INTRODUCTION

1. The offensive, defensive and delaying operations considered in Chapters 10, 11 and 12 are often linked by one or more transitional phases. A transitional phase is never carried out in isolation. Its execution must lead to the active prosecution of one or other of the main phase of war. The successful and rapid execution of these phases relies on such factors as devolution of decision, collocation of headquarters, liaison and a simple plan. This leads to:

   a. the ability to make a transition between phases without a loss of tempo;

   b. the forces taking over the battle have the most up to date information;

   c. fluid movement;

   d. fire control so as to use all weapons to further the aim and to avoid fratricide; and

   e. quick regrouping.

2. The five transitional phases are:

   a. advance to contact;

   b. meeting engagement;

   c. link-up operations;

   d. withdrawal; and

   e. relief of troops in combat consisting of:

(1) relief in-place;

(2) forward passage of lines;

(3) rearward passage of lines, and

(4) retirement.

ADVANCE TO CONTACT

3. **Purpose**. In the advance to contact the commander seeks to gain or re-establish contact with the enemy under the most favourable conditions for the main force. It differs from the meeting engagement where contact is made unexpectedly. The advance to contact is always executed in preparation for a subsequent operation and terminates when the force is positioned according to the division commander's plan. By advancing to contact, the force seizes and maintains the initiative. The operation may involve destroying or forcing the withdrawal of minor enemy elements or the seizing of ground of tactical importance.

4. **Conduct**. Typically a force advancing to contact will comprise of the following elements:

a. **Covering Force**. A recce screen will often be deployed by the higher formation to find the enemy. Once found, a covering force develops the situation. It is usually a highly mobile and well balanced force capable of attacking and destroying enemy recce elements.

b. **Advance Guard**. A division or brigade always produces its own advance guard to expedite the movement of the main body, maintain contact with the covering force and to provide security immediately in front of the main force. It is controlled by the leading element of the main body.

c. **Main Body**. The main body contains the main combat power of the force. Its units are organized into all arms elements and are positioned in the

advancing columns to permit maximum flexibility in employment once the enemy is encountered. Its position in relation to the covering force and advance guard is an important decision for the commander. Depending upon the situation, the main body may advance from hide to hide along the cleared route.

d. **Flank and Rear Guards**. Flank and rear guards protect the main body from ground observation and surprise attack. They are strong enough to defeat minor enemy forces or delay stronger attacks until the main body can deploy.

5. **Fire Support**. Fire support resources must be carefully coordinated and controlled to ensure that they are able to respond rapidly and effectively when required. They must be capable of neutralizing and fixing those elements of enemy resistance which the commander decides to bypass, as well as being able to provide support to combat forces.

6. **Artillery**. Artillery is used to provide immediate and effective fire support to neutralize and fix the enemy enabling friendly forces to attack or bypass him as necessary. If a heavy weight of fire is available it reduces the need to deploy troops on contact with the enemy. The following considerations govern the employment of artillery in the advance to contact:

a. Whether in or out of contact, the covering force, advance guard and flank guards in an advance are accompanied by FOOs who, by intelligent anticipation and the aggressive application of indirect fire, will engage opportunity targets and produce fire plans in support of hasty attacks.

b. Artillery must move in such a way that maximum support in available at all times. Recce parties shall move just behind the lead battle groups and prepare positions so that the guns can keep within range as the advance proceeds. This is usually achieved by a series of leap frog deployments into pre-planned areas, using routes reserved for this purpose and for

the movement of ammunition resupply. If the speed of the advance demands it, fire units can provide rapid fire support by deploying from the line of march. However, the response is still slower than the response from fire units already deployed. In either case, fire units are likely to deploy initially on each position in a tight deployment posture and employ on each position the minimum number of ammunition vehicles necessary to sustain them in action until a major action develops and further resupply vehicles can be brought forward.

c. The position of the covering force and advance guard in relation to the main body will have implications for the C2 and tactical tasks of the artillery poised to support them. It may be prudent for the advance guard to control the movement of at least an element of the force's artillery. This can be accomplished by assigning tactical tasks like DS and R to the artillery supporting the lead brigade.

d. Likely ammunition expenditure must be carefully assessed. Momentum may be badly affected by serious over-estimates which choke supply routes with unnecessary vehicles.

e. Long range ISTAR assets, notably UAVs and possibly armoured recce and Special Forces, will be important in gaining early information on enemy dispositions. Tactical Air Reconnaissance can also provide vital information about the enemy well in advance of the leading friendly force elements, however it may take too long to produce the necessary information if the force is already advancing. If deep targets are to be engaged by MLRS, it may have to fire from positions well forward in the covering force area. It may be prudent to move most or all of it as part of the main body, and deploy it further forward on artillery reserved routes, once suitable targets have been identified and are being tracked, and appropriate deployment areas have been cleared. Detailed

coordination of MLRS movement and ammunition will be essential.

f. **Pursuit**. The employment of artillery in the pursuit is a variation of its use in the advance to contact. The essential point about the pursuit is that it results from a collapse in the enemy's cohesion. This must be exploited ruthlessly. The key to such exploitation is speed of manoeuvre. This requires the bold handling of artillery, rapid and determined target acquisition, efficient and responsive ammunition resupply arrangements, well practised fire control procedures and the use of well understood FSCMs. Constant re-deployment is likely to be necessary, to keep weapon systems in range. Meanwhile, the artillery force as a whole must be kept balanced to meet the unexpected.

7. **Air**. Air support must be carefully coordinated to avoid fratricide. It may be required in the advance to contact to provide either CAS when artillery fire cannot be concentrated, or to interdict the enemy in depth. The positioning of forward air controllers (FACs) well forward with the lead elements and tactical air control parties (TACPs) with the lead formations must be considered.

8. **Aviation**. Attack or armed helicopters might, typically, be grouped with either or both the covering force and the main body. In some cases, they can be on call for the flank and rear guards. Recce helicopters may be available to perform air OP tasks. AH are ideally suited to pursuit.

9. **Electronic Warfare**. Intercept and direction finding equipment is used to identify and locate the enemy. Once contact has been achieved, the emphasis switches to jamming to cause maximum confusion and the degradation of enemy C2 and fire control systems. EW resources may be used to contribute to a deception plan and to assist in fixing bypassed enemy.

10. **Application of Fire Support**. A continuous fire support plan (CFSP) is developed to provide coverage for the advance. Sensible grouping of these into series and groups will permit rapid engagement and cancellation as each becomes unsafe. All pertinent intelligence

must be exploited to create as accurate and as detailed a CFSP as possible. When fire support is being planned, the following targets shall be considered:

a. targets in depth: choke points, resupply routes and likely gun areas;

b. targets for hasty attack: enemy positions that cannot be bypassed;

c. targets on key and vital terrain features; and

d. flank protection targets: enemy positions off the line of march, observtion posts, use of smoke.

11. **Fire Support Coordination**. As the nature of the advance to contact is one of sustained movement, detailed fire support coordinationis required. In particular, the establishment and subsequent movement of an appropriate RFL between the covering force and the main body, and a NFL forward of the screen, facilitate the conduct of deep operations. It will also allow each element of the force the freedom to use artillery responsively, without incurring an unacceptable risk of fratricide.

MEETING ENGAGEMENT

12. A meeting engagement is a combat action which may occur when both sides seek to fulfil their missions by offensive action. It will often take place during an advance to contact and can easily lead to a hasty attack. It will often mark a moment of transition in that the outcome may well decide the nature of future operations. The meeting engagement differs from the advance to contact in that it occurs unexpectedly, whereas in the advance to contact the division commander is deliberately seeking to establish contact with the enemy. It will not be possible to plan for this sort of operation but a force that is properly deployed and balanced in accordance with established tactical principles will be able to react effectively to most situations.

13. **Fire Support** . The amount of fire support available in the initial stages of a meeting engagement depends on where the fire

support delivery systems are in the movement plan laid down by the division commander. ISTAR assets will have a significant role to play in determining the enemy's strengths and dispositions, paying particular attention to the enemy's flanks. FOOs shall be grouped with the leading elements, constantly reading the battle and preparing for the unexpected. The use of a series and groups of target speeds the response to requests for fire. Fire units move so that they can provide fire support to the leading elements as they meet the enemy.

14. **Air**. Once contact is made with the enemy, CAS can be used to isolate the leading enemy elements from follow-on echelons and to disrupt enemy C2 and logistics. The ability to capitalize on this potential depends on how the necessary TACPs and FACs were grouped and deployed prior to the meeting engagement.

15. **Aviation**. Aviation has a key ISTAR function prior to the meeting engagement, providing early reporting of enemy sightings and starting the engagement of the enemy with either indirect or direct fire.

