Joint Publication 2-01.3

Joint Tactics, Techniques, and Procedures for Joint Intelligence Preparation of the Battlespace

24 May 2000

PREFACE

1. Scope

This publication establishes doctrinal guidance and joint tactics, techniques, and procedures (JTTP) for use by joint intelligence organizations in preparing joint intelligence preparation of the battlespace (JIPB) products. The focus is on the JIPB process, in which analyses of the battlespace environment and adversary are combined in order to identify and analyze possible adversary courses of action (COAs). It describes how adversary and friendly COAs are evaluated and wargamed to support the joint force commander's (JFC's) decision making process. This publication is geared primarily towards preparatory intelligence analysis for operational level force-on-force confrontations. It also addresses how the JIPB process can be tailored to specific joint force planning activities and military operations other than war.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff. It sets forth doctrine and selected JTTP to govern the joint activities and performance of the Armed Forces of the United States in joint operations and provides the doctrinal basis for US military involvement in multinational and interagency operations. It provides military guidance for the exercise of authority by combatant commanders and other JFCs and prescribes doctrine and selected tactics, techniques, and procedures for joint operations and training. It provides military guidance for use by the Armed Forces in preparing their appropriate plans. It is not the intent of this publication to restrict the authority of the JFC from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall mission.

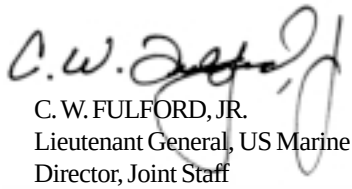
3. Application

a. Doctrine and selected tactics, techniques, and procedures and guidance established in this publication apply to the combat support agencies as well as the commanders of combatant commands, subunified commands, joint task forces, and subordinate components of these commands. These principles and guidance also may apply when significant forces of one Service are attached to forces of another Service or when significant forces of one Service support forces of another Service.

b. The guidance in this publication is authoritative; as such, this doctrine (or JTTP) will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence for the activities of joint forces unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow

multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable.

For the Chairman of the Joint Chiefs of Staff:



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Lieutenant General, US Marine Corps
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- **Provides an Overview of Joint Intelligence Preparation of the Battlespace (JIPB)**
- **Explains the JIPB Process**
- **Describes JIPB Support to Decision Making**
- **Describes JIPB Support to Specific Joint Force Activities**
- **Discusses the Role of JIPB in Support of Military Operations Other Than War**

Joint Intelligence Preparation of the Battlespace

Joint intelligence preparation of the battlespace (JIPB) is the analytical process used by joint intelligence organizations to produce intelligence assessments, estimates, and other intelligence products in support of the joint force commander's (JFC's) decision making process.

Joint intelligence preparation of the battlespace (JIPB) is a continuous process which enables joint force commanders (JFCs) and their staffs to visualize the **full** spectrum of adversary capabilities and potential courses of action (COAs) across **all** dimensions of the battlespace. JIPB is a process that assists analysts to identify facts and assumptions about the battlespace environment and the adversary. This facilitates campaign planning and the development of friendly COAs by the joint force staff. JIPB provides the basis for intelligence direction and synchronization that supports the COA selected by the JFC.

The JIPB Process

The JIPB process is both continuous and cyclical.

JIPB is conducted both prior to and during a joint force's operations, as well as during planning for follow-on missions. The most current information available regarding the adversary situation and the battlespace environment is continuously integrated into the JIPB process. **JIPB is a four-step process.**

- **Define the battlespace environment**
- **Describe the battlespace's effects**
- **Evaluate the adversary**
- **Determine adversary potential COAs**

Failure to identify all relevant characteristics and critical vulnerabilities may lead to the command being surprised and unprepared when some overlooked feature of the battlespace environment exerts an influence on the accomplishment of the command's mission. It could also result in the unnecessary expenditure of limited resources against adversary force capabilities that do not exist.

JIPB Support to Decision Making

The results of JIPB analysis are conveyed in the form of intelligence estimates, assessments, and other products that are essential to the commander's decision making process.

The primary purpose of JIPB is to support the JFC's and component commander's campaign planning and decision making needs by identifying, assessing, and estimating the adversary's centers of gravity, critical vulnerabilities, capabilities, limitations, intentions, most likely COA, and COA most dangerous to friendly forces and mission accomplishment. JFCs, component commanders, and their staffs use the decision making process to develop and select a COA and modify or produce a campaign plan, operation plan, operation plan in concept format, or operation order that implements the friendly COA selected by the JFC. The decision making process is a dynamic and continuous effort. The staff revises the estimate of the situation as the operation progresses, adapting the command's COA to changes in the situation. To support the decision making process, **the JIPB effort must also remain dynamic, constantly integrating new information** into the initial set of facts and assumptions.

JIPB Support to Countering Asymmetric Warfare Threats

JIPB can support many types of military activities.

JIPB is a remarkably versatile process which can be adapted to support a wide range of joint activities that are applicable to countering an adversary's use of asymmetric warfare. JIPB helps to counter an adversary's asymmetric strategies by providing crucial support to joint activities such as information operations; targeting; nuclear, biological, and chemical operations; special operations; rear area operations and logistics; reconnaissance, surveillance, and target acquisition; force protection; civil-military operations; and counterair operations.

JIPB Support to Military Operations Other Than War

The primary purpose of JIPB support to military operations other than war is to heighten the JFC's situational awareness of the battlespace and threats the joint force is most likely to encounter.

Military operations other than war (MOOTW) can occur unilaterally or in conjunction with other military operations. **JIPB support to MOOTW must facilitate parallel planning by all units involved in the operation at the strategic, operational, and tactical levels.** The primary difference between JIPB for conventional war and MOOTW is one of focus, particularly in the high level of detail required and the strong emphasis placed on demographic analysis to support MOOTW operational planning.

CONCLUSION

This publication provides basic concepts and principles to guide the Services and combatant commands to prepare for and conduct JIPB. JIPB is an essential element in the intelligence cycle which helps lift the "fog of war." It enables commanders to focus and direct their combat power and resources against an adversary's most likely COA, and to take measures designed to counter the adversary COA most dangerous to friendly forces and mission accomplishment. Successful JIPB will also help prevent surprise across the range of military operations by focusing the intelligence collection effort on areas where and when specific adversary activities associated with each COA may occur.

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CHAPTER I
JOINT INTELLIGENCE PREPARATION OF THE BATTLESPACE

"Nothing is more worthy of the attention of a good general than the endeavor to penetrate the designs of the enemy."

Machiavelli
***Discourses*, 1517**

1. Introduction

Joint intelligence preparation of the battlespace (JIPB) is the analytical process used by joint intelligence organizations to produce intelligence assessments, estimates, and other intelligence products in support of the joint force commander's (JFC's) decision making process. It is a continuous process that involves four major steps: (1) defining the total battlespace environment; (2) describing the battlespace's effects; (3) evaluating the adversary; and (4) determining and describing adversary potential courses of action (COAs), particularly the adversary's most likely COA and the COA most dangerous to friendly forces and mission accomplishment. The process is used to analyze the air, land, sea, space, weather, electromagnetic, and information environments as well as other dimensions of the battlespace (see Figure I-1), and to determine an adversary's capabilities to operate in each. JIPB products are used by joint force and Service component command staffs in preparing their estimates and are also applied during the analysis and selection of friendly COAs.

a. The JIPB process assists JFCs and their staffs in achieving information superiority by identifying adversary centers of gravity (COGs), focusing intelligence collection at the right time and place, and assessing the effects of the battlespace environment on military operations. However, **JIPB's main focus is on providing predictive intelligence designed to help the JFC discern the adversary's probable intent and most likely future COA.** Simply stated, JIPB

Chairman of the Joint Chiefs of Staff GEN Henry H. Shelton briefs reporters during Operation DESERT FOX.

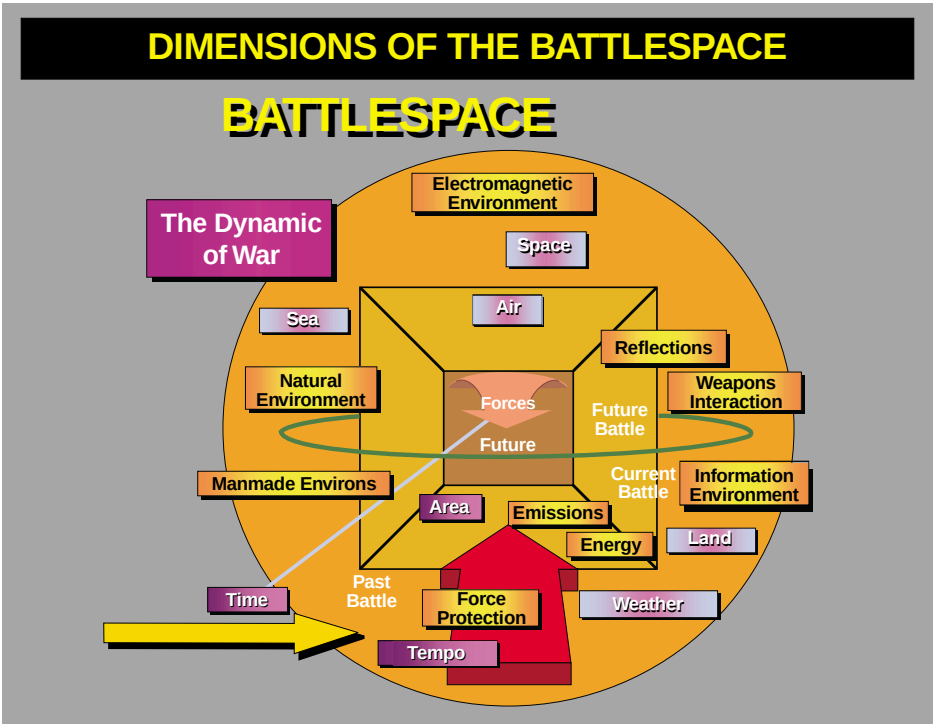


Figure I-1. Dimensions of the Battlespace

helps the JFC to stay inside the adversary's decision loop (i.e., to react faster and make better decisions than the adversary).

b. The Intelligence Directorate (J-2) staffs at the Joint Staff, combatant commands, and subordinate joint forces levels coordinate and supervise the multidimensional JIPB effort to support campaign planning, enable commanders and other key personnel to visualize the full spectrum of the battlespace, identify adversary COGs, and evaluate potential adversary and friendly COAs. The JIPB effort must be fully coordinated, synchronized, and integrated with the separate intelligence preparation of the battlespace (IPB) efforts of the component commands and Service intelligence centers. All staff elements of the joint force and component commands fully participate in the JIPB effort by providing battlespace information and data relative to their staff areas of expertise. However, JFCs and their subordinate commanders are the key players in planning and conducting intelligence. They must ensure that JIPB becomes "commander's preparation of the battlespace" by fully integrating it into the joint force's overall operational planning.

c. Joint forces will conduct JIPB to evaluate the battlespace environment and adversary in a wide variety of situations across the full range of military operations. Within the context of the joint force's specific mission, the JFC and J-2 must apply the term "adversary" broadly, to refer to those organizations, groups, decision makers, or even physical factors that can delay, degrade, or prevent the joint force from accomplishing its mission.

Refer to Joint Publication (JP) 2-0, Doctrine for Intelligence Support to Joint Operations, *and JP 2-01,* Joint Intelligence Support to Military Operations, *for specific*

procedures on requesting collection, exploitation, or production to support JIPB.

2. Differences Between JIPB and IPB

a. JIPB and IPB products **generally** differ in terms of their relative purpose, focus, and level of detail. The purpose of JIPB is to support the JFC by determining the adversary's probable intent and most likely COA for countering the overall friendly joint mission, whereas IPB is specifically designed to support the individual air, ground, maritime or space operations of the component commands. JIPB focuses on the adversary's known or postulated national and operational level multi-force component or "joint" strategy, while IPB concentrates on the capabilities and vulnerabilities of the adversary's individual force components of interest to the component commands. JIPB also seeks to analyze the effects of non-geographic dimensions of the battlespace (e.g., cyberspace, human thought, electromagnetic spectrum) on joint operations. During operational-level force-on-force confrontations, JIPB utilizes a macro-analytic approach that seeks to identify an adversary's strategic vulnerabilities and COGs, whereas IPB generally requires microanalysis and a finer degree of detail in order to support component command operations. However, in some situations (especially military operations other than war (MOOTW)), both JIPB and IPB will require the highest possible level of detail. JIPB and IPB analyses are intended to support each other while avoiding a duplication of analytic effort.

b. JIPB seeks to create an analytic synergy through the integration of the component commands' IPB analyses of their battlespaces. In this way, JIPB provides a methodology for hypothesizing the adversary's most likely joint or multi-force component COA (see Figure I-2).

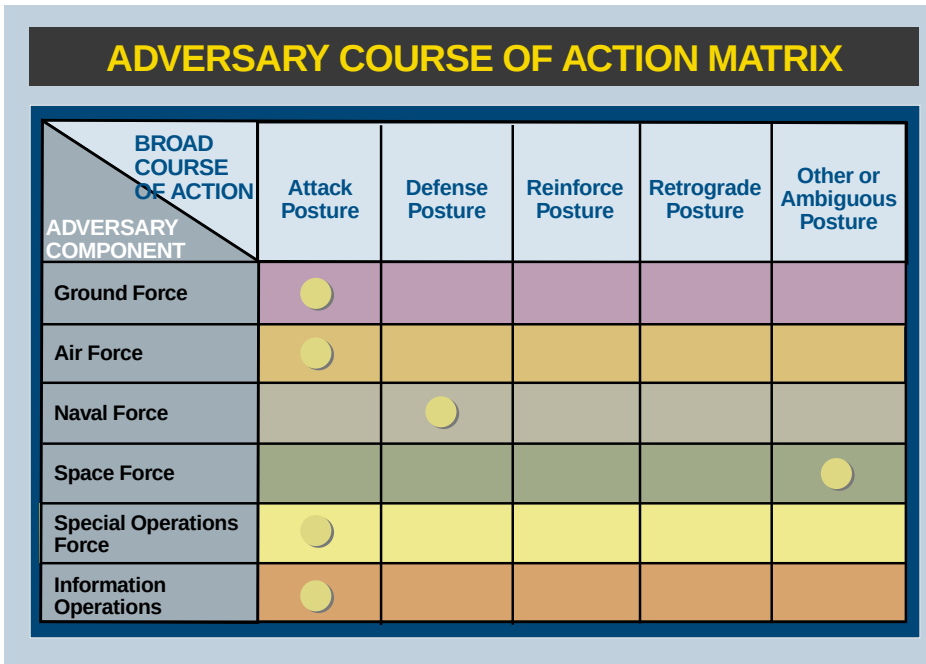


Figure I-2. Adversary Course of Action Matrix

Once the JIPB analyst has identified a likely COA, the same integrative technique can be used to identify the adversary's most likely scheme of maneuver or joint strategy (see Figure I-3).

3. JIPB Support to Campaign Planning

JIPB supports campaign planning by identifying significant facts and assumptions about the total battlespace environment and the adversary. This information includes details regarding adversary critical vulnerabilities, capabilities, limitations, COGs, and potential COAs. JIPB assessments and products are used by the JFC to produce the commander's estimate of the situation and concept of operations, and by the joint force staff to produce their respective staff estimates. These estimates, in turn, form the basis for the campaign plan by identifying, developing, and comparing friendly COAs. JIPB tactics, techniques, and procedures (TTP) that directly support campaign planning and the commander's decision making and estimate process are discussed in Chapter III, "JIPB Support to Decision Making."

Additional campaign planning guidance is also contained in JP 5-00.1, Joint Tactics, Techniques, and Procedures for Joint Campaign Planning.

a. **JIPB analysis assists the JFC and joint force staff to visualize and assess the full spectrum of adversary capabilities across all dimensions of the battlespace.** JIPB analysts identify, describe, and compare the opposing advantages and disadvantages of the military characteristics of the battlespace, and assist in determining how to gain strategic or operational advantage and initiative over the adversary. Specifically, JIPB products facilitate campaign planning by determining the following.

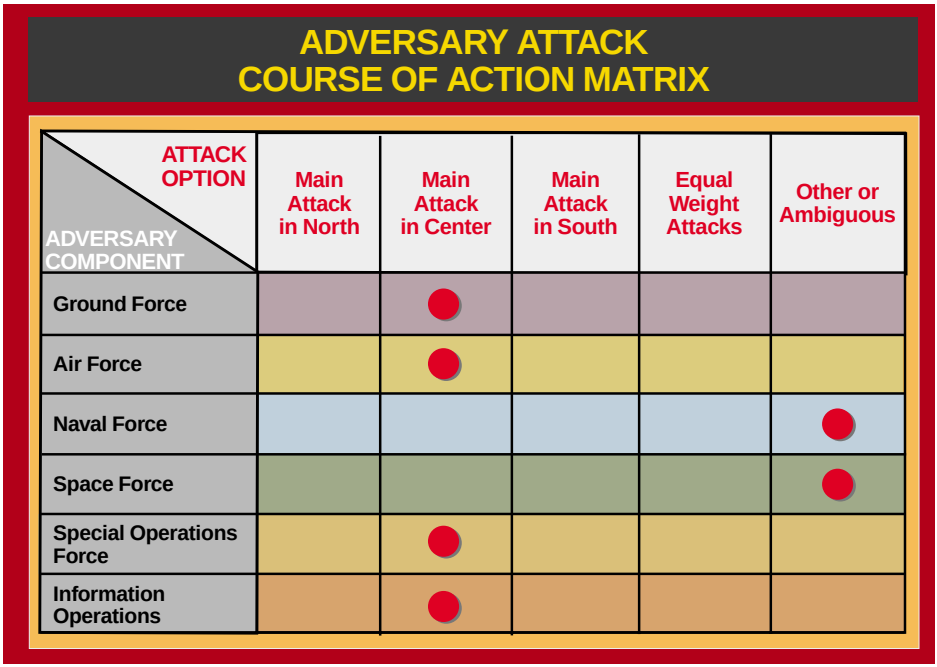


Figure I-3. Adversary Attack Course of Action Matrix

- The idiosyncrasies and decision making patterns of the adversary strategic leadership and field commanders.

- The adversary's strategy, intention, or strategic concept of operation, which should include the adversary's desired end state, perception of friendly vulnerabilities, and adversary intentions regarding those vulnerabilities.

- The composition, dispositions, movements, strengths, doctrine, tactics, training, and combat effectiveness of major adversary forces that can influence friendly actions in the theater and operational areas.

- The adversary's principal strategic and operational objectives and lines of operation.

- The adversary's strategic and operational sustainment capabilities.

- Decisive points throughout the adversary's operational and strategic depths.

- The adversary's ability to conduct information operations (IO) and use or access data from space systems.

- The adversary's regional strategic vulnerabilities.

- The adversary's capability to conduct asymmetric attacks against global critical support nodes (e.g., electric power grids, oil and gas pipelines, pre-positioned supply depots).

- The adversary's relationship with possible allies and the ability to enlist their support.

- The adversary's defensive and offensive vulnerabilities in depth.