16. **Electronic Warfare**. ESM (intercept and direction finding) resources will provide information on the enemy's critical C2 nodes. Once battle is joined, jamming shall be used to disrupt and degrade enemy C2 and fire support communications. Detailed early deployment planning for divisional assets, based on a sound IPB, will be necessary if such systems are to be effective in this transitional phase.

17. **Application of Fire Support**. The techniques for using artillery fire in a meeting engagement are likely to resemble those of the hasty attacks into which they often develop. Rapid application of fire arising from sensible pre-planning of the operation, which resulted in the meeting engagement, is critical.

18. **Fire Support Coordination**. The unpredictable nature of a meeting engagement will make the imposition of FSCMs difficult. In principle, a NFL shall be established in advance of the force, moving as the force advances towards the enemy. Once contact is made, the NFL is positioned to allow higher formation to continue with deep operations while the meeting engagement is conducted by the force.

LINK-UP OPERATIONS

19. Link-up operations are conducted to join two friendly forces in enemy controlled territory. It may, therefore, be necessary to destroy the enemy moving between these forces before a link-up can be established. Both forces may be moving or one may be stationary or encircled. They may have the same or differing missions. Link-up operations are most often conducted to complete the encirclement of an enemy force, to assist in the break out of an encircled friendly force or to join an attacking force with one, such as an airborne, airmobile or infiltration force, inserted in the enemy rear.

20. **Fire Support**. Careful coordination of fire is required prior to link-up. Link-up forces use normal FSCMs, including the establishment of boundaries or a RFL between them. The establishment of no fire areas (NFA)s around any isolated elements serves further to prevent fratricide. Detailed and specific coordination is necessary for any phase when the fire of one force may affect the operations of the other. As they move closer together, the need for positive control to avoid incidents of fratricide is important and must be coordinated to ensure that the enemy is not able to escape between the two forces. Artillery FOOs with the leading elements of each force monitor a common radio net. In a multinational link-up operation, the means by which liaison is to be established between the artillery controllers within each force must be considered carefully. Where one force of the link-up is static, target lists relating to it must be passed to the mobile force in good time.

21. **Air**. The strictest attention must be given to the control of CAS in the area between the forces as they approach the area of the link-up. The positioning of TACPs and FACs must be considered.

22. **Aviation**. AH has a key role in providing fire support beyond the range of artillery and to the protection of the flanks as the forces converge.

23. **Electronic Warfare**. Careful coordination of the EW effort is required to prevent mutual interference and duplication of tasks.

24. **Application of Fire Support**. The techniques for the application of artillery fire depends a great deal on circumstances. For

a mobile force, they are likely to resemble those of the advance whilst a static force is likely to have a prepared, coordinated DF plan.

25. **Fire Support Coordination**. The measures applicable vary considerably. Annex A is an example of a link-up operation illustrating appropriate FSCMs .

WITHDRAWAL

26. A withdrawal occurs when a force disengages from an enemy force in accordance with the will of its commander. It seeks to disengage its combat forces although contact may be maintained by other means such as indirect fire, recce or surveillance. It might be undertaken for the following reasons:

a. the object of the operation cannot be achieved or, if achieved, there is no further need to maintain contact;

b. to avoid battle in unfavourable circumstances;

c. to draw the enemy into an unfavourable posture;

d. to conform with adjacent formations;

e. to allow the use of some or all of the force elsewhere; and

f. for CSS reasons—i.e. the force can no longer be sustained.

27. Although the division commander will always seek to conduct the actual withdrawal out of contact, it may occur in contact after a tactical reverse and at a time when the enemy may have ground and air superiority. The division commander's principal concerns are to ensure a clean break, to retain an intact front by the deployment of strong covering troops, to safeguard withdrawal routes and to maintain balance throughout. Success depends upon the maintenance of morale, tight control and security. The CDA must also be ready to support a possible switch to the offensive.

28. Forces are arranged as follows:

a. **Protective Element**. At the start of the withdrawal, covering troops deploy behind the old main position ready to hold the front when it is abandoned. Thereafter, they fall back to intermediate positions imposing as much delay as possible.

b. **Main Body**. The main body moves back to pre-determined intermediate or main positions. They allocate forces to the protection of flanks as well as advance and rear guards. It may be necessary to assist the covering force for periods.

c. **Reserve**. Reserves are difficult to find. They may come from that part of the force not in contact.

29. **Fire Support**. Artillery must be organized and deployed so that it can cover the entire operation. The CDA must support the operation by the provision of fire to assist the break clean and redeployment to new positions. At the same time the CDA needs to redeploy the guns and launchers in a timely fashion and consequently must plan and reconnoitre new positions and withdrawal routes. If the withdrawal is made silently and out of contact he needs to plan for the possibility of it being compromised. This requires preparation of an on call fire plan and sufficient artillery to be in action and within range to execute it. A detailed ammunition plan is necessary allowing the maximum number of logistic vehicles to withdraw as early as possible, commensurate with security requirements and anticipated ammunition expenditure. It may be necessary to arrange for ammunition to be prepositioned on future gun positions.

30. **Air**. Tactical air support may play an important role in harassing the enemy following up the withdrawal or attempting to bypass the withdrawing forces. CAS is particularly useful where the withdrawal of artillery causes a reduction in or an interruption to indirect fire support. TACPs and FACs deploy to support the protective element.

31. **Aviation**. Attack or armed helicopters are particularly suited to the support of the protective element, especially if they are trying to disengage. Employment of attack or armed helicopters must be

supported with artillery fire, both to achieve SEAD during the mission and to aid in extraction.

32. **Electronic Warfare**. EW assets are useful to deceive and disrupt the enemy's C2.

33. **Application of Fire Support**. A target list covering the full extent of the intended withdrawal and linked with the DF plan for the next position must be prepared and circulated. The following tasks may be relevant:

a. the provision of smoke to conceal movement;

b. the concentration of fire coordinated, where appropriate, with offensive EW, air and aviation to enable forces to disengage;

c. fire to support the obstacle/barrier plan;

d. fire on enemy approach routes and choke points to delay him once the protective element has disengaged;

e. fire in support of a deception plan, and

f. the continuous attack of the enemy in depth to hamper his movement, deplete his strength and, in conjunction with EW, disrupt his C2.

34. **Fire Support Coordination**. The correct application of FSCMs is essential in such a fluid and potentially confused situation. As far as artillery weapon systems are concerned, this is particularly important as the protective element's delaying action comes to an end and it begins to break clean at a handover line forward of the next main body defensive position. During the withdrawal itself, the sooner that the NFL established forward of the protective element's initial positions is re-established further back, the sooner can depth fire artillery, cued by UAVs, be brought to bear with maximum effect.

35. FOOs are vital to the protective element, but the viability of the next main body defensive position will be severely compromised if sufficient FOOs are not allocated to it and released early enough to

accompany manoeuvre commanders on their recce and preparation of the next position. Commanders must decide when FOOs are to move back to the next main body defensive position, weighing up whether the priority is to maintain observation with the protective element or to prepare the next main defensive position.

36. FOOs with the protective element will be amongst the last to withdraw from any position. Once security has been lost, their aggressive use of fire will be essential. Where specific targets cannot be acquired, they may have to rely on the engagement of pre-planned targets sited at, for instance, choke points.

RELIEF IN-PLACE

37. During a relief in-place, all or part of a force is replaced in sector by an incoming unit. It is normally conducted during defensive operations. It is usually undertaken because the existing force is depleted or exhausted, or troops of one capability or role need to be replaced by troops with another, or for the purposes of routine rotation. The incoming force usually assumes the mission of the outgoing force, normally within the same boundaries and, at least initially, with a similar disposition. There are two overriding principles that apply to such an operation: surprise and security. Deception, concealment and the retention of an effective defensive organization are therefore essential.

38. **Fire Support**. The in-place formation or unit always provides fire support to the relieving formation or unit. If the relief is for the purpose of continuing the attack, both formations fire support resources, especially artillery, are likely to remain in support. The method of relieving artillery units must be clearly established.

a. **Gun Areas**. Incoming artillery normally occupies positions which have been allocated and reconnoitred in outline by the in-place formation, and have not already been located by the enemy, nor, if real estate considerations allow, been previously occupied. Deception and the avoidance of detection are enhanced when relieving batteries take up nearby positions and carefully integrate their fire with that of the outgoing unit. Normally the

guns of the in-place formation remain in position until the end of the operation and all artillery remains under the control of the outgoing commander until the change of command has been effected.

b. **LOs and FOOs**. LOs and FOOs from incoming units shall be in position as early as possible to familiarise themselves with the details of the artillery plan including:

(1) command status;

(2) tactical tasks;

(3) logistics;

(4) target lists;

(5) FSCMs;

(6) observation schemes; and

(7) readiness of guns/launchers.