- The adversary's capability to operate advanced warfighting systems (e.g., smart weapons and sensors) in adverse meteorological and oceanographic (METOC) conditions.

b. **JIPB also supports campaign planning by identifying and evaluating the adversary's strategic and operational COGs.** In theory, destruction or neutralization of adversary COGs is the most direct path to victory. However, COGs can change during the course of an operation, and at any given time COGs may not be apparent or readily discernible. Identification of adversary COGs requires detailed knowledge and understanding of how opponents organize, fight, make decisions, and their physical strengths and weaknesses. JIPB analysis alerts JFCs and their subordinates to circumstances that may cause COGs to change, thereby enabling the JFC to adjust friendly operations or COAs accordingly.

c. The JIPB process is designed to identify potential adversary COAs that involve several force components (e.g., air, ground, maritime, space) by integrating IPB products (for individual battlespace dimensions) with the multidimensional JIPB analysis performed by the Joint Staff, combatant command, and subordinate joint force J-2s. **In this way, the JIPB process creates a synergy in which an adversary's COAs in each battlespace dimension may provide valuable clues as to the adversary's overall capabilities, intentions, desired end state, and multi-force component or "joint" strategy.** JIPB also provides the basis for formulating friendly COAs available to the joint force, and drives the wargaming process that allows the JFC and joint force staff to select and refine those COAs.

SOVIET USE OF "COUNTER IPB" DURING WORLD WAR II

The commander must always meticulously think out how to mislead the enemy in regard to the true intentions of the troops. In order to achieve surprise [the commander] may consciously work out some problems of the battle plan in a way different from the obvious solutions demanded by the situation.

An example of skillful selection of the direction of the main strike can be found in the actions of the 65th Army in the Belorussian offensive operation. It was decided that the main attack should be made through a certain piece of marshy terrain because the enemy believed that this area was inaccessible to advancing troops and therefore few forces [were allocated] for its protection. Making use of the surprise factor, Soviet troops managed to quickly cross the marsh and attain the enemy's flank, which promoted the overall success of the offensive.

SOURCE: V.G. Reznichenko, ed., *Taktika*, Voyenizdat Press, 1987

4. JIPB and Deception

a. Since potential adversaries have access to US doctrine, they will probably attempt to exploit the JIPB process, either through deception or by deliberately adopting a COA different than the one the JIPB analyst might normally identify as "most likely." The JIPB analyst needs to be aware of the relative importance a specific adversary may place on the principle of surprise. The JIPB analyst should analyze the probability that the adversary may engage in "counter JIPB" by deliberately avoiding the most operationally efficient (and therefore most obvious) COA in order to achieve surprise. Additionally, an adversary may deceive the JIPB analyst regarding the **timing** of an otherwise "obvious" COA, through asynchronous attack preparations and by psychologically conditioning the JIPB analyst to accept unusual levels and types of activity as normal. For example, an adversary may choose to prepare for an attack over a deliberately extended period of time. In this case the JIPB analyst may be able to correctly identify the adversary's intent and most likely COA (attack), but will find it more difficult to estimate the actual **time** of the attack. Adversaries may also use a "reverse JIPB" process to assess their own forces from their opponent's perspective and to "reconstruct" their opponent's probable JIPB assessment. This in turn will provide an adversary with insight into their opponent's intelligence collection plan and determine the best times and locations to plant deceptive information designed to mislead the JIPB analyst.

b. JFCs and their staffs must understand that JIPB is a useful methodology for analyzing the effects of the battlespace environment and adversary doctrine, and for formulating a **hypothesis regarding the adversary's possible adoption of various COAs** (i.e., what the enemy *may* do). It therefore provides a starting point for planning the intelligence collection effort and for formulating and wargaming friendly COAs. JIPB should *not* be considered a "crystal ball" for predicting the adversary's actual intentions (i.e., what the enemy *will* do). JFCs and their staffs must understand that the JIPB analyst **estimates the most likely adversary COA** based largely on battlespace environmental factors that may change, and on assumptions about the adversary that may prove invalid. Campaign planning based solely on countering the most likely COA will leave the joint force

vulnerable to other less likely COAs that the adversary may choose to adopt in order to maximize surprise.

5. Strategic, Operational, and Tactical Level Perspectives

The basic JIPB process remains the same across the range of military operations, regardless of the level of war. Nevertheless, specific JIPB planning considerations may vary considerably between strategic, operational, and tactical level operations due to obvious differences in mission, available resources, and size of the operational areas and areas of interest (AOIs). Strategic level JIPB must examine the elements of national power: economic, military, political, and informational. JIPB support to the operational level is concerned with analyzing the operational area, facilitating the flow of friendly forces in a timely manner, sustaining those forces, and then integrating tactical capabilities at the decisive time and place. JIPB support to tactical operations generally requires a greater level of detail over a smaller segment of the battlespace than is required at the strategic and operational levels. However, under certain circumstances tactical operations can assume strategic importance and may constitute a critical part of joint operations, as during some types of joint special operations and MOOTW.

a. **Strategic Level JIPB.** Activities at the strategic level establish national and multinational military objectives; sequence initiatives; define limits and assess risks for the use of military and other instruments of national security policy; develop global plans or theater war plans to achieve these objectives; and provide military forces and other capabilities in accordance with strategic plans. The strategic level battlespace may encompass the entire world due to transglobal factors such as international law, the capability of adversary propaganda to influence US public support and world opinion, adversary and allied or coalition structures, and the capability and availability of national and commercial space-based systems and information technology. The strategic level battlespace environment is analyzed in terms of geographic regions, nations, and climate rather than local geography and weather. Political and economic characteristics of the battlespace assume increased importance at the strategic level. For example, the industrial and technological capabilities of a nation or region will influence the type of military force it fields. Similar factors may influence the ability of a nation to endure a protracted conflict without outside assistance. Political and economic considerations may be the dominant factors influencing adversary COAs. At this level, the analysis of the adversary's strategic capabilities will concentrate on considerations such as civil-military relations, national will and morale, ability of the economy to sustain warfare, mobilization of the strategic reserve, and possible intervention by third-party countries. COA models at the strategic level consider the entire spectrum of resources available to the adversary. They identify both military and nonmilitary methods of power projection and influence, specify the theaters of main effort and the forces committed to each, and depict national as well as strategic and theater level objectives.

b. **Operational Level JIPB.** The size and location of the operational level battlespace depends on such varied factors as the location of adversary political and economic support structures, military support units, force generation capabilities, potential third-nation or third-party involvement, logistic and economic infrastructure, political treaties, press coverage, adversary propaganda, and the potential for information operations. The size of the battlespace may also vary depending on the particular dimension being considered. For example, if the adversary has the capability to conduct space-based

intelligence collection or computer network attacks, then the space or cyberspace dimensions of the battlespace may cover considerably larger geographic areas than those associated with other dimensions. At the operational level, the analysis of the battlespace environment should concentrate on characteristics such as: the capability of road, rail, air, and sea transportation networks to support the movement of, and logistic support to, large military units; zones of entry into and through the operational area and AOI; the impact of large geographic features such as mountains, large forests, deserts, and archipelagos on military operations; and the seasonal climatic effects on large military formations and their logistic support. In addition to large unit order of battle (OB), the analysis should include the adversary's doctrine for command and control (C2), logistic support, release and use of weapons of mass destruction (WMD), theater ballistic missile forces, special operations, and use of paramilitary forces. Adversary COAs are described in terms of operational objectives, large-scale movements, lines of communications (LOCs), and the phasing of operations. Additionally, an adversary's COAs may include political, social, religious, informational, or economic responses.

c. **Tactical Level JIPB.** At the tactical level, the size and location of the battlespace are influenced by the physical location of adversary land, air, naval, space, and other forces that could pose a direct threat to the security of the friendly force or the success of its mission. The extent to which the effects of the battlespace environment are analyzed at the tactical level is largely dependent on the mission and planning time available. At a minimum, tactical level forces should analyze the battlespace environment in terms of: military objectives; air, land, and sea avenues of approach; and the effects of METOC and geography on personnel, military operations, weapons systems, and force mobility. The tactical level evaluation of a military adversary should concentrate on standard OB factors, such as the composition, disposition, strength, morale, tactics, and training status of specific tactical units or factional groups that could interfere with mission accomplishment. The development, analysis, and description of adversary COAs at the tactical level will be based on and result in a higher degree of detail than would be necessary at higher levels of military operations.

6. Relation of JIPB to the Intelligence Cycle

JIPB is a dynamic process that both supports and is supported by each phase of the intelligence cycle (see Figure I-4).

a. **JIPB and the Planning and Direction Phase.** The JIPB process provides the basic data and assumptions regarding the battlespace and adversary that help the joint force staff and the JFC in identifying priority intelligence requirements (PIRs), and that enable the joint force J-2 to formulate information requirements. By identifying known adversary capabilities, JIPB provides the conceptual basis for the JFC to visualize how the adversary might threaten the command or interfere with mission accomplishment. This analysis forms the basis for developing the command's PIRs, which seek to answer those questions the JFC considers vital to the accomplishment of the assigned mission. Additionally, by identifying specific adversary COAs and COGs, JIPB provides the basis for wargaming sessions in which the staff "fights" each friendly and adversary COA. This wargaming process assists the joint force J-2 in identifying specific intelligence that could confirm or deny a given adversary COA, or that is otherwise required to support a friendly COA. These requirements may be established as the JFC's PIRs or as supporting information requirements. JIPB also identifies other critical information gaps

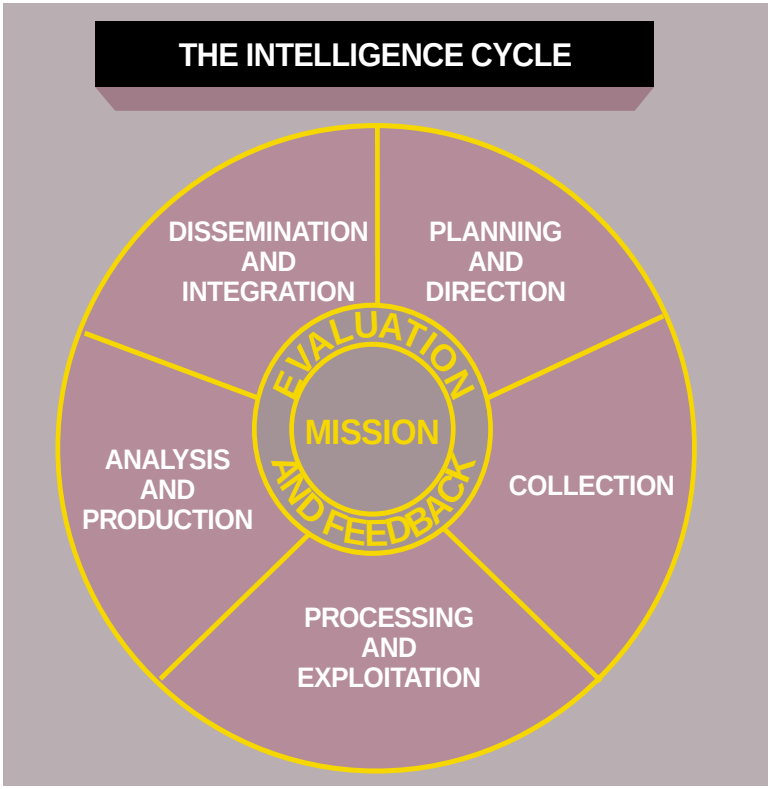


Figure I-4. The Intelligence Cycle

regarding the adversary and environment, which (in conjunction with PIRs and information requirements) form the basis for requests for information (RFIs).

See JP 2-01, Joint Intelligence Support to Military Operations, *for detailed guidance on the RFI process.*

b. **JIPB and the Collection Phase.** JIPB provides the foundation for the development of an optimal intelligence collection strategy by enabling analysts to identify the time and location of anticipated adversary activity corresponding to each potential adversary COA. JIPB products include several tools that facilitate the conversion of PIRs and information requirements into specific intelligence collection tasks. JIPB templates facilitate the analysis of all identified adversary COAs and identify named areas of interest (NAIs) where specified adversary activity, associated with each COA, may occur. JIPB matrices are also produced that describe the indicators associated with each specified adversary activity. In addition to specifying the anticipated locations of adversary activity, JIPB templates and matrices also specify the times when such activity may occur, and can therefore facilitate the sequencing of intelligence collection requirements.

c. **JIPB and the Processing and Exploitation Phase.** The JIPB process provides a disciplined yet dynamic methodology for processing and exploiting large amounts of data. The process enables JIPB analysts to remain focused on the most critical aspects of the battlespace and adversary. Incoming information and reports can be rapidly incorporated into already

existing JIPB graphics, templates, and matrices. In this way, JIPB products not only serve as excellent processing tools, but also provide a convenient medium for displaying the most up-to-date information and for identifying critical information gaps.

d. **JIPB and the Analysis and Production Phase.** JIPB products provide the foundation for the J-2 intelligence estimate. In fact, the JIPB process parallels the paragraph sequence of the intelligence estimate format (Figure I-5). Paragraph 2.a., "Characteristics of the Operational Area", is specifically derived from the second step of the JIPB process, which describes the effects of the battlespace on friendly and adversary operations. The third step of the JIPB process, an evaluation of the adversary, provides the data for the intelligence estimate's paragraphs 2.b. ("Adversary Military Situation") and 3. ("Adversary Capabilities"). Likewise, the analysis of adversary COAs, prepared during the fourth JIPB step, is used in paragraphs 4. ("Analysis of Adversary Capabilities") and 5. ("Conclusions") of the intelligence estimate.

e. **JIPB and the Dissemination and Integration Phase.** The joint force J-2 intelligence estimate provides vital information required by the joint force staff to complete their estimates, and for subordinate commanders to continue concurrent planning activities. Timely dissemination of the intelligence estimate is therefore paramount to good operational planning. If time does not permit the preparation and dissemination of a written intelligence estimate, JIPB templates, matrices, and other graphics can and should be disseminated to other joint force staff

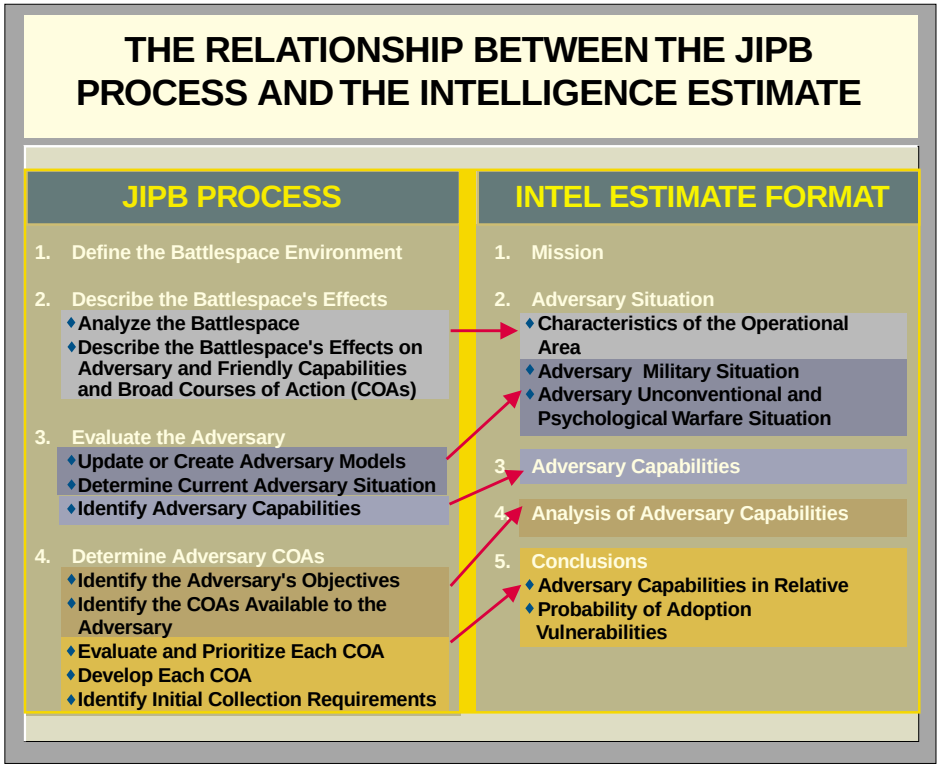


Figure I-5. The Relationship Between the JIPB Process and the Intelligence Estimate

sections and component commands in order to facilitate their effective integration into operational planning.

f. **JIPB and the Evaluation and Feedback Phase.** Consistent with the intelligence cycle, the joint force J-2 staff continuously evaluates JIPB products to ensure that they anticipate the needs of the JFC and are timely, accurate, usable, complete, objective, and relevant. If JIPB products violate any of these attributes of good intelligence, the joint force J-2 must take immediate remedial action. The failure of the J-2 staff to maintain these attributes may contribute to the joint force failing to accomplish its mission.

7. Roles and Responsibilities Within the JIPB Process

a. **Military Services.** The Military Services are responsible for training Service intelligence, METOC, and geospatial information and services (GI&S) personnel in JIPB and Service IPB techniques, equipping their forces with the material needed to conduct IPB during tactical operations, and for the production and dissemination of IPB products derived from specific data bases located at the Service intelligence centers.

b. **The Joint Staff J-2 and Defense Intelligence Agency (DIA).** The Joint Staff J-2 is the focal point for tasking the production of national-level JIPB products in support of current and planned joint operations in accordance with established Department of Defense Intelligence Production Program (DODIPP) procedures. The Joint Staff J-2 is also responsible for facilitating a combatant commander's request for federated intelligence support. The RFI desk in the J-2 National Military Joint Intelligence Center receives and validates all RFIs submitted by the combatant commands and tasks national-level organizations for collection or production in response to JIPB or other intelligence requirements. Additionally, DIA initiates and produces JIPB products consistent with its DODIPP areas of responsibility.