39. **Air**. Local air superiority reduces the vulnerability of the forces during periods when congestion cannot be avoided. The deployment of TACPs and artillery FACs must be considered carefully.

40. **Aviation**. Armed and attack helicopters fulfil a valuable role as a reserve if the enemy attempts to exploit opportunities resulting from the disruption of the force during the operation.

41. **Electronic Warfare**. EW assets support the deception plan and fulfil their ISTAR functions of providing information on enemy positions and warning of enemy future intentions.

42. **Application of Fire Support**. The in-place force must ensure that all DF lists and fire plans are passed to the relieving force in sufficient time for the information to be passed to all concerned.

43. **Fire Support Coordination Measures**. FSCMs are put in place by the in-place force and passed to the relieving force. FOOs with the relieving force needs to be briefed on the relevant FSCMs during the handover from the in-place FOOs.

PASSAGE OF LINES

44. A passage of lines can take place in either offensive or defensive operations. The operation is conducted to allow a moving formation to pass through a stationary one. It may be conducted as an implied task rather than a specific mission. C2 is difficult, however, and detailed planning and coordination remains essential during a passage of lines because both formations are concentrated temporarily in the same area, are therefore vulnerable and may be caught off balance.

45. During some stages of a passage of lines, artillery may be the only force capable of reacting quickly and effectively to unexpected enemy action. The artillery commander must consider the following when preparing the plan:

a. the provision of LOs by the passing formation to the HQ of the in-place formation;

b. the clear allotment of resources to both the formation concerned;

c. the application of FSCMs; and

d. a fire plan that includes:

(1) the use of smoke to obscure and/or screen,

(2) fire for any deception plan,

(3) covering fire to neutralize enemy attacks in the area of the passage,

(4) covering fire to support any obstacle or barrier plan, and

(5) attack in depth against enemy artillery and to restrict the movement of enemy reinforcement.

46. **Air**. This is likely to be a confused operation and air would be best employed in depth.

47. **Forward Passage of Lines**. During a forward passage of lines, a force advances or attacks through another force which is often in contact with the enemy. The in-place force must provide the advancing force with as much assistance as possible including tactical and logistical support.

48. **Fire Support**. Artillery with the in-place formation continues to support the incoming formation until such time as the incoming artillery units are fully established. Artillery staffs of the advancing and in-place forces need to liase closely with the higher formation providing coordination of real estate. Incoming artillery units must be far enough forward to support the operation without redeployment during critical stages of the battle, and not normally in positions which have already been located by the enemy. There may be an increased ammunition requirement.

49. **Air**. Responsibility for the coordination of tactical air support is held by whichever fire support commander is responsible for the conduct and planning of operations. On taking over the battle, the incoming fire support commander assumes responsibility for the coordination of all aspects of tactical air support.

50. **Aviation**. Aviation assets of the in-place formation continues to provide flank protection and support the continuation of the advance or attack until such time as they are relieved by the incoming formation assets.

51. **Electronic Warfare**. EW shall support the deception plan and the use of jamming assists the commander in achieving his aim.

52. **Application of Fire Support**. The fire planning considerations applicable to a forward passage of lines are similar to those for an advance. Arrangements for the control of fire to be passed between the two formations must be made.

53. **Fire Support Coordination**. It is usual to position a NFL forward of lead elements and continually update it as lead elements progress through the passage. Once the advancing force has completed its passage, there may well be a need to establish a RFL forward of the original in-place elements to enable them to continue either to advance or hold the area of the line of departure without endangering forward elements.

54. **Rearward Passage of Lines**. During a rearward passage of lines, one force withdraws through the defensive position of another. Passage of lines may take place in or out of contact with the enemy. This is particularly difficult if the force making the passage has been unable to disengage. The overall operational commander needs to lay down a handover line. This is positioned forward of the feature from which the enemy can first engage the in-place force's defensive position with observed fire and be situated so that the crossings and defiles used by the force making the passage can be protected.

55. **Fire Support**. Artillery of the withdrawing force may need to stay in the forward area to provide maximum support for the battle at the handover line. They require ammunition resupply at an early stage. The in-place force artillery may have to deploy forward of the main position to assist the passage and provide maximum coverage.

56. **Air**. Local air superiority reduces the vulnerability of the forces during periods when congestion cannot be avoided. Tactical air support is best used in depth.

57. **Aviation**. Armed and attack helicopters fulfil a valuable role as a reserve.

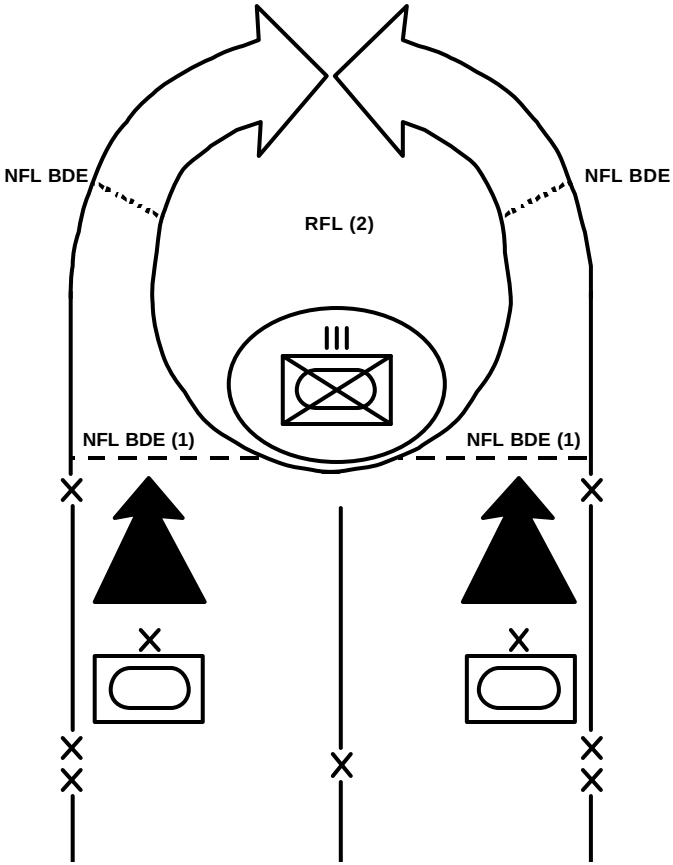
58. **Electronic Warfare**. EW assets support the deception plan and fulfil their ISTAR functions of providing information on enemy positions and warning of enemy future intentions.

59. **Application of Fire Support**. Fire planning considerations for a rearward passage of lines are largely concerned with the action at the handover line. The in-place force must be able to observe and engage targets forward of the handover line in order to facilitate the break clean of the withdrawing force. The defensive fire plan in the area of the handover line would, typically, consist of a series of on call

DF tasks. Target details are coordinated and disseminated by the in-place force HQ.

60. **Fire Support Coordination**. To avoid an unacceptable risk of fratricide the defending force CDA must ensure that artillery fire is tightly coordinated, but highly responsive. The establishment of a RFL forward of the handover line, but in clear view of FOOs from the in-place formation deployed on it, is therefore likely to be necessary. Where possible, as the delaying force approaches the handover line, FOOs from the force making the passage collocate on it with their opposite numbers from the in-place force until the passage has been completed.

ANNEX A
FIRE SUPPORT COORDINATION FOR LINK-UP OPERATIONS - TWO MOVING FORCES



NOTES:

(1) NFLs moved to conform with brigade advance, to permit division deep operations.

(2) RFL implemented to protect each force as the gap closes.

Figure 13-1: Fire Support Coordination Measures for Link-Up Operations

CHAPTER 14
FIRE SUPPORT AND OBSTACLES

INTRODUCTION

1. When properly employed, obstacles can be significant combat multipliers in defensive operations. However, an obstacle not covered by direct or indirect fires is merely an inconvenience to the lead elements of the enemy formation. At the same time, fire support not integrated with the obstacle plan may, in fact, be detrimental to the task and purpose of the obstacle. It is very important to link the fire support plan with the obstacle plan.

BARRIER PLANNING

2. The barrier plan defines how a commander employs obstacles to support the manoeuvre plan. The barrier plan must be communicated effectively to all levels and be fully integrated with the manoeuvre and fire plans. This ensures that the obstacle achieves the desired effect on the enemy, and does not interfere with the manoeuvre of friendly forces.

3. The barrier plan is the commander's plan, and not the supporting engineer's. The engineer commander is the commander's adviser on barrier planning. It is the commander's responsibility to ensure that the barrier plan supports the intent and the concept of operations. The commander's responsibility for the barrier plan at each level is demonstrated by the fact that obstacle emplacement authority is assigned to subordinate formations/units, and not to the supporting engineers. Furthermore, obstacle zones and belts are always assigned within subordinate formation/unit boundaries. This ensures the subordinate commander's singular responsibility for the barrier plan at each level.

4. A barrier planning process exists to integrate the barrier plan with the manoeuvre and fire plans. This process develops the barrier plan at successive levels of command, while allowing subordinate

commanders maximum flexibility in planning the use of obstacles to achieve their commander's intent.[24]

5. **Obstacle Intent**. Obstacle intent is how the commander intends to use tactical obstacles to support the manoeuvre plan. Obstacle intent consists of:

a. **Target**. The target is the enemy that the commander wants to attack with tactical obstacles. The commander usually identifies the target in terms of the size and type of enemy, the echelon, and the avenue of approach;

b. **Obstacle Effect**. The combination of tactical obstacles and fire manipulates the enemy to support the commander's intent. The intended effect that the commander wants the obstacles and fire to have on the enemy is the obstacle effect. These effects are:

(1) **Disrupt**. The disrupt effect focuses both fire planning and obstacle effort to break up enemy formations and his tempo of operations, to interrupt his timetable, force him to commit his breaching resources prematurely and to piecemeal his attack.

(2) **Turn**. The turn effect integrates the fire plan and the obstacle plan to divert an enemy formation off one avenue of approach to an adjacent avenue or into a killing zone.

(3) **Fix**. The fix effect focuses fire and obstacle planning to slow an attacker within a specified area, normally a killing zone.

(4) **Block**. The block effect is used in one of two instances. The first is to stop the

[24] For detailed information on barrier planning, see B-GL-361-001 *Land Force Engineer Operations*, Chapter 5.

enemy from using an avenue of approach and forcing him into another that better supports the friendly manoeuvre plan. The second is to stop the enemy forward movement through a killing zone.

c. **Relative Location**. Where the commander wants the obstacle effect to influence the target.

OBSTACLE CONTROL MEASURES

6. **General**. Obstacle control measures are specific control measures used to simplify the delegation of obstacle emplacement authority, imposing of obstacle control and assigning obstacle intent. Obstacle control measures are:

a. **Obstacle Zones**. Control measures that corps and division commanders use to delegate obstacle emplacement authority to brigades, brigade groups or other subordinate formations or units. Zones are normally aligned to correspond with enemy division avenues of approach.

b. **Obstacle Belts**. Obstacle belts are graphic control measures used by brigades and brigade group commanders to constrain tactical obstacle employment. They plan obstacle belts within assigned obstacle zones to delegate obstacle emplacement authority to their subordinate units. Obstacle belts also focus obstacles in support of the brigade manoeuvre plan, and ensure that obstacles do not interfere with the manoeuvre of any higher formation. Belts are planned on enemy regiment avenues of approach.

c. **Obstacle Groups**. Obstacle groups are one or more individual obstacles grouped to provide a specific obstacle effect. Sub-units integrate obstacle groups with direct and indirect fire plans in detail. Unlike obstacle zones and belts, obstacle groups show relative locations for actual obstacles.

7. The targeting objective or desired effect of an attack on an enemy capability is “to disrupt, limit, delay or destroy him”. These targeting objectives are normally associated with certain types of obstacles to respectively disrupt, turn, fix or block the enemy.

OBSTACLE INTEGRATION

8. **General**. Obstacle integration is the process of ensuring that obstacle plan support the overall tactical plan. To achieve their effect, obstacles must be co-ordinated with all combat functions and at all levels of command. This integration is key to the success of the tactical plan, and demands that the manoeuvre, fire and barrier plans be developed simultaneously. Obstacle integration begins with the commander's mission analysis, and is developed continuously throughout the operation planning process.

9. Commanders and their staffs must consider the following factors to ensure that obstacle integration is achieved and that obstacles have the desired impact on the battle:

a. intelligence;

b. obstacle intent;

c. direct and indirect fire and obstacle effects;

d. obstacles and operations in depth; and

e. obstacle control.

DISRUPT OBSTACLE

10. If the purpose of an obstacle is to disrupt an enemy force or formation, fire support likely has the same targeting objective: to disrupt the enemy formation by breaking it up, causing it to deploy early or slowing part of the force while allowing another part to advance unimpeded. Figure 14-1 illustrates how fire support might be integrated with a disrupt obstacle. As the enemy motorized infantry battalion approaches the obstacle group, the FOO fires target group A2D with dual purpose improved conventional munitions (DPICM).

The anti armour platoon engage the enemy between target points 08 and 09, forcing him to deploy into attack formation.

11. The combination of the obstacles and indirect fires slows the southern half of the enemy formation, allowing the northern half to proceed into killing zone (KZ) HOT. Then A Combat team masses direct fire on the northern half of the enemy formation in KZ HOT to destroy it before shifting fires to the remaining enemy force as it enters the KZ. After disrupting the lead enemy battalion forward of the KZ, A Combat team repositions to a subsequent battle position.

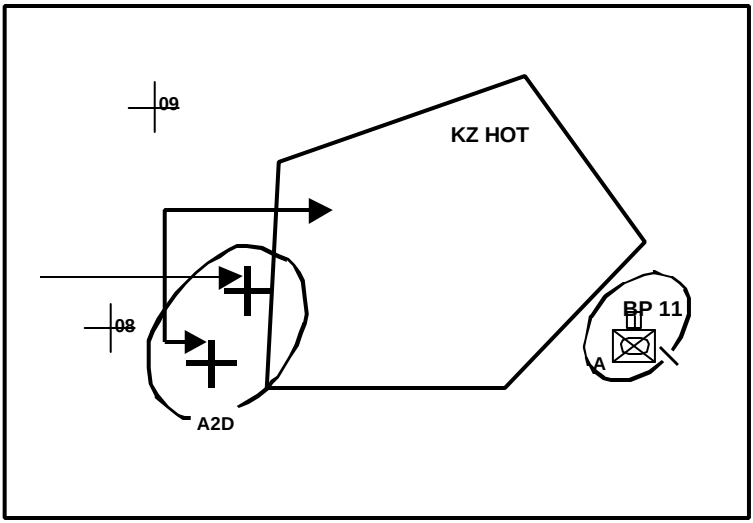


Figure 14-1: Disrupt Obstacle

TURNING OBSTACLE

12. A turning obstacle is typically supported with a targeting objective of limiting the enemy's ability to maneuver freely. Figure 14.2 is an example of how fire support might be integrated with a turning obstacle.

13. As the advanced guard main body approaches the turning obstacle between reference points 06 and 09, the B Combat team FOO initiates target group A1C to be fired with high explosive rounds and DPICM. The infantry in the northern part of BP 21 orients its fire on reference point 09 to prevent the enemy from by-passing the anchor point of the obstacle group, and B Combat team tanks engage the enemy oriented on reference points 01 and 02. The terrain, the obstacles and the direct and indirect fire prevent the enemy from by-passing to the east and force him to deviate to the southwest to continue the attack. As the enemy passes reference point 03, the B Combat team commander re-orients combat team direct fire between reference points 02 and 04 with all platoons maintaining a high volume of fire to ensure that the enemy continues southwest into the KZ POM.

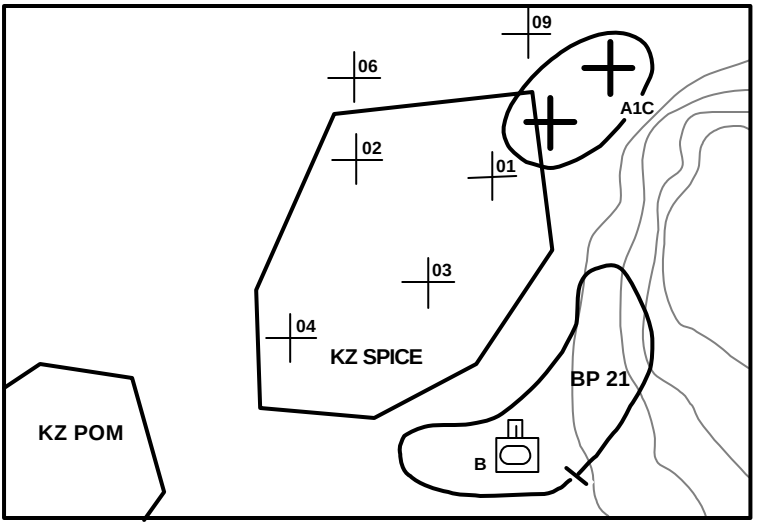


Figure 14-2: Turning Obstacle

FIXING OBSTACLE

14. Fixing obstacles may be complemented with fires intended to delay an enemy formation. C Combat team in Figure 14-3 is oriented between reference points 05 and 06; D Combat team is oriented between reference points 06 and 07. The BC planned targets in group A3B (Phase 1) to disrupt the enemy formation with suppressive fire

and force the enemy to deploy early. Group A4B in KZ KOALA is intended to delay the first echelon combat team in the KZ with DPICM, enabling the tanks and TOWs to destroy them.