For more detailed guidance, see JP 2-01, Joint Intelligence Support to Military Operations, *and JP 2-02,* National Intelligence Support to Joint Operations.

c. **Geographic Combatant Commander.** The combatant commander is responsible for ensuring the standardization of JIPB products within the command and subordinate forces by establishing theater TTP for collection management, and the production and dissemination of intelligence products. The combatant commander is also responsible for identifying federated intelligence support requirements. Under a federated architecture, the combatant command will work in concert with the joint force J-2 and Joint Staff J-2 to establish federated partners and intelligence support requirements.

d. **Combatant Command Joint Intelligence Center (JIC).** The JIC is responsible for managing requirements and producing intelligence products that support JIPB and IPB efforts for the combatant commander and subordinate commanders during joint operation planning and ongoing operations. It is the focal point for planning and coordinating the overall JIPB effort within the combatant command. The JIC ensures that the JIPB production effort is accomplished in conjunction with all appropriate combatant command staff elements, particularly the GI&S, METOC, and legal staff officers. The JIC also ensures that its JIPB analysis is fully integrated with all IPB and JIPB products produced by subordinate commands and other organizations. With the assistance of all appropriate joint force staff elements, the JIC identifies

The JIC is the focal point for planning, coordinating, and producing JIPB products within the combatant command.

information gaps in existing intelligence data bases and formulates collection requirements and RFIs to address these shortfalls. Additionally, the combatant command JIC may be requested to support another combatant commander's federated intelligence requirements. As a federated partner, the JIC must be prepared to integrate into the overall federated intelligence architecture identified by the supported combatant commander. All combatant command JICs are eligible to participate in federated intelligence support operations.

e. **Joint Force Commander.** The combatant commander and any subordinate JFCs clearly state their objectives, concept of operations, and operational planning guidance to their staffs and ensure that the staff fully understands their intent. Based on wargaming and the joint force staff's recommendation, the JFC selects a friendly COA and issues implementing orders. The JFC also approves the list of intelligence requirements associated with that COA. The JFC then identifies those requirements most critical to the completion of the joint force's mission as PIRs.

f. **Joint Force J-2.** The joint force J-2 has primary staff responsibility for planning, coordinating, and conducting the overall JIPB analysis and production effort at the joint force level. Through the JIPB process, the joint force J-2 enhances the JFC's and other staff elements' visualization of the full spectrum of the battlespace. The J-2 uses the JIPB process to formulate and recommend PIRs for the JFC's approval, and will develop information requirements that focus the intelligence effort (collection, processing, production, and dissemination) on intelligence questions crucial to joint force planning. To enhance the joint force's common view of the battlespace, the J-2 ensures that component command IPB products are disseminated to all components, and ensures they also are integrated with the joint force's JIPB products to form a complete and detailed picture of an adversary's capabilities, vulnerabilities, and potential COAs. The J-2 staff should accomplish this in concert with the component command intelligence staffs, either directly or via any available secure electronic means that allows visualization of the JIPB product, such as the Joint Worldwide Intelligence Communications System (JWICS). The joint

force J-2 is also responsible for incorporating the intelligence capabilities of supporting national agencies and joint commands into the JIPB process, particularly in the areas of GI&S, METOC, and strategic targeting. Additionally, the J-2 disseminates JIPB products in time to support planning by other joint force staff sections and component command staffs, and ensures such products are continuously updated. Due to lack of information, it may be necessary for the J-2 to formulate and propose to the JFC assumptions regarding adversary capabilities. **In such cases, the J-2 ensures that all assumptions are clearly understood by the JFC and the joint force staff to be only assumptions, while at the same time striving to collect the requisite intelligence needed to confirm or deny those assumptions. Most importantly, the J-2 ensures that possible adversary COAs are not dismissed as "impossible" simply because of their relative degree of difficulty.** On the other hand, if the combination of battlespace environment and adversary capabilities truly make a COA physically impossible to accomplish, then the J-2 must identify it as such.

g. **Joint Intelligence Support Element (JISE).** The JISE is the focal point for planning, coordinating, and conducting JIPB analysis and production at the subordinate joint force level. The responsibilities of the JISE include complete air, space, ground, and maritime OB analysis; identification of adversary COGs; analysis of command, control, communications, and computers; targeting support; collection management; and maintenance of a 24-hour watch. The JISE conducts its JIPB analysis in conjunction with all other appropriate joint force and component command staff elements, particularly the GI&S and METOC staff officers. The GI&S and METOC staffs provide information critical to defining the battlespace environment (JIPB step one) and describing the battlespace's effects (JIPB step two). The JISE, with assistance from the GI&S and METOC staffs, identifies gaps in existing intelligence data bases and initiates collection requirements and RFIs. Additionally, because of the dynamic and changing nature of international law, consultation with the joint force legal staff is necessary to identify any national or international legal restrictions on military operations. Likewise, the JISE should draw on the expertise of the Logistics Directorate (J-4) in analyzing specific factors that would affect both friendly and adversary lines of supply, reinforcement, and inter- and intra-theater LOCs.

h. **Joint Force Operations Directorate (J-3) and/or Plans Directorate (J-5).** The joint force J-3 and/or J-5 ensure that the J-2 and other joint force staff sections are continuously updated on planning for both current and follow-on missions as well as on any anticipated change to the operational

A Tech Sgt. from the 1st SOS Intelligence, Kadena AB, Japan, checks a map of southern Thailand before a preflight briefing with helicopter pilots.

area. The J-3 and/or J-5 must guard against seizing upon one adversary COA as a "given" simply because it fits preconceived notions or is a "convenient" match for an already favored friendly COA. Rather, the J-3 and/or J-5 should plan to counter all adversary COAs identified by the JIPB process. **It is imperative that the J-3 and/or J-5 recognize that the least likely adversary COA may be the one actually adopted precisely because it is the least likely, and therefore may be intended to maximize surprise.** The J-3 and/or J-5 will conduct wargames that test friendly COAs against the complete set of adversary COAs developed during the JIPB process. Based on the results of these wargames, the J-3 and/or J-5 will refine and determine the probability of success of each friendly COA against each adversary COA identified by the J-2, and will make a recommendation to the JFC regarding which friendly COA best accomplishes the joint mission within the JFC's guidance and intent.

i. **Subordinate Component Commands.** The intelligence staffs of the subordinate component commands should ensure that appropriate IPB products are prepared for each dimension of the battlespace in which the component command operates. These component command IPB products provide a level of detail and expertise that the joint force J-2 should not attempt to duplicate, but must draw upon in order to form an integrated or "total" picture of an adversary's joint capabilities and probable COAs. **Accordingly, the component commands should coordinate their IPB effort with the joint force J-2 and with other component commands that have overlapping IPB responsibilities.** This will ensure that their IPB products are coordinated and disseminated in time to support the joint force's JIPB effort.

CHAPTER II
THE JIPB PROCESS

"Know the enemy, know yourself; your victory will never be endangered. Know the ground, know the weather; your victory will then be total."

Sun Tzu, *The Art of War*
C. 500 B.C.

1. Introduction

JIPB consists of four basic steps that ensure the systematic analysis of the environment and adversary (Figure II-1). The process is both continuous and cyclical in that JIPB is conducted both prior to and during a joint force's operations as well as during planning for follow-on missions. The most current information available regarding the adversary situation and the battlespace environment is continuously integrated into the JIPB cycle. The following discussion describes the JIPB process during force-on-force military operations. JIPB support to joint force activities to counter asymmetric

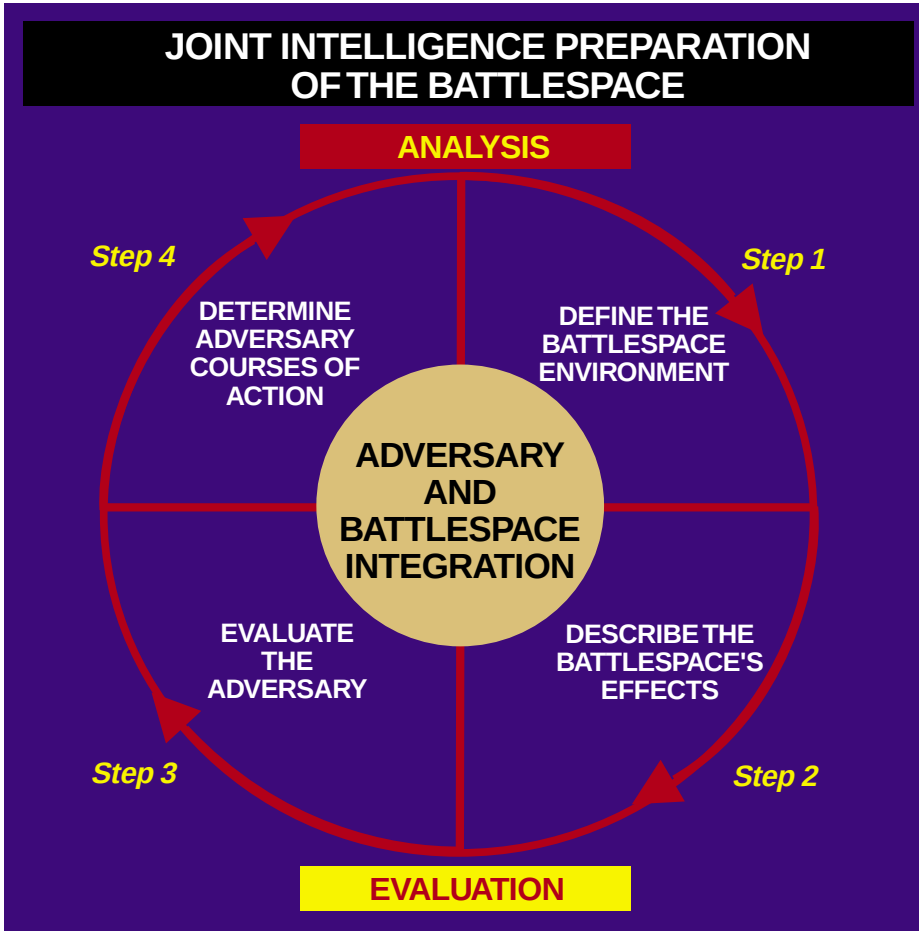


Figure II-1. Joint Intelligence Preparation of the Battlespace

warfare threats is discussed in Chapter IV, "JIPB Support to Countering Asymmetric Warfare Threats." The application of JIPB to MOOTW is discussed in Chapter V, "JIPB Support to Military Operations Other Than War."

SECTION A. DEFINING THE BATTLESPACE ENVIRONMENT

"Unrestricted War is a war that surpasses all boundaries and restrictions. It takes nonmilitary forms and military forms and creates a war on many fronts. It is the war of the future."

Colonel Qiao Liang and Colonel Wang Xiangsui, *Unrestricted War*, Beijing, 1998

2. Overview

In the first step of the JIPB process, the joint force staff assists the JFC and component commanders in determining the dimensions of the joint force's battlespace by identifying the important characteristics of the battlespace, and gathering information relating to the battlespace environment and the adversary (see Figure II-2). The joint force J-2 staff works with other joint force and component command staff elements to formulate an initial survey of adversary, environmental, and other characteristics that may impact the friendly joint mission. This survey of general battlespace characteristics is used by the JFC to formulate the concept of the joint force's battlespace and to provide guidance and direction to the JIPB effort.

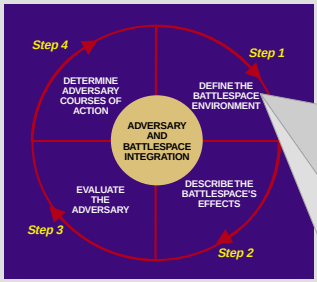
a. Successfully defining the command's battlespace is critical to the outcome of the JIPB process. The succeeding steps of the JIPB process must concentrate on those areas and characteristics of the battlespace that could influence the accomplishment of the joint force's mission. Correctly defining the dimensions of the battlespace during this step saves time and effort by focusing the work of the joint force staff on only those areas and features that could influence the JFC's decisions and the selection of friendly COAs. **The battlespace consists of both geographic and non-geographic dimensions.**

- The geographic dimensions of the battlespace must be defined within the common World Geodetic System reference framework in accordance with Chairman of the Joint Chiefs of Staff Instruction 3900.01, *Position Reference Procedures*. Any associated GI&S products developed or used should meet the standards and guidelines of the National Imagery and Mapping Agency (NIMA).

- **The joint force staff must also recognize that the battlespace extends beyond the geographic dimensions of land, air, sea, and space. It also includes nonphysical dimensions such as the electromagnetic spectrum, automated information systems, and public opinion.** These nonphysical dimensions may extend well beyond the joint force's designated operational areas.

b. Failure to focus on relevant characteristics of the battlespace leads to wasted time and effort. Poorly focused JIPB results in unnecessary information being collected and evaluated. **More importantly, the failure to identify all the relevant characteristics may lead to the joint force being surprised and unprepared when some overlooked feature of the battlespace exerts an influence on the accomplishment of the joint force's mission**.

PROCESS FOR STEP ONE OF JOINT INTELLIGENCE PREPARATION OF THE BATTLESPACE



DEFINE THE BATTLESPACE ENVIRONMENT

1. Identify the limits of the joint force's operational area
2. Analyze the joint force's mission and joint force commander's intent
3. Determine the significant characteristics of the joint force's operational area
4. Establish the limits of the joint force's areas of interest for each geographic battlespace dimension
5. Determine the full, multi-dimensional, geographic and non-geographic spectrum of the joint force's battlespace
6. Identify the amount of battlespace detail required and feasible within the time available
7. Evaluate existing data bases and identify intelligence gaps and priorities
8. Collect the material and intelligence required to support further JIPB analysis

Figure II-2. Process for Step One of Joint Intelligence Preparation of the Battlespace

3. Identify the Limits of the Joint Force's Operational Area

To assist in the coordination and deconfliction of joint action, JFCs may define operational or joint areas. The size of these areas, and the types of forces employed within them, depend on the scope and nature of the crisis and the projected duration of operations. For operations somewhat limited in scope and duration, geographic combatant commanders can designate operational areas such as joint operation areas, joint special operations areas (JSOAs), joint rear areas (JRAs), amphibious objective areas, or areas of operations. When warranted, geographic combatant commanders may designate theaters of war and perhaps subordinate theaters of operation for each major threat. The boundaries of the operational area are normally specified in the operation order or operation plan (OPLAN) from the higher headquarters that assigned the joint force's mission.

4. Analyze the Joint Force's Mission and JFC's Intent

Mission analysis is normally accomplished under the leadership of the JFC and in cooperation with the joint force staff as part of the commander's planning process. The JFC's stated intent and all characteristics of the mission that could influence the JFC's decisions or affect the COAs available to the joint force or the adversary are of special significance in the JIPB process. In many situations, those characteristics will expand the joint force's battlespace beyond the designated limits of the operational area. For example, in order to protect the force, the JFC's battlespace concept should include the surface-to-air missiles, cruise missiles, and theater ballistic missiles possessed by any third-party nations that could threaten friendly operations, **even though they may be located outside the operational area**. Mission characteristics that could be important include the type of military operation being considered or planned; the purpose of the operation; the amount of time available for planning and execution; the expected duration of the operation; the risks to be managed; and whether allied or coalition forces will be involved. The JIPB analyst must also consider the operational constraints levied upon the JFC by National Command Authorities which would impact the conduct of operations. For example, urban targeting withholds, restrictions on noncombatant casualties, and declarations of no-strike targets will provide a framework for the scope of the JFC's mission.

5. Determine the Significant Characteristics of the Joint Force's Operational Area

This step consists of a **cursory** examination of each battlespace dimension in order to identify those battlespace characteristics of possible significance or relevance to the joint force and its mission. For example, during this step the analysis of adversary and third-party military forces is limited to the identification of those forces that could influence the joint force's mission based on their location, mobility, general capabilities, significant weapons ranges, and strategic intent. A more in-depth evaluation of the effects of each relevant battlespace characteristic takes place during step two of the JIPB process, "Describing the Battlespace's Effects," which is discussed in Section B of this chapter. Specific adversary capabilities and possible COAs are evaluated during the third step of the JIPB process, "Evaluate the Adversary," which is discussed in Section C of this chapter.

a. Certain characteristics of the operational area may take on added significance based on the type of mission assigned to the joint force. For example, the presence of civilian relief organizations would be an important factor during a foreign humanitarian assistance operation. During a counterdrug operation, significant characteristics might include the relationship of narcotics trafficking organizations with each other and with the governments in the region. During war, important battlespace characteristics would include the locations of critical resources (such as water during desert operations), the adversary's external sources of supply, LOCs with external sources of support, and the location and viability of friendly forces. Depending on the assigned mission, economic trade between an adversary and third-party nations should be examined for significance to the JFC's decision making process.

b. When identifying the significant characteristics of the operational area, all aspects of the area that might affect accomplishment of the joint force's mission must be considered. Depending on the situation, these might include the following.

- Geographical features and meteorological and oceanographic characteristics

A railroad bridge near the Arramaylan refinery damaged by Allied bombing during Operation DESERT STORM.

- Population demographics (ethnic groups, religious groups, age distribution, income groups, public health issues)
- Political and socioeconomic factors (economic system, political factions)
- Infrastructures, such as transportation and information systems
- Rules of engagement (ROE) or legal restrictions on military operations as specified in international treaties or agreements
- All friendly and adversary conventional, unconventional, and paramilitary forces and their general capabilities and strategic objectives
- Environmental conditions (earthquakes, volcanic activity, pollution, naturally occurring diseases)
- Psychological characteristics of adversary decision making
- All locations of foreign embassies, nongovernmental organizations, and private volunteer organizations

6. Establish the Limits of the Joint Force's Areas of Interest for Each Geographic Battlespace Dimension

An AOI is that area of concern to the JFC, including the area of influence, areas adjacent thereto, and extending into adversary territory to the objectives of current or planned operations. JFCs at all levels can designate AOIs to monitor adversary activities outside the operational area. An AOI is usually larger in size than an operational area, and encompasses areas from which the adversary or potential third parties can affect current or future friendly operations.

a. A key consideration in establishing an AOI is the adversary's (and any of its potential allies') capability to project power, provide logistic support, move forces into or through the operational area, or conduct overt and covert intelligence operations directed against

the joint force. For example, ports and airfields located outside the operational area would be inside the AOI if they could be used to launch sea and air attacks against the joint force, or resupply and/or reinforce the adversary's forces. Likewise, it is important to consider all possible locations from which an adversary or third party may launch terrorist, or unconventional warfare attacks against friendly forces or LOCs. Possible launch sites for short range and theater ballistic missiles belonging to a country friendly to the adversary that are capable of striking targets within the operational area must also be included in the joint force's AOI.

b. Time is another important factor in establishing the limits of an AOI. When addressing the relationship between time and the AOI, the JIPB analyst must consider both the adversary's mobility (ground, air, and maritime) and the amount of time needed to accomplish the friendly mission. For example, if a JFC estimates that it will take 48 hours to complete an operation, the AOI must encompass all adversary forces or activities that could influence mission accomplishment within that timeframe. For missions that are of relatively short duration, such as the evacuation of noncombatants or raids, the immediate and direct threats to the operation may be the only considerations. In those cases, the AOI might be relatively small. Some long-term missions, such as nation building, will result in an extensive AOI that involves many political and economic factors as well as more conventional military factors.

c. Since the limits of the AOI are based on **all** the factors affecting an adversary's ability to hinder friendly mission accomplishment, and are not restricted by political boundaries, the AOI might include neutral countries. For example, if political developments in a neighboring country might influence the accomplishment of the joint force's mission, that country should be included within the AOI. Likewise, if the population of a neutral country provides a base of support for forces opposing the joint force's operations, it also should be included within the AOI.

7. Determine the Full, Multi-Dimensional, Geographic, and Non-Geographic Spectrum of the Joint Force's Battlespace

The operational areas and AOIs that make up the joint force's battlespace consist of geographic areas that can be defined in three dimensions (height, width, and depth). However, military operations are no longer limited just to geographic areas. In determining the full, multi-dimensional spectrum of the battlespace, the joint force staff must move beyond addressing only the concrete, physical aspects of the geographic environment.

a. A joint force's battlespace must encompass all characteristics of the environment, factors, and conditions that must be understood to successfully apply combat power, protect the force, or complete the mission. The friendly and adversary use of the electromagnetic spectrum, the capabilities of both sides to use satellites for communications and intelligence gathering, friendly and adversary information systems capabilities and vulnerabilities, and the perceptions and attitudes of the leadership and population both inside and outside the operational area are examples of non-geographic characteristics that must be considered when determining the full, multi-dimensional spectrum of the joint force's battlespace.

b. The joint force staff must also look beyond the operational area and AOI to identify any other factors that may bear on the accomplishment of the joint force's

mission. For example, the joint force J-2 staff may incorrectly conclude that an adversary does not have access to space-based intelligence collection capabilities because the adversary country does not possess intelligence satellites of its own. The J-2 staff must look beyond the geographic limits of the operational area and the AOI to determine if any country (or any commercial entity) that does possess such satellites is providing (or may provide) satellite-derived intelligence to the adversary. If so, then the joint force's battlespace must be extended to cover the links between the adversary and the sources of its intelligence data.

8. Identify the Amount of Battlespace Detail Required and Feasible Within the Time Available

The time available for completion of the JIPB process may not permit each step to be conducted in detail. Overcoming time limitations requires focusing on the parts of JIPB that are most important to the JFC and subordinate commanders in planning and executing the joint mission. Identifying the amount of detail required to answer the JFC's PIRs avoids wasting time on developing more detail than necessary on any step of the process.

a. Some situations **may not require** an analysis of **all** adversary forces within the battlespace. For example, those adversary forces within the AOI that cannot interfere with the joint operation may require only a summary of their capabilities. In some cases, only select areas of the joint force's battlespace may require detailed analysis due to the assigned mission or other planning considerations.

b. The joint force J-2 consults the JFC and other staff elements to determine the amount of detail (regarding the battlespace and adversary) that is required to support operational planning. The J-2 plans, prioritizes, and structures the JIPB effort by balancing the level of detail required with the amount of time available.

9. Evaluate Existing Data Bases and Identify Intelligence Gaps and Priorities

The joint force J-2 staff evaluates the available intelligence data bases to determine if the necessary information is available to conduct the remainder of the JIPB process. In nearly every situation, there will be gaps in the existing data bases. The gaps must be identified early in order for the joint force staff to initiate the appropriate intelligence collection requirements. The joint force J-2 will use the JFC's stated intent and initial PIR to establish priorities for intelligence collection, processing, production, and dissemination.

a. The J-2 must identify and inform the JFC and appropriate staff elements of any intelligence gaps that cannot be filled within the time allowed for JIPB.

b. When necessary, the J-2 staff should formulate **reasonable** assumptions based on historical or current facts to fill in the gaps. During the remainder of the JIPB process, and during the commander's decision making process, **the J-2 must ensure that any assumptions that have been made are clearly identified as such**.

c. The following data bases and Intelink sites contain information applicable to the JIPB process, and should be reviewed and evaluated to determine the availability of **current** data, information, and intelligence products relative to the joint force's battlespace and mission.

- **Modernized Integrated Data Base (MIDB).** MIDB is accessible via Intelink and contains current, worldwide OB data organized by country, unit, facility, and equipment.

- **NIMA National Exploitation System (NES).** Accessible via Intelink, NES permits users to research the availability of imagery coverage over targets of interest and to access historical national imagery archives and imagery intelligence reports.

- **Country Knowledge Bases and Crisis Home Pages.** These Intelink sites contain the best and most up-to-date intelligence products available from the Intelligence Community and are accessible via the DIA Intelink Home Page.

- **Signals Intelligence (SIGINT) On-line Information System (SOLIS).** The SOLIS data base contains current and historical finished SIGINT products.

- **Secure Analyst File Environment (SAFE) Structured Data Files.** The following data bases are accessible via SAFE.

  •• **Intelligence Report Index Summary File (IRISA).** IRISA contains index records and the full text of current and historical intelligence information reports.

  •• **All Source Document Index (ASDIA).** ASDIA contains index records and abstracts for hardcopy all-source intelligence documents produced by DIA.

  •• **Intelligence Collection Requirements (ICR).** ICR is a register of all validated human intelligence (HUMINT) requirements and taskings.

- **Modernized Defense Intelligence Threat Data System (MDITDS).** MDITDS is a collection of analytic tools that support the retrieval and analysis of information and intelligence related to counterintelligence, indications and warning, and counterterrorism.

- **Community On-Line Intelligence System for End Users and Managers (COLISEUM).** This data base application allows the user to identify and track the status of all validated crisis and non-crisis intelligence production requirements.

10. Collect the Material and Intelligence Required to Support Further JIPB Analysis

Collecting intelligence and incorporating it into the JIPB process is a continuous effort.

a. The joint force J-2 staff initiates collection operations and issues RFIs to fill intelligence gaps to the level of detail required to conduct JIPB. As additional information and intelligence is received, the J-2 staff updates all JIPB products.

b. When new intelligence confirms or repudiates previously made assumptions, the J-2 informs the JFC and component commanders and their staffs. **If any assumptions are repudiated by new intelligence, the commander, the J-3, and other appropriate staff elements should reexamine any evaluations and decisions that were based on those assumptions.**

SECTION B. DESCRIBING THE BATTLESPACE'S EFFECTS

"Maneuvers that are possible and dispositions that are essential are indelibly written on the ground. Badly off, indeed, is the leader who is unable to read this writing. His lot must inevitably be one of blunder, defeat, and disaster."

Infantry In Battle
US Army Command and General Staff School, 1939

11. Overview

The second step in the JIPB process evaluates the effects of the battlespace's environment on both adversary and friendly military operations (see Figure II-3). The evaluation begins with the identification and analysis of all militarily significant existing and projected environmental characteristics of each battlespace dimension. These environmental factors are then analyzed to determine their effects on the capabilities and broad COAs of both adversary and friendly forces. Products developed during this step might include, but are not limited to, overlays and matrices that depict the military effects of geography, METOC factors, demographics, and the electromagnetic and cyberspace environments.

12. Analyze the Battlespace Environment

The degree of detail required in analyzing the battlespace environment will vary depending on the mission, the general capabilities of both friendly and adversary forces, and the relative significance or importance of each battlespace dimension to the specific military operation being planned. Due to the requirements of military planning, the evaluation of the operational area will generally require more detail than the AOI. Additionally, since the battlespace is not homogeneous, various land and maritime areas may require greater or lesser analysis depending on the relative geographical complexity of the region. The environment of each battlespace dimension is assessed in

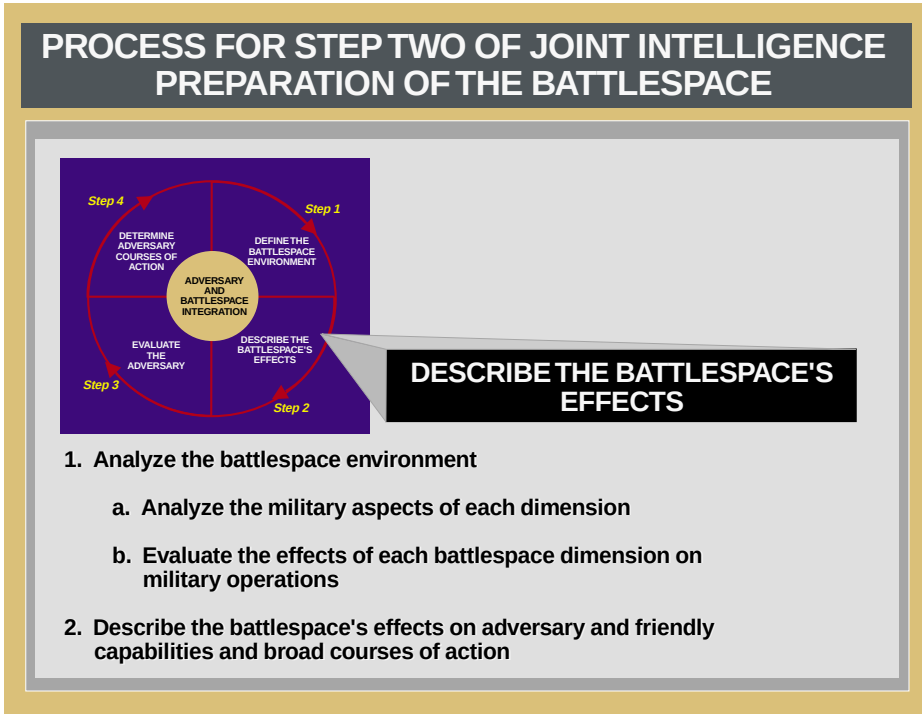


Figure II-3. Process for Step Two of Joint Intelligence Preparation of the Battlespace

a two step process which analyzes its military aspects and evaluates its potential effects on military operations. METOC conditions are considered both in terms of their ability to modify each dimension's environment as well as their capability to directly affect military operations. For example, heavy rainfall may modify the land environment by swelling streams and degrading soil trafficability, but it can also have a **direct** impact on military operations across the spectrum of **all** battlespace dimensions by reducing visibility, degrading the quality of supplies in storage, or degrading the effectiveness of some weapons systems.

a. **The Land Dimension.** Analysis of the land dimension of the battlespace concentrates on terrain features such as transportation systems (road and bridge information), surface materials, ground water, natural obstacles such as large bodies of water and mountains, the types and distribution of vegetation, and the configuration of surface drainage. Terrain analysis must always consider the effects of weather as well as changes that may result from military action. For example, freezing temperatures may eliminate the obstacle value of rivers or marshes by freezing the surface sufficiently to allow operational maneuver. Likewise, the mobility characteristics of the operational area can be affected by military actions that may reduce built-up areas to rubble, destroy dams and bridges, and possibly create large concentrations of refugees blocking LOCs. It is also important to analyze the combined effects of wind, temperature, humidity, sunlight, topography, and precipitation on the potential use of chemical and biological weapons in order to take appropriate defensive measures. The first step in this process is to analyze the military aspects of the terrain (**observation and fields of fire, concealment and cover, obstacles, key terrain, and avenues of approach**). This analysis is followed by an evaluation of how the land environment will affect military operations. It is important to remember that terrain analysis is not the end product of the JIPB process. Rather, it is the means to determine which friendly COAs can best exploit the opportunities the terrain provides and how the terrain affects the adversary's available COAs.

- **Observation and Fields of Fire.** "Observation" is the ability to see (or be seen by) the adversary either visually or through the use of surveillance devices. A "field of fire" is the area that a weapon or group of weapons may effectively cover with fire from a given position. Areas that offer good observation and fields of fire generally favor defensive COAs. Factors that hinder observation and fields of fire include: (1) the height and density of vegetation and buildings; (2) relief features such as hills and defiles; (3) obstructions to specific lines of sight; (4) target acquisition and sensor capabilities; and (5) precipitation and cloud cover. The analysis of each limiting factor should be combined into a single product, usually in the form of an overlay (see Figure II-4) with areas of poor observation and fields of fire marked by parallel diagonal lines or crosshatching. Additionally, if time permits, line of sight overlays (see Figure II-5) should be prepared to assist the joint force staff in evaluating potential friendly or adversary COAs, operational avenues of approach, and the employment of line of sight ground and aerial joint sensors and communications networks. The evaluation of observation and fields of fire facilitates the identification of:

  •• Potential engagement areas or "kill zones;"

  •• Defensible terrain and specific system or equipment positions; and

  •• Areas where maneuvering forces are most vulnerable to observation and fire.

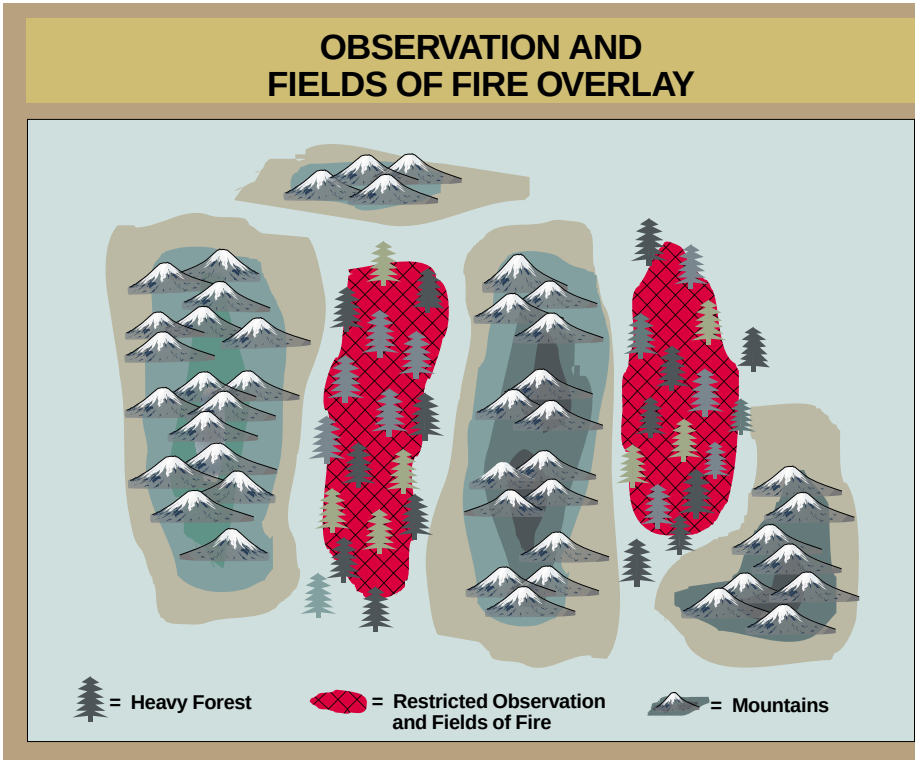


Figure II-4. Observation and Fields of Fire Overlay

- **Concealment and Cover.** "Concealment" is protection from observation, and can be provided by features such as woods, underbrush, snowdrifts, tall grass, and cultivated vegetation. "Cover" is protection from the effects of direct and indirect fires. It can be provided by such things as ditches, caves, tunnels, river banks, folds in the ground, shell craters, buildings, walls, and embankments. Areas with good concealment and cover favor both offensive and defensive COAs. Since concealment and cover are basically the inverse of observation and fields of fire, the analysis of all four of these categories should be integrated in order to:

  •• Identify defensible terrain and potential battle positions;

  •• Evaluate avenues of approach; and

  •• Identify potential assembly and dispersal areas.

- **Obstacles.** Obstacles are obstructions designed or employed to disrupt, fix, turn, or block the movement of an opposing force, and to impose additional losses in personnel, time, and equipment on the opposing force. Obstacles can be natural, manmade, or a combination of both. These can include buildings, steep slopes, rivers, lakes, forests, swamps, jungles, cities, minefields, trenches, and military wire obstacles. An evaluation of obstacles leads to the identification of mobility corridors. This, in turn, helps to identify defensible terrain and avenues of approach. If time permits, separate

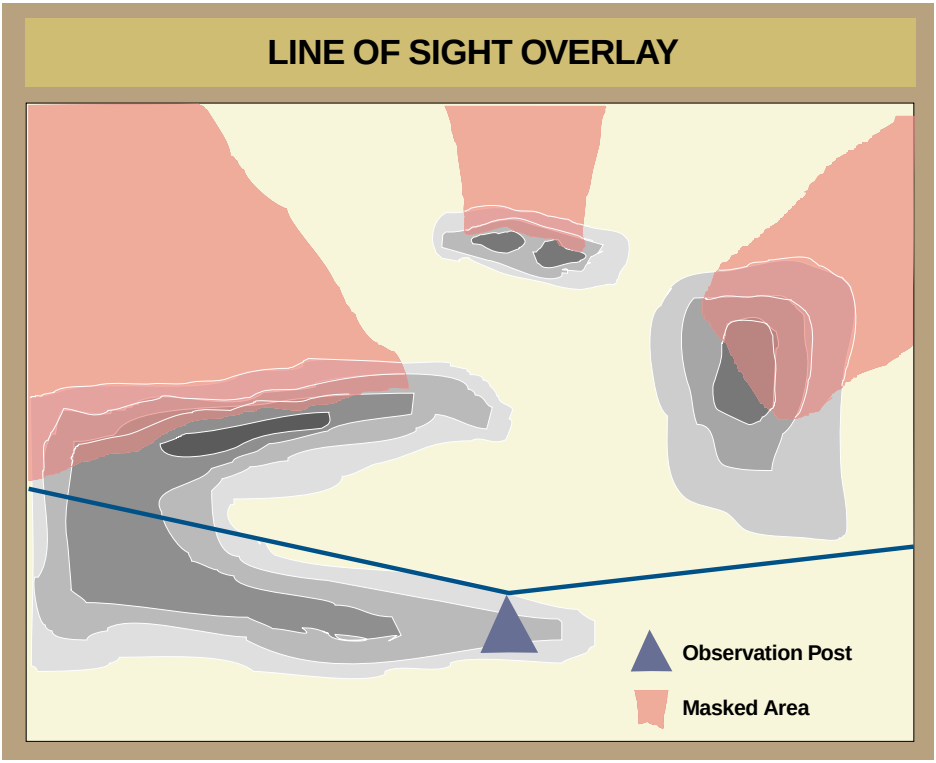


Figure II-5. Line of Sight Overlay

obstacle overlays should be prepared to evaluate each of the following categories and factors: (1) vegetation (tree spacing and trunk diameter); (2) surface drainage (stream fordability, swampy areas); (3) natural and manmade obstacles; (4) transportation infrastructure (bridge classifications and road width, slope, and curve radius); (5) the lethality and area of dispersion of chemical and biological agents and radiation; and (6) the effects of current or projected METOC conditions. Each of these factor overlays are then combined to form a single product known as the combined obstacle overlay (see Figure II-6). The combined obstacle overlay is used to depict areas where military mobility can be categorized as unrestricted, restricted, or severely restricted. Unrestricted areas are free of any obstacles or restrictions to movement. Restricted areas are usually depicted on overlays by diagonal lines to indicate terrain that hinders movement to some degree. Severely restricted areas are usually depicted by crosshatched diagonal lines to indicate terrain that severely hinders or slows military movement unless some effort is made to enhance mobility. These terrain mobility classifications are not absolute but reflect the relative effect of terrain on types of forces and combat maneuver formations. They are based on the ability of a force to maneuver in combat formations, usually linear, or to transition from one type of formation to another, as opposed to simply moving through a piece of terrain. Identifying an area as "severely restricted" terrain, for example, does not imply that movement through that area is impossible, only that in some military operations it may be impractical. Units

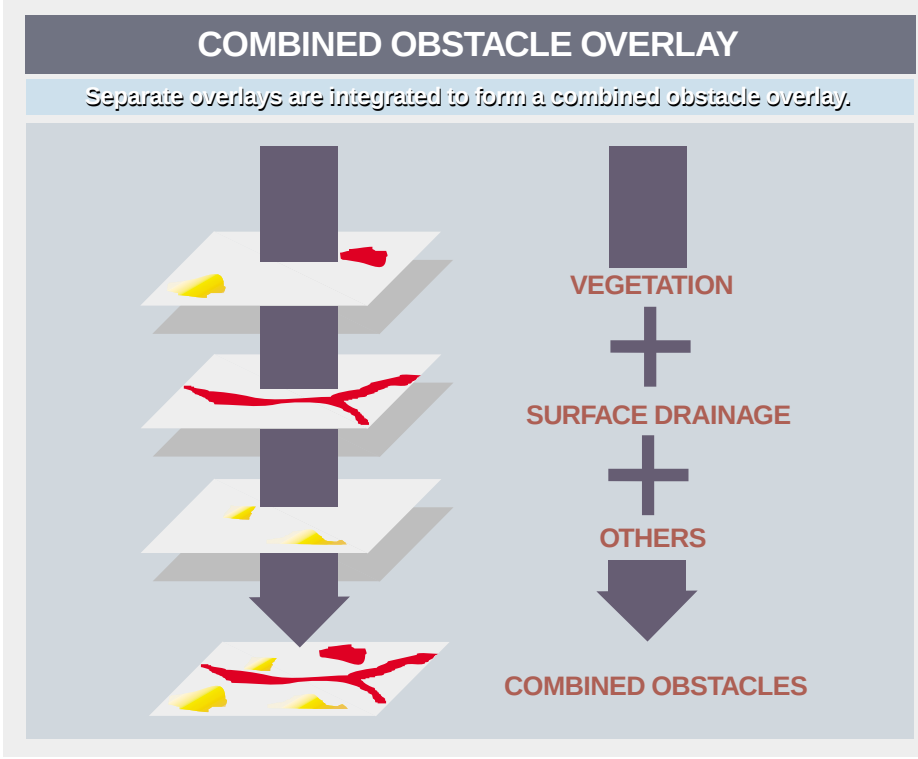


Figure II-6. Combined Obstacle Overlay

moving in column formations along roads generally have little trouble traversing severely restricted terrain.