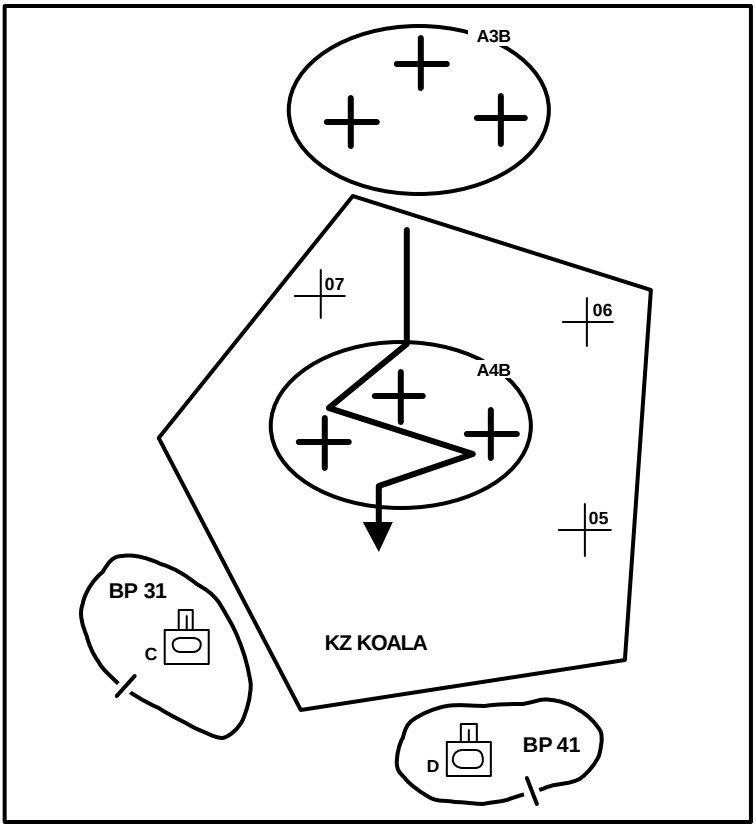


Figure 14-3: Fixing Obstacle

BLOCKING OBSTACLE

15. Because blocking obstacles are used to either deny the enemy an avenue of approach or prevent them from passing through KZ, fire support for a blocking obstacle often have a targeting objective of destroying an enemy element. Figure 14-4 is an example of, the application of fire support to a blocking obstacle. The object is to

block an enemy battalion from using the western pass. The battalion commander wants the follow-on forces of the enemy regiment to advance through the eastern pass so as to mass available combat power to destroy the enemy in KZ SNOW.

16. A Combat team has its eastern platoon oriented between reference points 01 and 02 and the western platoon oriented between reference points 02 and 03.

17. The mechanized platoon in the centre is oriented between reference points 02 and 04. When the lead elements of the battalion pass reference point 04, the A combat team FOO initiates group A1G to destroy elements beyond the blocking obstacle MB04.

18. Engineer breaching vehicles are an HPT for this phase of the battle. If the enemy succeeds in establishing a breaching lane, the battalion commander re-seeds the obstacle with SCATMIN.

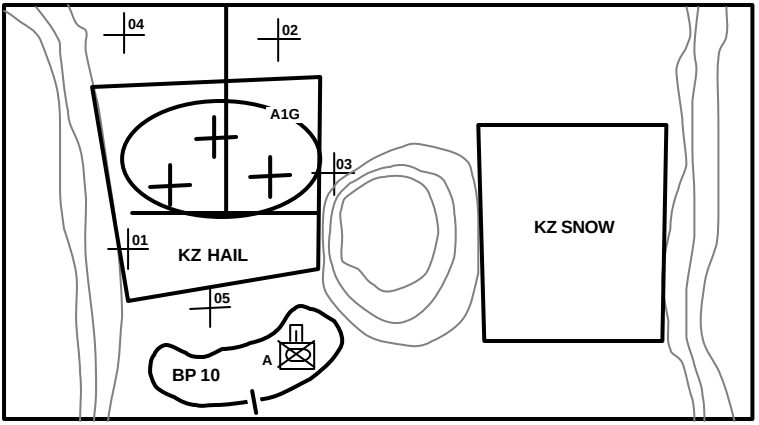


Figure 14-4: Blocking Obstacle

CHAPTER 15
LOCATING ARTILLERY

SECTION 1
KEY PERSONNEL AND RESPONSIBILITIES

GENERAL

1. The aim of this chapter is to outline the employment of locating artillery. Full exploitation of available fire support depends upon timely and effective target information. Locating artillery, working in conjunction with other ISTAR resources, is tasked to provide accurate and complete information to the attack resources within the fire support system.

2. To effectively use locating artillery sources, their availability, capabilities and limitations must be understood. It is also important to understand the overall ISTAR contribution to the battlefield. Ultimately, ISTAR provides the majority of targeting information for deep operations, and cues the fire support system for close and rear operations.

DIVISION TARGET ACQUISITION REGIMENT

3. The role of the TA Regiment is to provide locating and surveillance support to the division. The CO of TA Regiment has the following tasks:

a. command the regiment;

b. to advise the CDA on all locating matters;

c. to establish the div arty intelligence cell at division HQ;

d. to provide locating support in the division area; and

e. coordinate and direct CB tasks in accordance with the division commander's concept of operations.

LOCATING BATTERY—DIVISION TA REGIMENT

4. The BC of the locating battery has the following tasks:

a. command the battery;

b. provide CO of TA regiment advice on sound ranging, weapon locating radar, survey and met matters; and

c. act as DAIO, establishing the div arty intelligence cell at division HQ.

UNMANNED AERIAL VEHICLE BATTERY

5. The BC of the UAV battery has the following tasks:

a. command the battery;

b. provide CO of the TA regiment advice on the UAV matters;

c. act as the Ops O, establishing the operations cell for the TA regiment.

SURVEY SECTION—GS AND MRL REGIMENT

6. The role of the survey sections is to provide common grid (orientation, fixation and altitude) for artillery devices. The survey section has the following tasks:

a. provide common orientation, fixation and altitude to division artillery; and

b. to establish survey network within the overall division survey network.

LOCATING TROOP—CLOSE SUPPORT REGIMENTS

7. The role of the locating troop is to provide locating and surveillance support to the brigade. The locating troop has the following tasks:

a. provide common orientation, fixation and altitude to brigade artillery assets;

b. provide met data to the brigade;

c. provide countermortar coverage for brigade area of operations; and

d. establish the brigade artillery intelligence cell.

SECTION 2
ARTILLERY INTELLIGENCE

SCOPE OF ARTILLERY INTELLIGENCE

8. The scope of artillery intelligence work includes:

a. provision of intelligence about the enemy, with particular reference to the location, strength, identity, arcs of fire, movement and habits of the enemy fire support system, their observation posts, command posts and headquarters, and the passage of this intelligence to artillery G3 and formation G2 staffs; and

b. advising on the neutralization or destruction of enemy indirect fire weapons, surface to air systems and communication installations in accordance with the AGM issued by the formation commander, and, if tasked, to carry out such neutralization or destruction with allotted resources.

ARTILLERY INTELLIGENCE CYCLE

9. Intelligence cells at all levels follow a cycle that involves a continuous flow of information in and out. The timeliness of information is extremely important to the fire support system. Information needs to be processed very quickly and then rapidly passed to the appropriate attack resources for engagement. The cycle follows these steps:

a. **Direction**. The G3 Arty, along with the manoeuvre commander, provides direction to the artillery intelligence cycle. This direction comes from a variety of sources, including the ISTAR plan, the AGM and the DST. The artillery commander provides further direction. The intent is to provide a focus to the artillery intelligence cycle.

b. **Collection**. This is the search for information and involves the locating resources being used, according to the ISTAR plan, to acquire information on the enemy. All sources of information must be fully exploited to gather the required information, and the DAIO must ensure that the intelligence cell receives the appropriate data from the other ISTAR resources.

c. **Processing**. As information is received it needs to be collated and analysed. This step involves the comparison of information from the different sources to ensure that the correct deductions are made. In some cases, once the information has been confirmed firing data can be transmitted to the fire support system to permit the rapid engagement of the target.

d. **Dissemination**. As the information is processed into intelligence it needs to be disseminated to the fire support system. This may result in more requests for information to confirm or track enemy resources. It is also important that periodically an overall intelligence update is provided to the fire support planning cell and to the formation G2.