- **Key Terrain.** Key terrain is any area of which the seizure, retention, or control affords a marked advantage to either force. Therefore, it is often selected as a tactical or operational level objective. For example, an operational commander may consider as key terrain an urban complex that is an important transportation center, a road network providing passage through restrictive terrain, or a geographic area that provides critical agricultural, industrial, or natural resources. Key terrain is evaluated by assessing the impact of its seizure by either force upon the results of battle. There are two suggested techniques to assist this analysis.

  •• Evaluate the other four military aspects of the terrain first; then integrate those results to identify and assess key terrain. For example, key terrain might include a range of hills with good observation and fields of fire overlooking an area providing adversary forces a number of high speed avenues of approach.

  •• Time permitting, conduct a "mini-wargame" to visualize possible outcomes of battle. Key terrain is commonly depicted on overlays with a large "K" within a circle or curve that encloses and follows the contours of the designated terrain. In the offense, key terrain features are usually forward of the friendly force and are often assigned as objectives. In the defense, key terrain is usually within or behind the defensive

GERMAN ARMOR IN THE ARDENNES DURING WORLD WAR II

Success in the preservation of secrecy had been a major factor in surprising the French High Command in May 1940. The point on which the main weight of the German offensive would fall had been concealed up to the last moment. By the time French forces had reached the Meuse between Givet and Namur, the German armored divisions were already in sight of the Semois and the French had been surprised while still on the move. But this had happened in the spring and French general staff theory had been that the Ardennes were impassable.

Guderian's breakthrough at Sedan had shown up the fallacy of the theory of the Ardennes 'fortress'. But four years later no one imagined that the same blow would be repeated. The American generals may have been inexperienced on the battlefield, but they had almost certainly studied the 1940 operation.

SOURCE: Jacques Nobecourt
Hitler's Last Gamble: The Battle of the Bulge

area and should offer good observation over avenues of approach, and permit the defender to cover an obstacle by fire.

•• Additional considerations include the following. (1) Key terrain varies with the level of command. For example, a large city may represent an important objective to an operational level commander, whereas a tactical commander may consider it to be an obstacle. (2) Terrain which permits or denies maneuver, such as bridges or choke points, may be key terrain. (3) Major obstacles rarely constitute key terrain. Thus, the high ground dominating a river, rather than the river itself, is considered key terrain. (4) Key terrain may include areas and facilities that may have an extraordinary impact on mission accomplishment (e.g.,

A troop-movement briefing at the Army Command and Intelligence Center during Operation DESERT STORM.

theater ballistic missile launch facilities, cruise missile launch sites, airfields).

- **Avenues of Approach.** An avenue of approach is a route of an attacking force of a given size leading to its objective or to key terrain in its path. The identification of avenues of approach is important because all COAs that involve maneuver depend upon available avenues of approach. During offensive operations, avenues of approach are evaluated in terms of their ability to facilitate friendly maneuver to the objective and the adversary's capability to withdraw from, or reinforce, the objective. Conversely, during defensive operations, avenues of approach are analyzed in relation to their ability to facilitate an adversary's attack on friendly positions and the capability of friendly forces to reinforce the battle area. Avenues of approach should be analyzed using the following procedures.

  •• **Identify Mobility Corridors.** Mobility corridors are areas relatively free of obstacles where a force can capitalize on the principles of mass and speed, but is canalized due to restrictive terrain along both flanks. In conventional operations, the combined obstacles overlay is used to identify mobility corridors wide enough to permit tactical maneuver. The best corridors contain unrestricted terrain wide enough to permit a force to move in its preferred doctrinal formations while avoiding major obstacles. Normally, mobility corridors are identified for forces two echelons below the size of the friendly force. Mobility corridors also depend on the type and mobility of the force being evaluated. For example, mechanized and armored units generally require large open areas, while dismounted infantry units, insurgents, and terrorists are less hindered by rough terrain and prefer areas that provide some concealment and cover. Infiltrators may actually avoid mobility corridors altogether, and instead use routes along ridge lines or defiles.

  •• **Categorize Mobility Corridors.** Mobility corridors should be categorized according to the size or type of force they can accommodate, such as a mechanized division or an armored brigade. The mobility corridors may also be prioritized in order of likely use. For example, a corridor through unrestricted terrain supported by a road network is generally more desirable than one through restricted terrain without a road.

  •• **Group Mobility Corridors to Form Avenues of Approach.** Two or more mobility corridors are grouped together to form avenues of approach (see Figure II-7). This grouping may be based on factors such as crossover (gaps in the restrictive terrain separating mobility corridors) or two or more corridors that lead to the same objective. Avenues of approach are normally identified for forces one echelon lower than the friendly command, and may include areas of severely restricted terrain. Avenues of approach are depicted using arrows that encompass the mobility corridors constituting the avenue.

  •• **Evaluate Avenues of Approach.** Avenues of approach are evaluated to identify those which best support maneuver capabilities. Each avenue is evaluated in terms of its suitability for access to key terrain and adjacent avenues, degree of canalization and ease of movement, use of concealment and cover, use of observation and fields of fire, sustainability through LOCs, and directness to the objective.

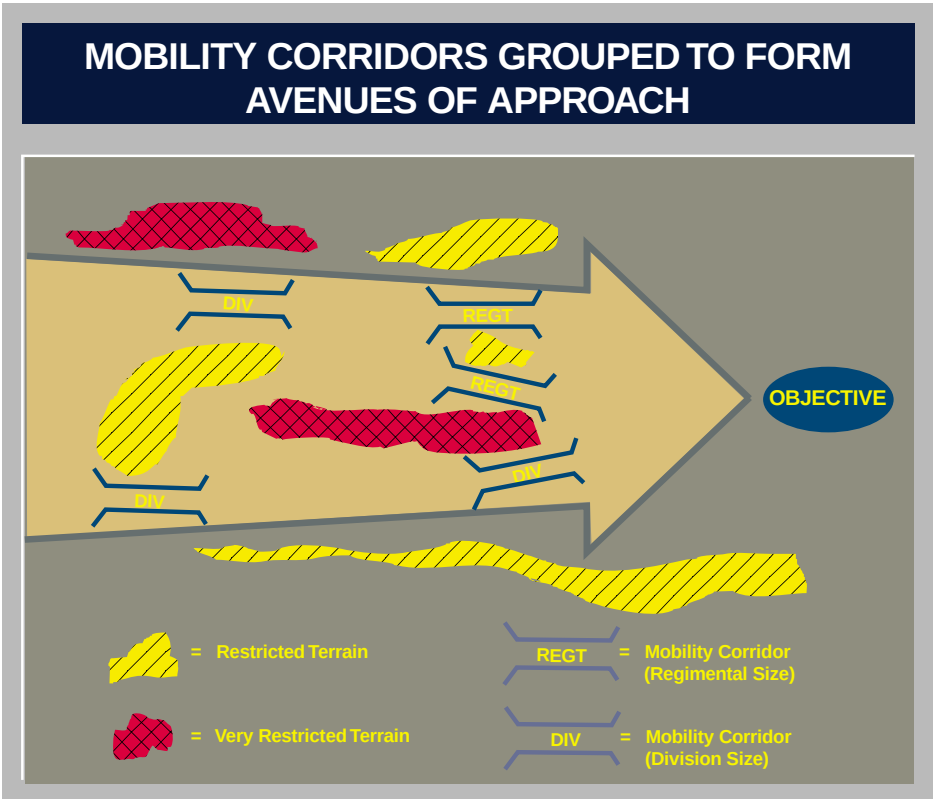


Figure II-7. Mobility Corridors Grouped to Form Avenues of Approach

•• **Prioritize Avenues of Approach.** Each avenue of approach is prioritized based on its overall ability to support maneuver.

- **Evaluate the Terrain's Effects on Military Operations.** The final step in analyzing the land environment is to relate the evaluation of the military aspects of the terrain to the various broad COAs available to friendly and adversary ground forces. For this purpose, the COAs are generally limited to offense, defense, reinforcement, and retrograde operations. The effects of the terrain on each COA are analyzed by identifying areas along each avenue of approach that are suitable for use as potential engagement areas, ambush sites, battle positions, and immediate or intermediate objectives. Engagement areas and ambush sites are usually located in areas with minimal cover and concealment where a maneuvering force will be vulnerable to fire from adversary weapons. Conversely, battle positions are usually selected based on the availability of cover and concealment as well as good observation and fields of fire. The terrain rarely favors one type of operation or COA throughout the entire width and breadth of the battlefield. For example, areas with poor battle positions and minimally acceptable engagement areas usually favor the offense, whereas the defense is facilitated by good battle positions. Areas of the battlefield where the terrain predominantly favors one COA over others should be identified and graphically depicted. The most effective graphic technique is to construct a

modified combined obstacle overlay (MCOO) by depicting (in addition to the restricted and severely restricted areas already shown) such items as avenues of approach and mobility corridors, counter-mobility obstacle systems, defensible terrain, engagement areas, and key terrain (see Figure II-8). The results of terrain analysis should be disseminated to the joint force staff as soon as possible by way of the intelligence estimate, analysis of the operational area, and the MCOO.

b. **The Maritime Dimension.** The maritime dimension of the battlespace is the sea and littoral environment in which all naval operations take place, including sea control, power projection, and amphibious operations. This maritime environment is influenced by the sea, the littorals, and adjacent land masses. The open ocean represents a three-dimensional open space with unrestricted room for tactical maneuver in the air, on the surface, and beneath the surface of the ocean. However, even in open ocean areas, distant land masses may impact naval operations due to the range of an adversary's weapons systems. Littoral areas may contain geographic features such as straits or choke points that restrict tactical maneuver or affect weapon and sensor effectiveness. The effects of maritime geography on the battlespace must be examined in both open ocean and littoral environments for both the operational area and AOI. Key military aspects of the maritime environment can include maneuver space and chokepoints; natural harbors and anchorages; ports, airfields, and naval bases; sea lines of communications (SLOCs), and the hydrographic and topographic characteristics of the ocean floor and littoral land masses.

- **Maneuver Space and Choke Points.** Surface ships compensate for the sea's lack of cover and concealment by utilizing maneuver to reduce an adversary's ability to locate them at a specific time and place. Confined ocean space limits the ability of a ship to maneuver, thus increasing the danger that it can be located and engaged. Additionally, the proximity of a surface ship to land increases the potential threat from an adversary's anti-ship missiles and aircraft. A ship operating in

THE BATTLE OF THE ATLANTIC AND THE CHANGING MARITIME ENVIRONMENT

The increased range of modern weapons and sensors means that even distant land masses may have an important impact upon naval operations. During the Battle of the Atlantic in World War II, German U-boats took advantage of the mid-Atlantic gap. This was an area in the North Atlantic along the sea lines of communications between North America and Great Britain that was outside of the patrol range of allied land based antisubmarine aircraft. It was bounded by the range fans of allied antisubmarine aircraft flying from bases in North America, Greenland, Bermuda, the Azores, Iceland, and the British Isles. However, as the war progressed, the range of allied patrol aircraft increased, thereby reducing the "gap" in airborne coverage that the U-boats could exploit without worry of air attack. Thus the location of seemingly distant islands in the Atlantic had an increased effect upon German U-boat operations in the open ocean due to improved allied technology.

SOURCE: Various Sources

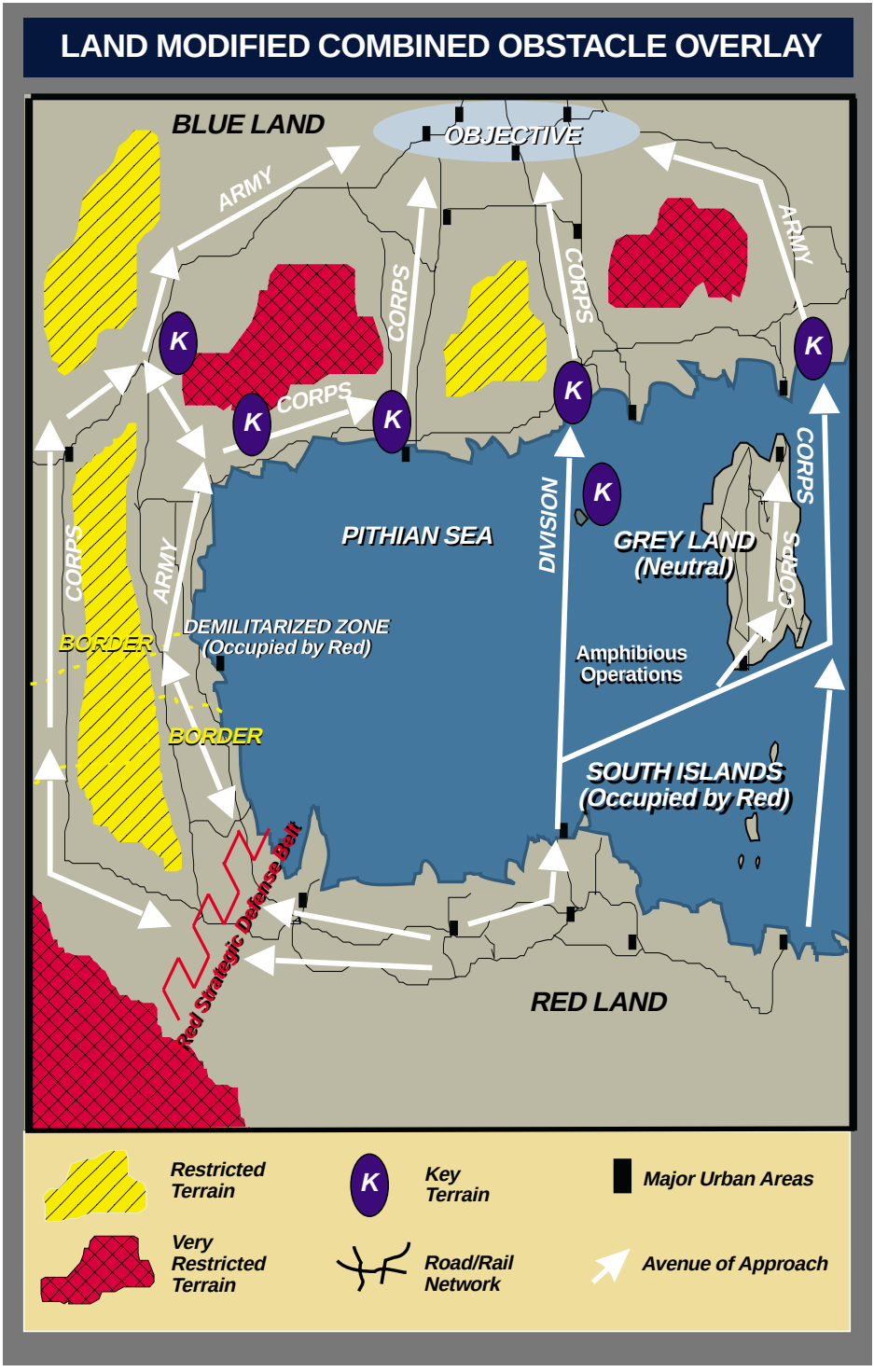


Figure II-8. Land Modified Combined Obstacle Overlay

confined waters near an adversary's shore-based air or missile assets may have insufficient warning time available to counter an incoming air threat. This is because the effectiveness of a ship's air defense system is largely dependent on the range at which an air threat can be detected. Chokepoints such as straits or narrows are extremely hazardous areas due to their ability to severely limit tactical maneuver. This effect is magnified for task force operations, as some ship formations may be forced to "close up" in a confined water space and the area required for a multi-ship formation to maneuver is significantly greater than for an individual ship. Finally, the effectiveness of sea mines can be greatly enhanced in confined waters.

- **Natural Harbors and Anchorages.** All natural harbors and anchorages within the operational area and AOI that may be exploited by friendly and adversary naval forces should be identified and analyzed. Depending on the surrounding terrain, some natural harbors and anchorages, such as fjords, may offer limited camouflage and concealment for naval combatants. If located near friendly operating areas, SLOCs, or chokepoints, such locations may afford the adversary an opportunity to launch unexpected sorties against friendly ships. Likewise, friendly forces may utilize these areas as havens to frustrate an adversary's attempts to locate and target them.

- **Manmade Infrastructure.** All manmade infrastructure capable of influencing naval operations in the AOI should be identified and analyzed. This includes civilian port facilities, naval bases, airfields, and occupied and unoccupied anti-ship missile sites. The capacity of civilian port facilities is particularly important when analyzing adversary and friendly logistic support capabilities. Naval bases should be analyzed in relation to how well they are positioned to support sea control, power projection, or amphibious operations in adjacent waters.

- **Sea Lines of Communications.** SLOCs should be identified and analyzed with regard to their relative importance to adversary, friendly, and neutral countries in the AOI. Potential interdiction areas (such as chokepoints) along SLOCs should be identified along with the naval bases, coastal defense facilities, and airfields from which such interdiction operations might originate. Additional factors for consideration include the type, density, and ease of identifying shipping along the SLOCs.

- **Ocean Surface Characteristics.** Although seemingly uniform, the ocean surface environment actually varies widely depending on METOC conditions. Whenever possible, a historical data base should be compiled that evaluates the effects of seasonal weather variations on maritime surface conditions throughout the AOI. Important considerations include the effects of winds and temperature. Winds and storms provide the mechanism for wave formation, and therefore determine the roughness of the ocean surface, or sea state. Relative sea state is a major factor in determining the feasibility of naval operations and the functionality of maritime weapons platforms. Another important weather variable is temperature, which controls the extent of ice formation and the strength and direction of ocean currents. The presence of ocean ice is a significant seasonal variable that directly affects

navigation, port operations, and harbor availability. In some instances, severe ice conditions may force naval units to seasonally redeploy to alternate bases.

- **Ocean Subsurface Characteristics.** The subsurface characteristics of the ocean are crucial to the conduct of submarine, antisubmarine, and mining operations (collectively known as undersea warfare). Sonar capabilities are significantly affected by the composition of the sea bottom, saline content and water temperatures at various depths, the presence of ocean currents and eddies, and the ambient noise in various areas of the ocean. Sea bottom contours can provide submarines with a maritime version of terrain masking and avenues of approach. Ocean depth is another subsurface characteristic vitally important to naval operations. Shallow water is advantageous to the use of ocean bottom mines, but its impact on sensors and weapons makes undersea warfare more difficult. Deep water allows greater three-dimensional maneuver room for submarines, but has less impact on undersea warfare sensors and weapons. Ocean depth is particularly crucial when conducting under-ice operations, as the varying thickness of ocean ice creates a ceiling that may severely restrict a submarine's vertical maneuvering room.

- **Littoral Characteristics.** Characteristics such as littoral gradient and composition, coastal terrain features and transportation infrastructure, tides, and currents are critical factors in planning and conducting naval operations. For example, due to the relatively flat trajectory of naval gunfire, coastal ridgelines running perpendicular to the direction of fire intensify the effects of terrain masking. Good amphibious landing sites depend not only on beach gradient and composition, but should also be able to access coastal transportation infrastructure to facilitate the rapid movement inland and the capture of key terrain. Additionally, a historical baseline should be compiled on the impact of various METOC conditions on sea state near potential amphibious operations areas.

The USS Wisconsin *was deployed to the Persian Gulf and provided naval gunfire support during the Gulf War*

- **Evaluate the Effects of the Maritime Environment on Military Operations.** The military characteristics of the maritime environment should be evaluated to determine what effects they may have on adversary and friendly broad joint COAs. This should include an evaluation of various bodies of water and littoral areas in the battlespace to determine if they constitute key geography. For example, the control or denial of a body of water near an amphibious landing site, or adjacent to an avenue of approach running along a coastal plain, may be critical to either friendly or adversary joint operations. The locations of naval bases should be evaluated in relation to their ability to support sea control or amphibious operations in these key geographic areas. Additional key geography might include features such as chokepoints, canals, rivers, harbors, ports, air bases, and islands. The evaluation of potential key geography must be based on the degree to which such maritime features control or dominate the battlespace or give a marked advantage to either combatant's joint COAs; for example, the Strait of Gibraltar and Suez Canal control the ability to reinforce or resupply operations in the Mediterranean Sea and Persian Gulf, air bases in Iceland dominate the North Atlantic shipping lanes in mid-ocean, and Diego Garcia serves as a maritime pre-positioning base to support joint operations in the Indian Ocean and Persian Gulf. Additionally, during amphibious operations, the evaluation of the maritime environment should be combined with an evaluation of the land environment to identify amphibious landing areas that not only can be supported from the sea, but also connect with advantageous avenues of approach leading to key terrain objectives. Other environmental effects to consider include the degree to which areas with limited sea room may limit naval capabilities, areas where ocean subsurface characteristics may degrade sonar or facilitate the use of naval mines (e.g., currents, temperature gradients, and bottom geography), and areas within range of an adversary's land based anti-ship missile sites and airfields. The locations of the adversary's naval bases should be evaluated in relation to how well they support adversary joint force capabilities to attack, defend, reinforce, or retrograde. Adversary axes and avenues of approach, high-risk areas, low-risk areas, and potential naval engagement areas should be identified. All significant characteristics of the maritime environment should be graphically portrayed on a modified combined obstacle overlay (see Figure II-9). The end result should be an evaluation of how the maritime environment helps or hinders sea denial, sea control, power projection, or amphibious operations in and around the key geographic areas identified as crucial to adversary and friendly joint COAs.

c. **The Air Dimension.** The air dimension of the battlespace is the environment in which military air and counterair operations take place. It is the operating medium for both fixed-wing and rotary-wing aircraft, air defense systems, unmanned aerial vehicles, cruise missiles, and some theater and anti-theater ballistic missile systems. Airpower is inherently flexible and free from many of the concerns of surface forces. For example, aerial avenues of approach may be entirely different from surface avenues. Airpower has the unique characteristic of being able to approach from almost any azimuth and a variety of altitudes with great rapidity, little warning, and from potentially great distances into the heart of an adversary's territory. However, the air dimension is influenced by surface characteristics. For example, some military air operations may take advantage

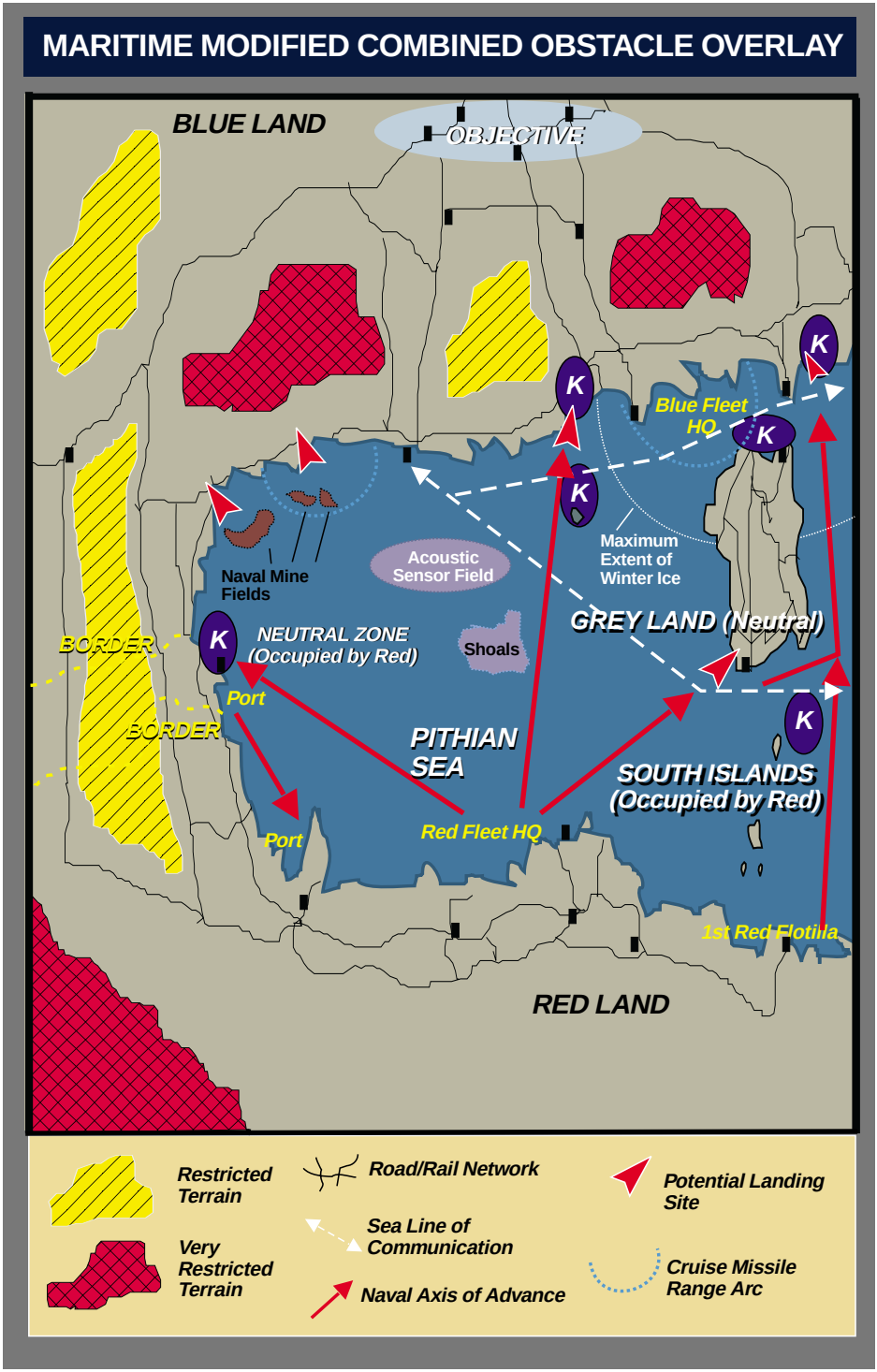
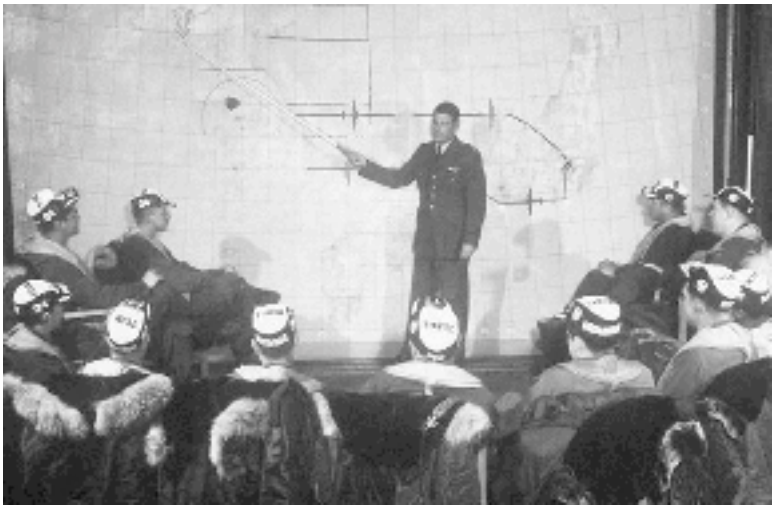


Figure II-9. Maritime Modified Combined Obstacle Overlay

of terrain masking. Since air operations and threats to air operations invariably originate from surface- or sub-surface-based infrastructure, certain aspects of the land and maritime environments (such as the location or potential location of airfields, missile sites, aircraft carriers, cruise missile submarines, and hardened launch silos) should be considered when analyzing the air dimension of the battlespace. Additionally, the effects of METOC conditions on the air environment are particularly crucial in analyzing military air capabilities. For example, the combination of mountain peaks and a low cloud ceiling may make air operations hazardous or unfeasible for some types of aircraft and optically-guided weapons. The air dimension of the battlespace is analyzed in a two-step process that analyzes the various military aspects of the environment and then evaluates how the environment will affect military operations. One suggested technique is to begin the process by identifying, locating, and analyzing potential targets, both friendly and adversary. This is followed by the identification of airfields, theater missile launch sites, and potential aircraft carrier locations from which air attacks might be launched and that are within range of the target areas. The surface and air environments located between the target areas and air operations points of origin are then analyzed to determine likely air avenues of approach, and to determine any other characteristics of the battlespace environment that may influence air operations.

- **Target Characteristics and Configuration.** Based on an analysis of the joint force's mission and broad adversary COAs, **potential adversary and friendly targets should be identified and analyzed.** Likely targets include, but are not limited to: airfields, air defense sites, ballistic and/or cruise missile sites, C2 facilities, adversary forces, transportation nodes, supply depots, naval bases, nuclear, biological, and chemical (NBC) production and storage areas, and logistic infrastructure. **Targets should be grouped into packages according to whether they would support an adversary's offensive or defensive air posture.** For example, adversaries will normally allocate a portion of their available aircraft to defend their own high-value facilities; such facilities would therefore constitute an adversary's "defensive" air posture target set. Likewise, assets critical to friendly forces would constitute an adversary's "offensive" air posture target set. These target areas are then analyzed in relation to various factors that may influence how they are attacked and from which direction. These factors may include whether the target is hard or soft, the presence of nearby air defenses, and the characteristics of surrounding terrain features. For example, some deep underground facilities may require the use of deep earth penetrators dropped from a higher altitude than would otherwise be necessary for a low altitude attack against a soft target, or may require functional defeat by destroying the target's links to the outside world. Air defense system capabilities may drive the air attack profile to either a high, medium, or low profile. Consequently, factors such as terrain masking and potential air defense envelopes are crucial considerations in analyzing potential air attack profiles in the target area. The ultimate purpose of this type of target analysis is to determine the optimal air attack heading and profile. The attack heading can then be combined with an analysis of airfield locations and an evaluation of the terrain to determine appropriate air avenues of approach.

- **Airfields and Support Infrastructure. All current and potential airfields**



98th Bomb Wing intelligence officer briefs crew on the Sinuiju bridges -- one of the most critical targets of the Korean War.

within range of identified target areas should be identified and analyzed. These should include not only military airfields, but also civilian or abandoned airfields capable of being rapidly modified to support either offensive or defensive air operations. Additionally, terrain should be evaluated to locate potential sites for future air bases, and to determine whether or not elevation will be a limiting factor to the type of aircraft staging out of a specific airfield. Airfield analysis should include all those able to host both rotary- or fixed-wing aircraft. The analysis of current and potential military airfields should consider factors such as:

•• Runway length, width, weight-bearing capacity, elevation, lighting, navigation aids, and potential for expansion;

•• Proximity to logistic support and LOCs;

•• Amount of space available to park military aircraft and their requisite support infrastructure, to include materials handling equipment;

•• Availability of food and water;

•• Suitability of C2 infrastructure;

•• Availability, capacity, and hardness of storage facilities for petroleum, oils, and lubricants; and

•• Host-nation military or civilian support capabilities.

- **Missile Launch Sites. Maximum range arcs should be drawn from all known adversary ballistic and cruise missile launch sites.** These should include fixed sites as well as garrison locations of mobile missile units. The terrain surrounding mobile missile garrison locations and likely missile operating areas should be analyzed to determine possible pre-surveyed launch, hide, and reload locations. Cross-country movement analysis should be conducted to determine likely operating areas for mobile systems. Likely deployment locations should also be identified for mobile missile units accompanying forward ground forces. Possible hide and reload locations for

forward-deployed mobile missiles might include forested areas with good access roads, highway underpasses, and warehouses. **Friendly high priority targets within range of the adversary's potential launch sites should be identified. This in turn will facilitate the determination of likely adversary ballistic missile trajectories and launch azimuths.**

- **Potential Aircraft Carrier, Submarine, and Sea Launched Cruise Missile Locations and Operating Areas.** If the adversary has an aircraft carrier, submarine, or sea-launched cruise missile (SLCM) capability, bodies of water in the AOI should be analyzed to determine possible deployment locations. Aircraft carrier task forces normally require adequate sea room in which to maneuver and maintain security. Aircraft carriers will generally avoid confined or restrictive bodies of water along an adversary's littoral. However, they may operate in such waters if the threat level is low, if the operation requires them to, or if they can take advantage of battlespace effects such as terrain masking. Identifying potential SLCM launch locations is more problematic, and depends largely on factors such as target location, SLCM range, and the adversary's launch platform (i.e., surface combatant vice submarine). For example, bottom composition and fathom curves need to be analyzed to determine possible submarine locations within SLCM range of potential targets.

- **Surface Features and Service Ceilings.** The analysis of surface features and service ceilings between the airbase and target area will facilitate the identification and evaluation of air avenues of approach. Terrain is critical to air route planning. Both manmade and natural features can represent obstacles to low-flying aircraft, especially those using a terrain corridor as an air route. Flight obstacles could include objects or features such as high tension power lines, bridges, high rise buildings, dams, towers, or bends in the terrain corridor too sharp for high performance aircraft to negotiate. Service ceilings are another aspect of the environment that are crucial to route planning. Operations at extreme altitudes (in some mountain ranges or highland plateaus) will often preclude the effective use of rotary-wing aircraft. This may be due to an inability to carry sufficient amounts of ordnance, inadequate environmental support for aircrews, or exceeding the aircraft's operational ceiling.

- **Air Avenues of Approach.** Air avenues of approach differ from ground avenues of approach in that the former are three-dimensional, and are often unconstrained by geographical features. Air avenues of approach consider non-geographic aspects of the environment, such as overflight restrictions, aircraft performance characteristics, counterair capabilities, early warning radar coverage, and the locations of air defense envelopes. Under certain circumstances terrain, in combination with adversary capabilities, can influence the choice of particular routes. For example, terrain corridors are usually desirable for rotary-wing aircraft, because they afford some defilade from air defense systems located outside the corridor. The evaluation of terrain corridors for potential use by rotary-wing aircraft as air avenues of approach must pay particular attention to the location of any natural or manmade obstacles to flight within the corridor. Depending on aircraft

vulnerability to detection, terrain masking may be desirable to provide concealment from ground observation or radar acquisition. Additionally, areas along potential air avenues of approach that provide good terrain background (ground clutter) effects against look-down and shoot-down radar are particularly important to low-flying aircraft.

- **Evaluate the Effects of the Air Environment on Military Operations.** The final step in the process is to evaluate the overall effects of the air environment on adversary and friendly capabilities to conduct offensive and defensive air operations, and to support broad multi-Service or joint COAs such as to attack, defend, reinforce, or retrograde. All militarily significant characteristics of the surface and air environments that may constrain or facilitate air operations should be graphically portrayed on a modified combined obstacle overlay (see Figure II-10). Analysis should focus on the impact of the environment and weather on NBC collateral effects, air operations sustainment, operating altitudes and ranges, mission execution, and air engagement and ambush areas.

  •• **NBC Collateral Effects.** The destruction of nuclear reactors and NBC weapons production and storage facilities presents special problems. For each known location of NBC facilities, the surrounding terrain and forecasted weather conditions and patterns should be analyzed to facilitate modeling of post-attack effluent contamination. Potential dispersal patterns should be drawn downwind from each site to facilitate understanding the potential extent of collateral effects.

  •• **Air Operations Sustainment.** Air assets must be able to sustain a sortie rate sufficient to accomplish all the objectives of the air portion of a campaign. Critical factors in a force's ability to sustain air operations include: air crew availability, aircraft utilization rates, availability of fuel and ordnance, effectiveness of force protection measures, the capability of support infrastructure, and the capacity of LOCs between airfields and logistic support facilities. The JIPB analyst must be prepared to address the ways in which these factors will impact on sortie rates.

  •• **Operating Altitudes and Ranges.** Air operations will utilize a wide variety of aircraft performing many types of missions, to include counterair, interdiction, close air support, maritime operations, strategic attack, airlift, special operations, intelligence collection, air refueling, and combat search and rescue. In performing these missions, aircraft will have to operate at different altitudes and ranges for different periods of time. The JIPB analyst must therefore be thoroughly familiar with terrain elevations in the operational area, as well as with overflight restrictions and adversary air and/or air defense capabilities and envelopes. In this way, the analyst will be able to identify and propose appropriate locations to establish assembly areas, penetration axes, and orbit points.

  •• **Mission Execution.** The JIPB analyst should identify any environmental factors that may assist or hinder the accomplishment of an air mission. These factors may include potential sources of collateral damage; the use of camouflage, concealment, and deception in the target areas; the location of adversary air defense systems along air avenues of approach; and the location of flight obstacles.