10. In the orders, the artillery commander may allocate priorities of fire from attack resources to the TA Regiment, to reduce the delay in engaging targets. This is often done when the CB policy is active.

ARTILLERY G2 STAFF DUTIES

11. All artillery intelligence personnel must have a solid knowledge of the artillery intelligence process and:

a. enemy ORBATs and tactics;

b. field and air defence artillery and its characteristics;

c. locating artillery and their characteristics;

d. EW;

e. IPB; and

f. targeting.

12. It is essential that artillery G2 staffs work closely with their formation G2 staffs and artillery G3 staffs to ensure a complete and constant exchange of information. This liaison is best achieved by collocating the appropriate cells wherever possible. This is now more essential with the artillery intelligence staff involvement in targeting and IPB. Finally, constant liaison is required with air defence staffs, air and aviation staffs, naval staffs and combat arms units. Forward troops are very valuable sources of information, especially through the use of SHELREPs, MORTREPs and patrol reports.

13. Although the duties of artillery G2 staffs are basically the same at all levels some division of responsibility is necessary so that lower level staffs are not overworked. The main responsibilities of formation artillery G2 staffs are noted below, although these will vary with the tactical situation, and must remain flexible:

a. **Corps**. Coordinationof intelligence on enemy artillery opposing the corps, with particular reference to nuclear weapons and artillery groups in depth.

b. **Division**. Collection and deduction of intelligence about the enemy within division's area of intelligence responsibility, with particular reference to:

(1) guns;

(2) MRLs;

(3) AD weapons;

(4) heavy mortars;

(5) locating equipment;

(6) EW equipment; and

(7) communication headquarters.

c. **Brigade**. Collection and deduction of intelligence about enemy mortars, artillery anti-tank equipment and enemy artillery within the brigade's area of intelligence responsibility.

DUTIES AT DIVISION

14. **DAIO**. The div arty intelligence cell is composed of the DAIO, one duty officer, two senior artillery intelligence technicians and four junior artillery intelligence technicians. The locating battery provides the personnel for the cell.

15. The div arty intelligence office deals with the formulation of artillery intelligence and is intimately involved with the conduct of targeting and IPB. The CO and Ops O of the TA regiment coordinate, plan, task or supervise the TA regiment resources, in accordance with the ISTAR plan and the CDA's concept of operations. The formulation of artillery intelligence may be delegated to brigade artillery intelligence offices through the allocation of zones of responsibility. This ensures that the right sources are collecting the applicable level of information and reduces duplication of tasking.

16. Normally, one duty officer, one senior technician and two junior technicians are required on duty at any one time. The DAIO spends time with both shifts to ensure involvement in major events, such as an information brief or targeting meetings. If special reports, summaries or lists have to be produced in addition to the routine plotting, the duty officer may produce them. The major tasks of the div art intelligence office are:

a. maintaining accurate data on the location and state of readiness of organic:

(1) locating equipment,

(2) observation posts, and

(3) gun positions;

b. maintaining close liaison with the formation G2, G3 and G3 Arty staffs;

c. specifying the information and amount of detail required from the BAIOs;

d. obtaining information about the enemy, with particular reference to indirect fire and air defence artillery, communication installations, radar and jammers from all available sources;

e. plotting and recording hostile batteries (HB) and their activities;

f. deducing intelligence about the enemy to include:

(1) unit identification, locations and groupings,

(2) boundaries and principal directions of attack or withdrawal,

(3) future intentions,

(4) hostile batteries, radar and jammers likely to interfere with proposed operations, and

(5) changes in deployment or grouping;

g. passing information and/or intelligence to artillery G2 and formation G2 by means of:

(1) verbal briefings,

(2) written messages, estimates of the situation, and reports,

(3) overlays, traces, and

(4) HB lists;

h. advise CO TA regiment on deployment of locating artillery resources;

i. participate in IPB and targeting processes; and

j. assist in the coordinationof UAV requests.

DUTIES AT BRIGADE

17. At the artillery tactical headquarters at brigade there is a BAIO who has one additional officer to act as a duty officer, plus technicians and communicators. There will be one officer, one senior technician and a junior technician/communicator on duty at all times. This cell is provided from the locating troop of the field regiment.

18. The brigade artillery intelligence office routinely collects and plots information on enemy mortars and artillery, anti-tank weapons, low level air defence systems, and such other information as directed by the DAIO and/or CO. Generally, the tasks of this office are the same as the DAIO cell, but focused at the brigade level.

OFFICE ROUTINE

19. In artillery intelligence work, a system is essential to ensure that all available information is extracted from the numerous reports received. This information must then be recorded in such a way as to

be readily available and capable of rapid comparison with other intelligence.

COLLECTION

20. Information is a valuable resource at all levels of operations and can be collected from all personnel and equipment within the formation. The ISTAR plan and the CDA's concept of operations provide the focus for the collection effort. The DAIO gathers information by exploiting the resources directly available within the TA regiment and through liaison with the formation G2. The following sources are some main sources of information utilized by artillery intelligence cells:

a. locating equipment such as:

(1) weapon locating radar,

(2) sound ranging,

(3) UAVs, and

(4) ground surveillance radar;

b. listening posts (LPs), advanced posts (APs) and FOOs through:

(1) SHELREPs and MORTREPs,

(2) crater examination and fragment identification, and

(3) direct observation;

c. G3 Arty staff:

(1) SHELREPs and MORTREPs,

(2) crater examination and fragment identification,

(3) SITREPs, and

(4) target engagement reports;

d. all arms:

(1) SHELREPs and MORTREPs,

(2) crater examination and fragment identification, and

(3) direct observation;

e. air element:

(1) air photographs, and

(2) visual reconnaissance;

f. formation G2 Staff:

(1) information from prisoners of war, deserters and civilians,

(2) patrol reports,

(3) captured maps, documents, etc,

(4) specialized intelligence from other sources, e.g., signals intelligence, electronic intelligence, agents, and

(5) psychological teams, etc.

21. **Hostile Batteries**. A HB consists of any number of enemy weapons that appear to be controlled by one command post. (With widely dispersed weapons it may be necessary to treat a HB as two or more HBs when planning CB fire.)

22. **Hostile Battery Fixation Accuracy**. When a locating device submits a HB LOCREP to the artillery intelligence office, or when a location is obtained from an air photograph, the location is allotted an

accuracy code. This accuracy is represented by a letter code indicating the distance from the location within which the weapon is positioned. This accuracy is determined by the command post officer (CPO) of the source and is based primarily on the sources capabilities and the experience and knowledge of the CPO. The accuracy codes employed are:

a. J - 10 metres;

b. W - 25 metres;

c. Z - 50 metres;

d. A - 100 metres;

e. B - 200 metres;

f. C - 300 metres;

g. D - 400 metres; and

h. area - distance greater than 400 metres.

23. The AIO normally reassess the accuracy of locations sent in by locating sources in the light of additional information available they have access to and may upgrade or degrade accuracy as applicable.

24. Batteries are divided into two groups:

a. **Fixed HBs**. Batteries whose positions are shown to be within an accuracy of 100 metres (J to A accuracy). When possible, these positions are confirmed from air photographs.

b. **Unfixed HBs**. Batteries whose positions are known, but not within an accuracy of 100 metres (less than A accuracy). Normally these are batteries that have been located by devices and confirmed by some other means; such as a positive indication of an area shelled on the shelling connection and activity trace (SCAT).

PROCESSING

25. The information must be collated as quickly and as accurately as possible. There are several methods specific to artillery intelligence that can be used by themselves or in combination.

a. **HB Chart**. The HB chart is the working map of the artillery intelligence office. Once a HB location comes into the office it is immediately recorded in the operations log and then placed on the HB chart. All HBs, fixed or unfixed, and the location of all major sources of information such as all sub C/S of the locating units and observation posts are recorded on this map. The chart provides the background over which the bearing report trace (BRT), and the SCAT are superimposed to collate information and prepare artillery intelligence.

b. **Bearing Report Trace**. The BRT is a trace that can quickly be positioned over the HB chart. The trace is used to determine locations of enemy weapon systems, record areas shelled or mortared and indicate times of firing from information contained on SHELREPs/MORTREPs. It also prevents the HB chart from being disfigured for these purposes. When locating equipment are in action and reporting locations, the use of the BRT may not be used due to time.

c. **SHELREPs and MORTREPs**. SHELREPs and MORTREPs will seldom locate HBs without supplementary information from other sources, but they may indicate which HBs are active and thus assist quick retaliation. They also give insight into the enemy's plans and habits (registration, harassing fire, etc), and give information as to areas in which to look for new HBs.

d. **HB Reports**. Locations by sound ranging, radar, air photographs and air observation are received in the artillery intelligence office immediately by Location Reports (LOCREPs). However, consolidated lists of

HB locations are sent on the Report of HB Locations form from each radar and sound ranging CP to the applicable staff at least once every twenty-four hours and more often if required, and between artillery intelligence offices as necessary.

e. **Shelling Connection and Activity Trace**. The SCAT is a pictorial record that shows:

(1) the areas into which HBs are firing;

(2) which HBs are most active; and

(3) the type of fire.

f. **Operations Log**. The operations log is a record of telephone and radio conversations, and the overview of formal messages and other information received. Its purposes are to ensure that no information is mislaid, and to simplify handing over from one officer to another . All information before going on traces or other reports is logged onto this form. The DO is responsible for maintaining the log.

26. Processing information into intelligence is not a drill. It is a logical process of eliminating or keeping information based on the assessor's knowledge of the enemy, and co-relating known facts to determine locations, dispositions and intentions. The assessor, usually the AIO or DO, examines the detail, the source, time of event, and possible interaction with other information received, and makes a decision as to what is happening or what is going to happen. It could be indicating that an attack from a certain location may occur, a possible deception plan, specific unit and its boundaries and/or objectives.

DISSEMINATION OF ARTILLERY INTELLIGENCE

27. The intelligence disseminated by artillery G2 staffs is issued in a standard format, with an appropriate security classification. The use of standard formats simplifies the work of preparation, makes

information easier to understand, and draws attention quickly to day-to-day changes. Artillery intelligence information is disseminated by:

a. HB lists;

b. weapon density overlays;

c. artillery intelligence summaries (arty INTSUMs);

d. artillery supplementary intelligence reports (arty SUPINTREPs);

e. SITREPs and INTREPs as required.

28. **Hostile Battery Target Lists**. Lists of known HBs are compiled on standard target list form, CF 98, in the artillery intelligence office from the information collated. These lists provide commanders and staffs with a detailed table of located enemy artillery and the necessary data for future engagement.

29. **Contents**. The information must be detailed and accurate. The following information is required to make it worthwhile:

a. All located HBs listed are classified as fixed or unfixed. Each DAIO or BAIO compiles a separate list of the enemy weapons within the assigned area of responsibility. Separate lists may also be produced for special weapons such as air defence artillery. As much of the following detail as is known is given for each HB:

(1) target number;

(2) grid reference and altitude;

(3) position of individual weapons;

(4) accuracy of location;

(5) number, type and calibre of weapons;

(6) size and attitude of the HB;

(7) method by which HB was located;

(8) the identity of any unit which has adjusted the HB, and the date of adjustment when the target data listed is the same as that reported by the regiment; and

(9) any other detail such as the last date of activity, and whether thought to be occupied or unoccupied.

b. If the positions of individual weapons are known, then the grid reference of each individual weapon is included in column C.

c. The types of weapons that are entered on a HB list will depend on the policy in force for the recording of HBs.

30. **Issue of Hostile Battery Lists**. The G2 Arty issues HB lists when there are sufficient locations for the lists to be of value. A list may be specially issued prior to an attack to assist in the preparation of a CB fire plan or on order/request. In highly mobile operations the issue of HB lists is generally impractical, however, with digital systems the passage of such information can be done quickly and simply.

31. **Weapon Density Overlay**. An AIO must be able to summarize those HBs that can fire onto a proposed operation from a study of the HB chart and the intelligence map. However, in the case of a major attack, for which the preparation may take some time, a weapon density overlay is produced.

32. A weapon density overlay is drawn from the knowledge of the locations and extreme ranges of HBs. It shows the number of enemy artillery weapons that can engage any portion of the front. Weapon density overlays provide considerable information to the commander in terms of firepower that can be delivered into any one or a number of sectors within his area of responsibility.

33. **Artillery Intelligence Summaries**. Arty INTSUMs are normally issued every twenty four hours, except in mobile operations.

They give details of enemy artillery activity for the period under review and their distribution is the same as for HB lists with additional copies for armoured and infantry units.

34. The following details are normally covered in these reports:

a. summary of enemy artillery and mortar activity:

(1) by night; and

(2) by day;

b. particulars of shelling and mortaring:

(1) shelling connections, including type of fire,

(2) other areas shelled, including type of fire, and

(3) other hostile guns and mortars believed to be active;

c. air support:

(1) air photography information,

(2) tactical reconnaissance,

(3) direct support, and

(4) air OP;

d. CB activity carried out;

e. outline CB programme for next day;

f. amendments to HB Lists;

g. other items of interest, such as:

(1) movement, concentration and distribution of enemy artillery,

(2) reports of interrogation of prisoners of war,

(3) results of friendly CB fire,

(4) number of shells fired by the enemy,

(5) number of shells fired by friendly artillery in the CB role, and

(6) number of SHELREPs and MORTREPs received from units.

35. Data on active HB and areas shelled or mortared can be read from the daily diary or daily shelling and mortaring sheets and checked against the SCAT. At brigade the details of CB fire carried out can be extracted from the log, or a separate CB log listmay be kept. The amended office copy of the HB lists provides the basis for routine amendments.

36. The arty INTSUM, whenever possible, is accompanied by an overlay showing the tactical grouping of enemy artillery and mortars and any moves or items of note. If possible, the main areas shelled within our lines are shaded on the overlay. The arty INTSUMs are classified SECRET and are produced by corps and div arty G2 staffs for their areas of interest.

37. **Artillery Supplementary Intelligence Reports**. The DAIO will produce arty SUPINTREPs when requested by the G3 Arty or formation G2 staff. They cover the same details as contained in arty INTSUMs, but reviewed over a period of time to include deductions and reasons for the enemy activity. The distribution list and security classification is the same as for arty INTSUMs.

38. Some additional items of interest that may receive comment on are:

a. artillery methods;

b. artillery and mortar strength (examined by sectors and compared with the estimates in previous reports); and

c. tactical grouping.

SECTION 3
COUNTERBATTERY OPERATIONS

39. **General**. Brigade artillery intelligence cells and TA regiment conduct CB fire when allotted the guns and ammunition, within the parameters set out in the formation commander's CB policy. HBs can either be attacked as they are discovered or neutralized in the course of a fire plan.

40. CB is defined as the neutralization or destruction of enemy artillery, mortar, rocket launcher and air defence equipment and units. The intent is to reduce the effectiveness of the enemy's fire support system, which results in more freedom of action for the manoeuvre commander. CB involves more than just artillery firing at the enemy fire support system. It includes attacks by the entire fire support system. The CB fire plan may include tasks to EW resources to interfere with enemy fire support communication nets.

41. The formation commander assisted by his artillery commander formulates the counterbattery policy. The CB policy may be:

a. **Active**. A active policy allows for the engagement of any active HBs.

b. **Passive**. A passive policy does not permit the engagement of any HBs.

c. **Combination**. It is possible that a combination of active and passive policy may be required. This allows for the engagement of HBs under specified conditions. There are any number of conditions that may be specified. Examples of specified conditions are: Active against MRLS only or Passive for Phase 1 only.

42. There are a number of factors that the commander must take into account when deciding on the CB policy. The most vital and first consideration will be that of higher formation CB policy. A subordinate formation may further restrict policy but may not relax

any imposed restrictions. For example, if corps policy is active, division may institute a passive policy. However, if corps policy is passive, division may not adopt an active policy. Formation commanders should implement CB policies that allow the various levels to determine the most realistic and effective policy based on their responsibilities and resources.

43. The CB policy may change from phase to phase within an operation. There are many other examples of a combination policy, however, in all cases, it must be well defined to ensure no confusion arises in the implementation of the policy.

44. **Control of CB**. Corps arty allocates divisional areas of responsibility within which the div arty is responsible for engaging enemy HBs. Corps usually retains the responsibility for locating nuclear weapons operating from sites beyond the enemy's conventional gun areas.

45. At division the CO TA regiment is responsible for coordinating the engagement of HBs, on behalf of the CDA. At brigade, the BAIO will do this on behalf of the CO DS Regiment. The artillery G2 staff at higher HQ must be kept informed of the progress of events and the location of all HBs.

46. In order to avoid danger to friendly troops or duplication of effort the artillery G3 staff must keep the artillery G2 staff informed of the location of FSCLs, RFLs, NFLs, and air space coordinationmeasures. The continual liaison between these cells is vital to maintain this information current.

47. The amo unt of fire required to neutralize an HB depends on several factors:

a. the accuracy with which the co-ordinates of the HB were determined;

b. the accuracy with which the fire is applied to these coordinates;

c. the amount of digging the enemy has completed;

d. the type of ammunition with which the enemy is engaged;

e. the morale of the enemy; and

f. the ability to restrict enemy redeployment through use of special ammunition such as SCATMIN.