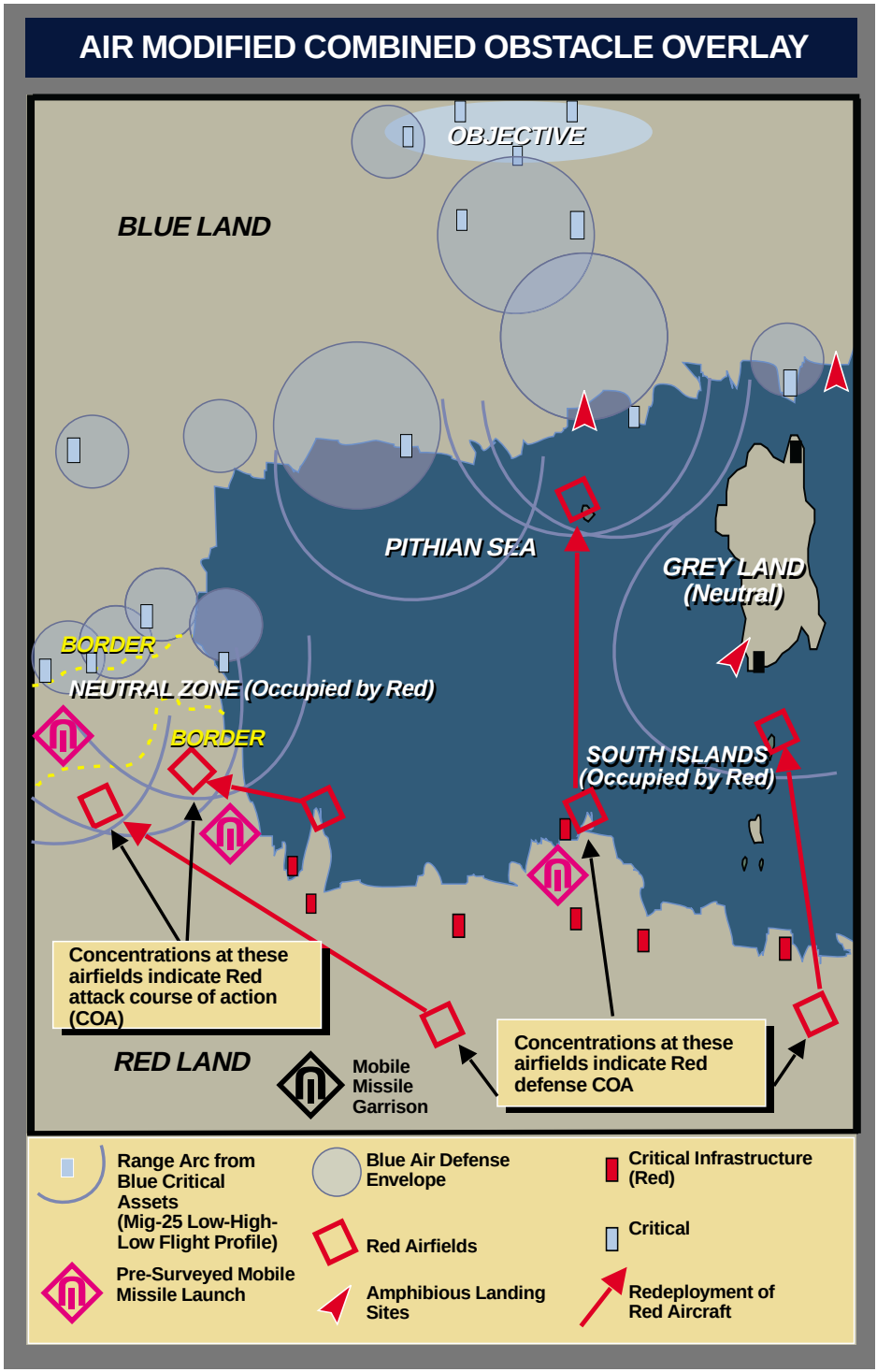


Figure II-10. Air Modified Combined Obstacle Overlay

•• **Air Engagement and Ambush Areas.** Combat air patrol areas, air defense sites, and electronic warfare and passive detection system locations are greatly influenced by terrain. These assets will usually be positioned to maximize optical and radar line of sight and avoid terrain masking. The analyst should be prepared to identify those areas of the battlespace where air defense systems and terrain features can be integrated to form optimal air engagement areas and ambush sites.

d. **The Space Dimension.** For purposes of this document, the space dimension of the battlespace begins at the lowest altitude at which a space object can maintain orbit around the earth (approximately 93 miles) and extends upward to approximately 22,300 miles (geosynchronous orbit). Forces that have access to this medium are afforded a wide array of options that can be used to leverage and enhance military capabilities. Every country has access to either its own satellites or to those of another country or commercial entity through the purchase of services. Thus the monitoring and tracking of friendly, hostile, and even neutral space assets is necessary for a complete understanding of the total battlespace environment.

- **United States Space Command** is responsible for monitoring foreign space activity and performing all-source analysis of foreign space operations. However, the joint force JIPB analyst also needs to be familiar with some characteristics of the space environment in order to effectively integrate space intelligence assessments into the overall JIPB analysis and to formulate appropriate RFIs. The following environmental characteristics have the greatest potential for affecting the military use of space for both friendly and adversary forces.

•• **Orbital Mechanics.** Earth satellites are subject to physical laws that constrain their orbits. These constraints can be used to predict satellite locations and to assess satellite functions and capabilities based on their association with various types of orbits. Factors that constrain

The launch location, inclination, and type of orbit of a satellite help analysts determine its function and ground track.

satellite orbits include inclination and launch location, orbit type and altitude, and orbital plane and launch windows.

•• **Propagation.** Because space has no atmosphere, electromagnetic energy essentially passes unattenuated through space. This offers special operating advantages, especially in fields such as communications and navigation.

•• **Orbit Density and Debris.** Depending on their relative utility for civil and military applications, some orbits contain greater numbers of satellites than others. This "clustering tendency" presents a wide range of problems for space operations planners related to launch window planning, satellite positioning, and space control. A related problem to orbital density is the increasing amount of space debris in orbit.

•• **Solar and Geomagnetic Activity.** The sun directly affects the exoatmospheric environment by radiating electromagnetic energy and atomic particles that restrict locations where space systems can operate effectively.

- **Evaluate the Effects of the Space Environment on Military Operations.** Space systems are predictable in that they are placed into the orbits that maximize their mission capabilities. For example, high resolution weather satellites are normally placed in low-earth orbits, while communications and weather satellites that must continuously view a given area are most efficiently operated at geosynchronous altitudes. Likewise, highly elliptical orbits that provide long dwell times over the northern hemisphere are useful for communications and other satellites. Additionally, the limited number of space launch facilities in the world, combined with predictable launch windows for specific orbital planes, facilitate the prediction of pending satellite launches. Once a satellite is tracked and its orbit determined, space operations and intelligence crews can usually predict its function and future position (assuming it does not maneuver). The path a satellite makes as it passes directly over portions of the earth can be predicted and displayed on a map as a satellite ground track. This predictability allows JIPB analysts to warn friendly forces about upcoming gaps in friendly space system coverage or mission capabilities (such as changes in global positioning satellite accuracy), as well as upcoming windows of vulnerability to adversary space systems. Conversely, adversary space forces are able to do the same. The predicted ground tracks and "footprints" of adversary reconnaissance satellites, as well as the locations of space-related infrastructure (e.g., space launch facilities, satellite ground control stations), should be depicted on the space modified combined obstacle overlay (see Figure II-11). The JIPB analyst should use this overlay to identify gaps in the adversary's space-based reconnaissance capabilities.

e. **The Electromagnetic Dimension.** The electromagnetic dimension of the battlespace includes all militarily significant portions of the electromagnetic spectrum, to include those frequencies associated with radio, radar, laser, electro-optic, and infrared equipment. It is a combination of the civil electromagnetic infrastructure; natural phenomena; and adversary, friendly, and neutral electromagnetic OB. The electromagnetic environment provides the operating medium for communications; electro-optic, radar, and infrared imaging; SIGINT; measurement and signature

Figure II-11. Space Modified Combined Obstacle Overlay

intelligence (MASINT); and electronic warfare (EW) operations. Use of the electromagnetic spectrum for military or civilian purposes is constrained by a variety of factors, ranging from international agreements on frequency usage to the physical characteristics of electromagnetic waves. In order to evaluate how the electromagnetic environment will affect military operations in a specific geographic area, the JIPB analyst should consider such factors as the following.

- **Military Use of the Infrared Band.** Depending on their temperatures, objects emit varying amounts of electromagnetic energy in the infrared band. Infrared sensors are therefore able to distinguish objects based on their relative temperatures, and have numerous military applications such as night vision devices, target acquisition, missile launch detection, and intelligence collection. When used with other intelligence, surveillance, and reconnaissance assets, infrared sensors can be valuable tools for both adversary and friendly forces. The JIPB analyst should evaluate the capabilities and limitations of various infrared sensors to determine friendly and adversary vulnerabilities and to support deception planning efforts.

- **Military Use of Multispectral and Hyperspectral Imaging.** Multispectral imaging (MSI) provides a level of information greater than traditional panchromatic imaging by collecting reflected or emitted electromagnetic energy simultaneously within approximately ten spectral bands. Hyperspectral imaging (HSI) provides even greater capabilities by simultaneously collecting energy within 20-299 discrete spectral bands. MSI and HSI permits analysis of spectral profiles to identify militarily significant characteristics of the imaged surface, particularly camouflage, concealment and deception efforts. The JIPB analyst should be familiar with both friendly and adversary MSI and HSI capabilities and the potential application of this technology to support military operations.

- **Radio Wave Directionality.** A radio wave normally travels along a line of sight from a transmitter, but may change direction as a result of reflection, refraction, or diffraction. Reflection of radio waves makes it possible to extend the range of communications equipment by bouncing skywaves off the ionosphere, and for radar to detect and locate objects by receiving reflected energy. Radio waves that are refracted (bent as they pass through the atmosphere) may become trapped in a tropospheric duct and travel for several thousand miles. Since the amount of refraction increases as the radio frequency increases, tropospheric refraction is most effective at frequencies greater than 50 megahertz. Conversely, a radio wave's diffraction (ability to bend around a solid object) is greater at lower frequencies. In certain cases, by using high power and low frequencies, it is possible for radio waves to circle the earth by diffraction.

- **Radio Wave Attenuation.** Surface characteristics greatly affect the quality of communications and the communication distance obtainable using ground waves (radio waves propagated parallel to the earth's surface). The surface over which the ground wave travels must have good conductive characteristics in order to prevent the wave from attenuating so much that it becomes unusable for

communications. For example, seawater is a relatively good conductor, while jungle terrain may weaken the ground wave to the point that it is unusable for communications. The amount of water vapor or precipitation present in the air is an additional factor capable of degrading wave propagation. Additional power sources or relay sites may be required to boost the signal strength of ground waves in areas with poor surface or weather characteristics. Areas where the surface characteristics of the battlespace may pose significant wave attenuation problems should be identified and displayed on a modified combined obstacle overlay for the electromagnetic environment (see Figure II-12).

- **Skip Zones and Skip Distances.** Sky waves are bounced off the ionosphere to extend communications up to 2,500 miles per "hop." A skip zone is essentially a communications "deadspace" between the transmitter and point where the sky wave returns to earth. The size of the skip zone is related to the frequency of the sky wave and the constantly changing characteristics of the ionosphere. In general, lower frequencies bounce off the ionosphere at lower altitudes than higher frequencies, and therefore return to earth a shorter distance from the transmitter. Factors that influence the ionosphere include the time of day, the season, solar flares, magnetic storms, and nuclear detonations.

- **Interference**. Radio interference can result from natural or manmade causes. For example, in the tropics where thunderstorms are prevalent, low frequency ground wave communications may be unreliable, requiring greater reliance on the higher frequencies of sky waves. Conversely, in the polar regions where thunderstorms are rare, sky waves are seriously disrupted by magnetic disturbances, and military operations may rely more on low-frequency ground wave communications. Manmade interference may be intentional, as in the case of jamming, or the unintentional result of frequency clustering. The JIPB analyst should construct an interference evaluation chart (see Figure II-13) by identifying all potential sources of interference in the battlespace and plotting their frequency ranges along the electromagnetic spectrum. Examples of potential sources of interference may include friendly, adversary, and neutral military and civilian emitters, as well as any predictable weather or geomagnetic disturbances.

- **Evaluate the Effects of the Electromagnetic Environment on Military Operations.** The evaluation of the effects of the electromagnetic environment is accomplished by the joint frequency management office and joint spectrum management element of the joint staff Command, Control, Communications, and Computer Systems Directorate (J-6), in accordance with Chairman of the Joint Chiefs of Staff Manual 3320.01, Joint Operations in the Electromagnetic Battlespace. The JIPB analyst must work closely with J-6 personnel to ensure that this analysis is fully integrated into the overall JIPB effort and is based on the most up-to-date adversary and third party information. Depending on the actual conditions of the surface and endoatmospheric portions of the battlespace, the electromagnetic environment will, to a greater or lesser degree, facilitate activities such as the C2 of military forces, EW operations, and intelligence collection. The effects of potential interference, skip zones, radio deadspace, and radio wave

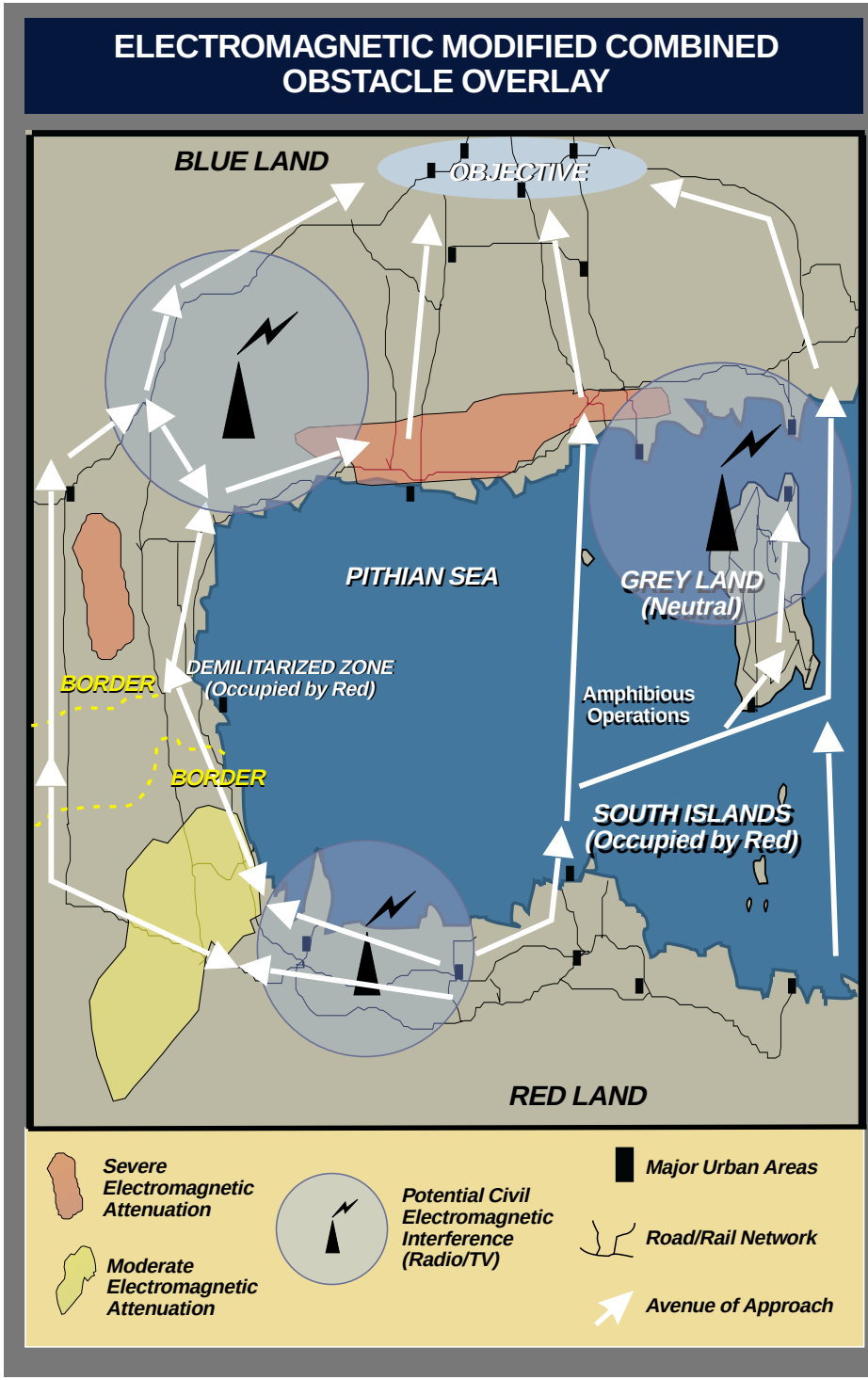


Figure II-12. Electromagnetic Modified Combined Obstacle Overlay

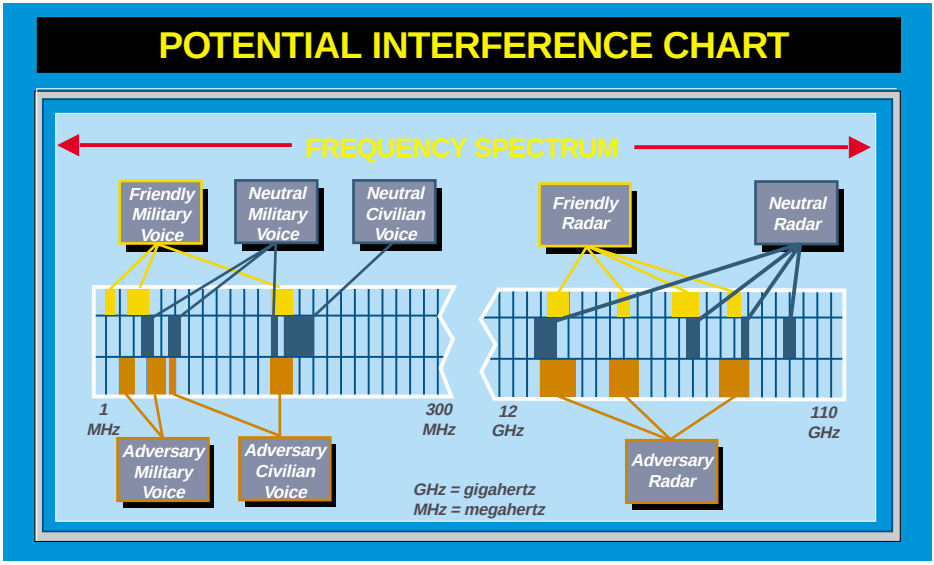


Figure II-13. Potential Interference Chart

attenuation on specific types of military operations should be evaluated. For example, geographic areas or periods of weather that degrade radio communications can hinder an attacking force due to the necessity of displacing transmitters. Conversely, a defending force may be able to shift to alternate communications such as landlines.

f. **The Cyberspace Dimension.** The use of information systems to support military operations has significantly increased the importance of the cyberspace dimension of the battlespace. Cyberspace provides the environment in which IO such as computer network attack (CNA) and computer network defense are conducted. The ever-increasing complexity of information systems and networks places both military and civilian data bases at risk from this new type of warfare. CNA can be directed against any of the means of accessing the cyberspace environment, to include computer hardware, networks, software, data, procedures, and human operators (see Figure II-14). The relative vulnerability of each of these components (whether due to poor physical security, improper operator training, or lack of safeguards) combined with the level of sophistication of an adversary's CNA capabilities, will determine an adversary's method of attack.