48. As in all artillery support, every effort must be made to avoid stereotyped methods. Short intense concentrations at irregular intervals often cause more casualties, and may be more effective than spreading the available ammunition regularly, over a longer period.

COUNTERBATTERY FIRE PLANS

49. **General**. The preparation of a CB fire plan is similar to the preparation of any other fire plan. It involves the preparation and distribution of target lists, fire plan proforma, an overlay if time permits and a written portion if required. The CB fire plan may be incorporated with another fire plan or it may be issued on its own.

50. The timing of a CB fire plan is a vital decision that needs to be discussed by the manoeuvre commander and the artillery commander. This decision is tied to two contradicting principles, security and surprise. An active and heavy CB fire plan promotes the security of the formation through the constant attack of the enemy's fire support system. However, it comes at the price of providing the enemy good information on the location of the fire support system and as to the likely deployment of the formation. Commanders need to consider the implications of each type of CB policy, ensuring that it matches their concept of operations.

51. During defensive operations, the CB policy is usually active and focused towards the manoeuvre commander's main effort. However, the CB policy may be passive during the initial stages of the defence to assist in deceiving the enemy as to the deployment of the formation. If the deception plan calls for an attempt to convince the enemy that the division is deployed forward of its actual area, then the CB policy must be set accordingly. This may entail the forward deployment of the resources involved in the CB fire plan.

52. A CB fire plan can precede an attack or start at H-hour, or after H-hour. Once again the trade-off between surprise and security is evident. If the CB fire plan is conducted prior to H-hour, more resources can be dedicated to it, but it provides the enemy with a warning that an operation is likely to occur. If the CB fire plan starts at H-hour, the amount of resources dedicate to CB are likely to be much less. The result is a less effective CB program. If little intelligence exists on the location of enemy fire support assets, then the CB fire plan may commence after H-hour. In this case, there are likely to be few attack resources dedicated to CB fire.

53. In delaying operations, the decision on the timing of the CB fire plan is linked to how the delay is being conducted. Usually the CB fire plan is placed "on call" until the enemy begins to respond to our actions. At this time, it is initiated with a short but heavy attack on known positions. As the delay progresses, it is likely that the CB fire plan will remain active, but the amount of resources dedicated to it will be reduced.

54. There are many resources that can be used to conduct CB. Offensive Info Ops can attack the enemy fire support system's command and control nodes. Disrupting their communications degrades their effectiveness. AH and CAS can also be used to attack enemy fire support assets. Their attacks are usually superimposed over the artillery fire plan.

GLOSSARY

Artillery Manoeuvre Areas	An Artillery Manoeuvre Area (AMA) is merely a grouping of potential gun positions into a deployment area. The AMA varies in size depending on the ground, phase of battle or the number of elements which will deploy into the area.
Decision Point	An event, an area, a line, or a point on the battlefield where tactical decisions are required. Decision points do not dictate commander's decisions, they only indicate that a decision is required, and they indicate when and where the decision should be made to have the maximum effect on friendly or enemy courses of action. Decision points are identified during the development of courses of action, often by war gaming.
Decision Support Template	The Decision Support Template (DST) is essentially a combined intelligence and operations estimate in graphic form and relates the detail of the event template to decision points.
Destroy	Destruction physically renders an enemy force permanently combat-ineffective (30% casualties) unless it is reconstituted or so damaged that it cannot function as intended nor be restored to a usable condition without being entirely rebuilt.
Fire Support	Fire Support is the collective and coordinated use of the fire of land and sea based indirect fire systems, armed aircraft, offensive information operations and non-lethal munitions against ground targets to support land combat operations at both the operational and tactical

	levels.
Fire Support Coordination Centre	Fire Support Coordination Centres (FSCC) are established by the artillery commander within the operations centre of the supported formation or unit. The FSCC consists of one common operations centre with representatives and communications from all available fire support agencies.
Fire Planning	Fire planning is aimed at synchronizing fire support effectively into battle plans in order to optimize combat power.
High Payoff Targets	A target whose loss to the enemy will significantly contribute to the success of the friendly course of action. High-payoff targets are those high-value targets, , which must be acquired and successfully attacked for the success of the mission.
High Value Targets	A target the enemy commander requires for the successful completion of the mission. The loss of high-value targets would be expected to seriously degrade important enemy functions.
Named Area of Interest	A point or area along a particular avenue of approach through which enemy activity is expected to occur. Activity or lack of activity within an NAI will help to confirm or deny a particular enemy course of action.
Neutralise	Neutralisation fire is delivered to render the target ineffective or unusable for a temporary period (10% casualties). Neutralisation fire results in enemy personnel or materiel incapable of interfering with a particular operation or the accomplishment of a particular course of action.
Suppress	Suppression fires are fires on/or about a weapon system to degrade its performance below the level needed to fulfil its mission objectives. The

	effect of suppressive fires usually lasts only as long as the fires are continued. Suppression is used to prevent effective fire on friendly forces. It is typically used to support a specified movement of forces.
Targeted Area of Interest	The geographical area or point along a mobility corridor where successful interdiction will cause the enemy to either abandon a particular course of action or require him to use specialised engineer support to continue, where he can be acquired and engaged by friendly forces.

LIST OF ABBREVIATIONS

ACP	Ammunition control point
AD	Air defence
AGM	Attach guidance matrix
AH	Attack helicopter
AIO	Artillery intelligence officer
ALO	Air liaison officer
AMA	Artillery manoeuvre area
AP	Advanced post
ARA	Artillery reserved area
ASCC	Airspace control centre
ASR	Available supply rate
AWIFM	A mnemonic representing the five principles of organizing field artillery for combat; adequate weight of fire, weight the main effort, immediate response, facilitate future operations, and maximum feasible control
ATACMS	Army tactical missile system
BAIO	Brigade artillery intelligence officer
BC	Battery commander
BDA	Battle damage assessment
BRT	Bearing report trace
C2	Command and control
CAB	Canadian armoured brigade
CAS	Close air support
CB	Counterbattery
CCA	Commander corps artillery
CDA	Commander division artillery
CFSP	Continuous fire support plan
CIB	Canadian infantry brigade
CO	Commanding officer
COA	Course of action

COSCOM	Corps support command
CPO	Command post officer
CSS	Combat service support
DADC	Division air defence centre
DAIO	Division artillery intelligence officer
DCPO	Division command post officer
DF	Defensive fire
DISGP	Division service group
DO	Duty officer
DOCC	Deep operations coordination centre
DP	Decision point
DPICM	Dual purpose improved conventional munitions
DS	Direct support
DST	Decision support template
ECM	Electronic counter measures
EMCON	Emission control
ESM	Electonic support measures
EW	Electronic warfare
FA	Field artillery (FA is a US abvn; Fd arty is Cdn)
FAC	Forward air controller
FAASV	Field artillery ammunition support vehicle
FEBA	Forward edge of the battle area
FFE	Fire for effect
FLOT	Forward line of own troops
FM	Fire mission
FOO	Forward observation officer
FPF	Final protective fire
Frag O	Fragmentary order
FSCC	Fire support coordination centre
FSCL	Fire support coordination line
FSCM	Fire support coordination measure
FSE	Forward security element
FSTT	Fire support task table

GPS	Global positioning system
GS	General support
GSR	General support reinforcing
HB	Hostile battery
HE	High explosive
HPT	High payoff targets
HPTL	High payoff target list
HVT	High value targets
IPB	Intelligence preparation of the battlefield
Info Ops	Information operations
IR	Intelligence requirement
ISTAR	Intelligence, surveillance, target acquisition and reconnaissance
JSTARS	Joint surveillance and target attack radar system
LO	Liaison Officer
LP	Listening Post
MDA	Main defence area
Met	Meteorological
MLRS	Multiple launch rocket system
MSR	Main supply route
NAI	Named area of interest
NFA	No fire area
NFL	No fire line
OPCOM	Operational command
OPCON	Operational control
OPP	Operation planning process
Op O	Operation order
Ops O	Operations officer
ORBAT	Order of battle
PGM	Precision guided munitions
PIR	Priority intelligence requirement
R	Reinforcing
RCPO	Regimental command post officer

RFA	Restricted fire area
RFL	Restricted fire line
RPC	Rocket pod container
RPG	Rounds per gun
RSR	Required supply rate
SCAT	Shelling connection and activity trace
SM	Scatterable mines
SEAD	Suppression of enemy air defences
SF	Special Forces
S of R	State of readiness
TA	Target acquisition
STA	Surveillance and target acquisition
TACOM	Tactical command
TACON	Tactical control
TACP	Tactical air control party
TAI	Target areas of interest
TSS	Target selection standards
TVA	Target value analysis
UAV	Unmanned aerial vehicle