"It is essential to have an all-conquering offensive technology and to develop software and technology for Net offensives so as to be able to launch attacks and countermeasures on the Net, including information-paralyzing software, information-blocking software, and information-deception software... Modern high-tech warfare cannot win without the Net, nor can it be won just on the Net. In the future there must be a coordinated land, sea, air, space, electronic, and Net warfare... A 'Net force' is very likely to become another military branch following the army, air force, and navy, and it will shoulder the formidable task of protecting Net sovereignty and engaging in Net warfare."

SOURCE: "Bringing Internet Warfare Into the Military System is of Equal Significance with Land, Sea, and Air Power," ***Liberation Army Daily*****, Beijing, Nov 11, 1999**

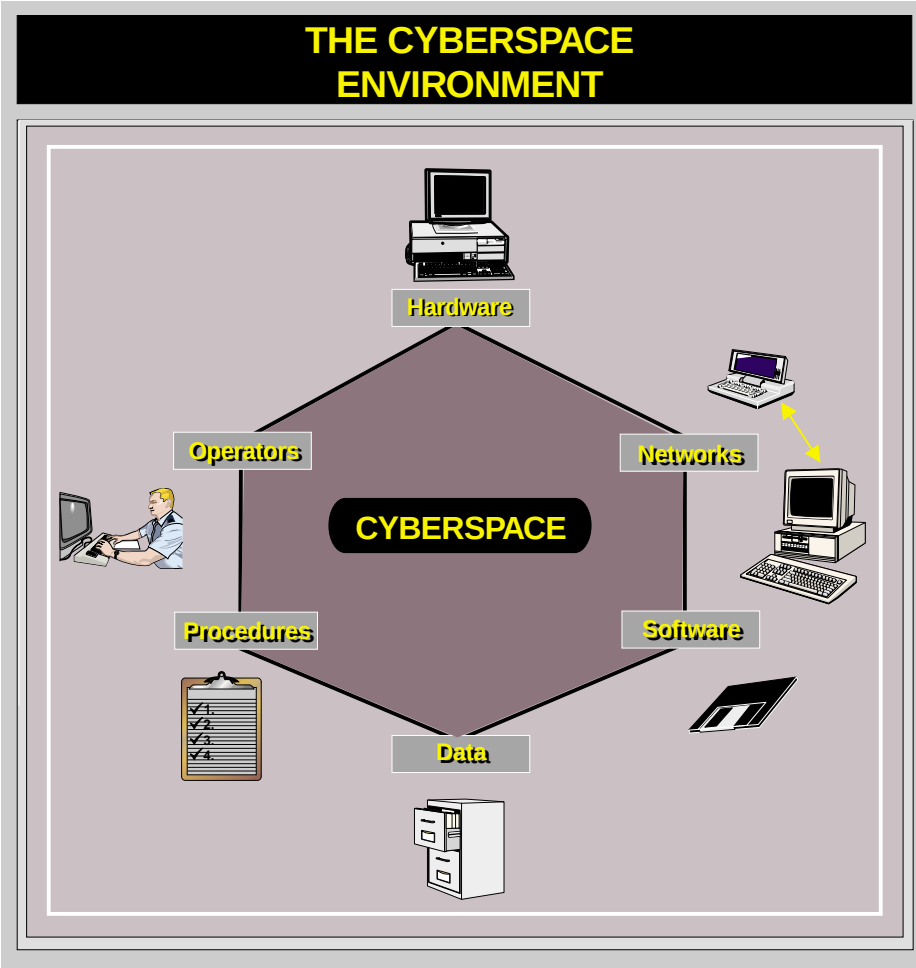


Figure II-14. The Cyberspace Environment

- **Computer Hardware.** Computer hardware consists of sophisticated electronic circuitry that is extremely vulnerable to high temperatures, as well as to electrical power fluctuations and interruptions. Power surges and electromagnetic pulses, either manmade or resulting from natural causes (such as lightning strikes), can severely degrade computer operations. Hardware is also vulnerable to the availability and source of supply of replacement parts and computer chips. Additionally, hardware malfunctions may be induced as a result of mistakes (either intentional or unintentional) made during the manufacturing and assembly of the computer. CNA may be designed either to physically destroy computer hardware or to temporarily degrade system operations. Degradation may be made to appear to be the result of something other than sabotage (thereby facilitating an adversary's plausible denial), whereas physical destruction is usually less ambiguous. Additionally, the attack may be either direct (against the actual computer hardware), or indirect (against supporting infrastructure such as the electrical power supply or cooling system). Both types of attack require detailed knowledge of the type and

location of the hardware, network nodes, and the vulnerabilities of the supporting infrastructure.

- **Networks.** Information system networks rely on telecommunications links and are vulnerable to the same types of attack an adversary might conduct against any C2 system, such as jamming, physical destruction, and intrusion. The vulnerability of computer networks to these types of attack is increasing as more systems are linked with, and through, civilian telecommunications systems. Without adequate safeguards, network links provide a gateway through which an adversary can gain unauthorized access to information systems and data bases. Depending on the characteristics of the network, some systems may be able to be accessed from anywhere in the world, and (more importantly for plausible denial) through anywhere in the world. For example, an adversary might access a system in another country through telecommunications channeled through a third country.

- **Computer Software.** Computer systems rely on software ranging from operating systems to programs designed to manipulate highly complex data. This relationship makes information systems extremely vulnerable to infection by computer viruses (programs that are written in a way that allows them to copy themselves into other programs to cause malicious destruction of files or interruptions of service). Viruses can enter computer systems through a variety of means, such as floppy disks, documents in word processors with advanced macro languages, binary programs or documents transferred through electronic mail, or commercial and government off-the-shelf software. Barriers to viral attack include frequent anti-virus scans, training operators to recognize the symptoms of infection, and securing the network against the downloading of potentially infected software.

- **Data**. Information output from automated systems is only as accurate as the data originally entered into those systems. This data is subject to attack either before or after it is entered into an automated system. For example, one country may be able to manipulate another country's intelligence analysis by waging a successful camouflage, concealment, and deception effort. Thus an adversary's campaign of deception may result in the entry of erroneous information into another country's automated data bases. An attack against data already residing in automated systems presents a more complex problem, usually requiring access to the information system. However, if system access can be gained, the payoff is usually greater in that it allows an adversary several different options (to read data, change data, or erase data).

- **Procedures**. Information system procedures are established to ensure that various data maintenance programs are run at specific times and in a rational sequence, that systems access is limited only to authorized personnel, and that computer hardware is physically secured. Since by their very nature procedures establish a set of predictable events in a predictable sequence, it may be possible to discern and exploit vulnerabilities in an opponent's established schedule.

- **Human Operators.** Human operators such as systems maintenance personnel, data entry specialists, programmers, and information system users can provide a

potential means of access to all the other components of cyberspace. Therefore, an adversary's recruitment of personnel with access to friendly information systems can be potentially catastrophic. Additionally, system malfunctions may result from inadvertent human error vice deliberate sabotage. The complexity of modern information systems is such that it may be difficult to discern an intentional vice unintentional error. The vulnerability of a system to these types of human attack should be analyzed by assessing the organization's level of personnel security and the degree of operator proficiency.

- **Evaluate the Effects of the Cyberspace Environment on Military Operations.** The effects of the cyberspace environment should be evaluated by identifying and prioritizing those information systems and networks deemed most critical to the planning and conduct of military operations. Depending on the criticality of the system, the effects of a data loss or even a short down time can result in a lingering ripple effect on military operations that may last days, weeks, or months. The relative vulnerability of each critical system should also be assessed: first, by evaluating the strengths and weaknesses of each of its cyberspace components, and second by identifying any backup systems, "work arounds," or redundant links. Those systems that are assessed to be most important and most vulnerable should be identified as likely targets for CNA. This analysis can be graphically portrayed in the form of a cyberspace vulnerability assessment matrix. Figure II-15 is an example of a matrix that assesses the vulnerability of several notional information systems listed in the order of their estimated criticality. In the example shown, the INTECH system is a more likely target for CNA due to its relative vulnerability and lack of backup than is the more critical (but less vulnerable) KEYLINK system.

g. **The Human Dimension.** The human dimension of the battlespace consists of various militarily significant sociological, cultural, demographic, and psychological characteristics of the friendly and adversary populace and leadership. It is the environment in which IO, such as psychological operations (PSYOP) and military deception, are conducted. The analysis of the human dimension is a two-step process that: (1) identifies and assesses all human characteristics that may have an impact on the behavior of the populace as a whole, the military rank and file, and senior military and civil leaders; and (2) evaluates the effects of these human characteristics on military operations.

Character trait data of adversaries such as Saddam Hussein should be combined with a track record of past decisions.

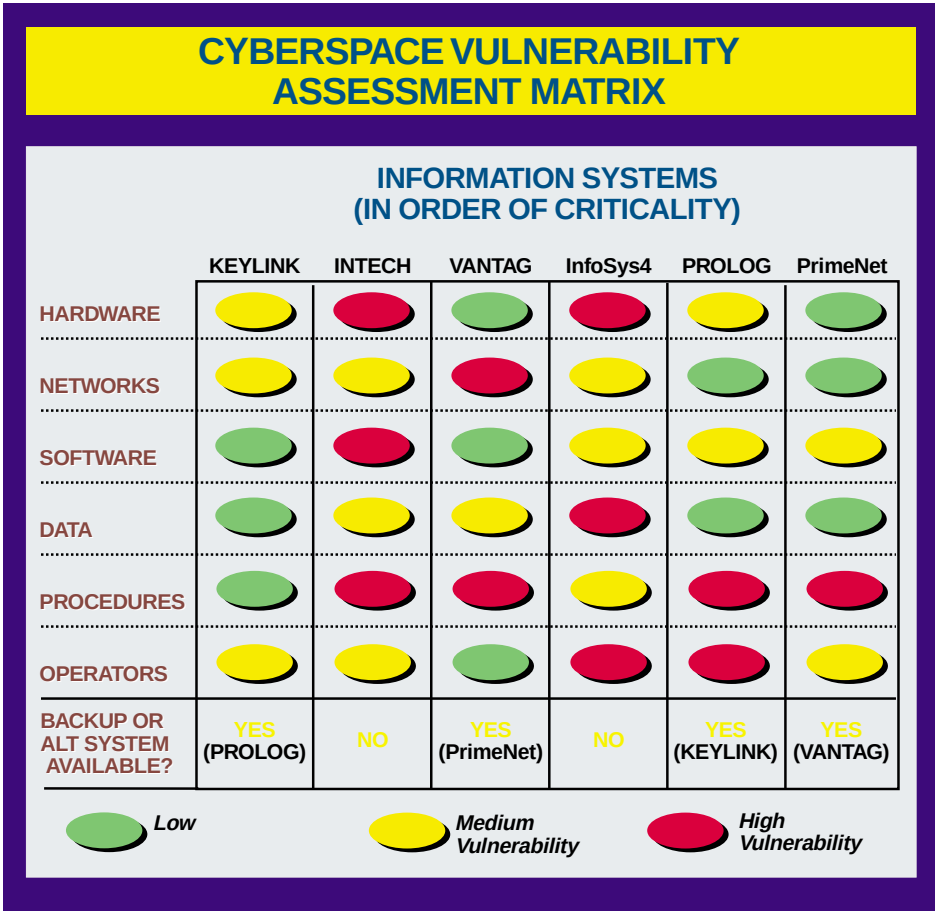


Figure II-15. Cyberspace Vulnerability Assessment Matrix

- **The Populace.** The analysis should consider both civilian and military populations, especially in countries where military institutions may have an adversarial or oppressive relationship with all or portions of the civil populace. The degree to which the attitudes, beliefs, and backgrounds of the military rank and file either reflect or conflict with core values held by the populace as a whole and/or the leadership is extremely important to this analysis. Additional significant factors to consider include population patterns, living conditions, ethnic conflicts and rivalries, languages and dialects, cultural and class distinctions, political attitudes, religious beliefs, education levels, and any existing or potential refugee situations.

- **The Leadership.** Biographical background data on key adversary military and political leaders, both ruling and opposition, should be compiled. This data should include information regarding the leader's ethnic, class, and family background; education, experience, and training; and core beliefs and values. Character trait data such as a leader's core beliefs and values, perceptual biases, and decision making style should be combined with a historical track record of that leader's past decisions. Such information may

be used to construct a psychological profile for the leader that may assist in predicting how that leader may respond in a given situation. Depending on the amount of data available, it may be possible to construct a psychological profile for the leadership as a whole, as well as for specific individuals.

- **Evaluate the Effects of the Human Dimension on Military Operations.** The characteristics of the human environment should be evaluated to determine the probable state of morale in both the civil and military population. Morale is a significant factor not only in assessing the overall capability of a military force, but also in evaluating the extent to which the civil populace will support a full mobilization. The degree of regime loyalty should be assessed not only for the populace but also, if possible, for individual leaders. Depending on the situation, factors such as ethnic, religious, political, or class differences may be exploitable for PSYOP purposes. Psychological profiles on military and political leaders may facilitate understanding an adversary's behavior, evaluating an adversary's vulnerability to deception, and assessing the relative probability of an adversary adopting various COAs.

"Some soldier once said that weather is always neutral. Nothing could be more untrue. Bad weather is obviously the enemy of the side that seeks to launch projects requiring good weather, or of the side possessing great assets, such as strong air forces, which depend upon good weather for effective operations."

Dwight D. Eisenhower,
***Crusade in Europe*, 1948**

h. **Analysis of Weather Effects.** Weather is the state of the atmosphere regarding wind, temperature, precipitation, moisture, barometric pressure, and cloudiness. Climate is the composite or generally prevailing weather conditions of a region, averaged over a number of years. Initial JIPB weather effects products may be prepared using available climatological data. These are updated as more precise information is received concerning the actual weather conditions expected. Weather affects the battlespace in two ways: it can interact with, and thereby modify, the environmental characteristics of each battlespace dimension; or it can have a direct effect on military operations regardless of battlespace dimension. This section will concentrate on the direct effects of weather on military operations, personnel, and equipment throughout the battlespace. The military aspects of weather are visibility, winds, precipitation, cloud cover, and temperature and humidity. The analysis of weather effects is a two-step process in which: (1) each military aspect of weather is analyzed; and (2) the effects of weather on military operations are evaluated. The joint force METOC officer is the source for weather information, and assists the joint force staff in determining the effects of METOC on adversary and friendly military operations.

- **Visibility**

  •• Visibility is largely a result of various weather conditions. For example, temperature conditions can have either an adverse or beneficial effect on the use of thermal sights and observation devices. Likewise, cloud cover can negate the illumination that would otherwise be provided by moonlight. Other major factors include the rising, setting, and phases of the moon, as well as the times associated with the beginning of morning nautical twilight, sunrise, sunset, and end of evening nautical twilight.

  •• Low visibility is beneficial to offensive and retrograde ground operations. In the offense, it conceals the concentration

Weather can have a decided impact on military operations, as armies that have invaded Russia during its brutal winters can attest.

and movement of military forces, thus enhancing the possibility of achieving surprise. Conversely, low visibility hinders the defense because cohesion and control become difficult to maintain, and reconnaissance, surveillance, and target acquisition are degraded.

•• Air operations are typically adversely affected by poor visibility. The exceptions to this are those missions that are not dependent upon visual references.

- **Winds**. Winds of sufficient speed can reduce the combat effectiveness of a force downwind as the result of blowing dust, smoke, sand, or precipitation. The upwind force usually has better visibility. NBC operations also usually favor the upwind force. Strong winds and wind turbulence can limit aircraft performance as well as airborne and theater missile force operations. The evaluation of weather in support of air operations requires information on the wind at the surface as well as at varying altitudes. High winds near the ground increase turbulence, may inhibit aircraft maneuvering, and can prevent air mobility forces from conducting airdrop or landing operations. High winds at greater altitudes can increase or reduce aircraft fuel consumption. Varying wind directions and speeds in different layers between the surface and aircraft altitude can greatly affect the trajectories of non-guided munitions. Wind-generated blowing sand, dust, rain, or snow can reduce the effectiveness of radars and communications systems. Strong winds can also hamper the efficiency of directional antenna systems by inducing antenna wobble.

- **Precipitation**. Precipitation affects visibility and the functioning of many infrared and electro-optical sensors, radar, and communications systems, and can reduce the quality of supplies in storage. Heavy snow cover can reduce the efficiency of many communications systems as well as degrade the accuracy and effects of many types of munitions.

- **Cloud Cover.** Heavy cloud cover can degrade the effectiveness of many target acquisition and surveillance systems by

concealing military forces and by reducing the solar heating of some targets. Cloud cover can therefore reduce the effectiveness of infrared-guided munitions. Low ceilings can prevent aircraft from taking off, landing, conducting low-level missions, employing weapons, or conducting airdrops.

- **Temperature and Humidity.** Extremes of temperature and humidity have debilitating effects on personnel and reduce equipment capabilities and the effectiveness of chemical and biological weapons. For example, high surface temperatures increase the rate of evaporation of chemical weapons. Humidity increases the effectiveness of mustard and nerve agents; wet pathogens decay rapidly in lower humidity, whereas dry pathogens decay rapidly in very high humidity. Additionally, temperature "crossover," when target and background temperatures are nearly equal, degrade the use of thermal target acquisition systems. The length of crossover time depends on air temperature, soil and vegetation types, amount of cloud cover, and other factors.

- **Evaluate the Effects of Weather on Military Operations.** Depending on actual weather conditions, each of the aspects of weather discussed above will have an impact, for better or worse, on various types of military operations, weapons systems, and personnel. Critical values should be established for each weather aspect in order to define the thresholds at which deteriorating weather conditions can be expected to have favorable, marginal, or unfavorable effects on specific types of operations and equipment. For example, it may be determined that visibilities less than one mile are unfavorable to airborne operations, temperatures of 95 to 110 degrees Fahrenheit marginally degrade offensive ground operations, or ceilings less than 200 feet may prevent air operations. An evaluation of the overall effects of forecasted weather conditions on specific types of operations is constructed by combining the analyses for each weather aspect. The overall effects of forecasted weather can be summarized in the form of a weather effects matrix (see Figure II-16).

i. **Other Characteristics of the Battlespace Environment.** Other characteristics include all those aspects of the battlespace that could affect friendly or adversary COAs that fall outside the parameters of the categories previously discussed. Because the relevant characteristics will depend upon the situation associated with each mission, there can be no definitive listing of characteristics appropriate under all circumstances. For example, the characteristics of the battlespace that may be relevant to a sustained humanitarian relief operation will be very different from those required for a joint combat operation against an adversary. The following are some examples of factors that should be addressed when evaluating the battlespace environment.

- **Time**. The decision and reaction time of an adversary is a crucial factor and will directly impact the resources an adversary can bring to bear in a given situation. For example, a friendly operation, if planned and executed relatively quickly, may constrain the adversary's ability to reinforce or redeploy military units in time to counter the operation. In this scenario, the adversary's potential COAs would be considerably more limited than if the same operation was preceded by a lengthy period of friendly preparations.

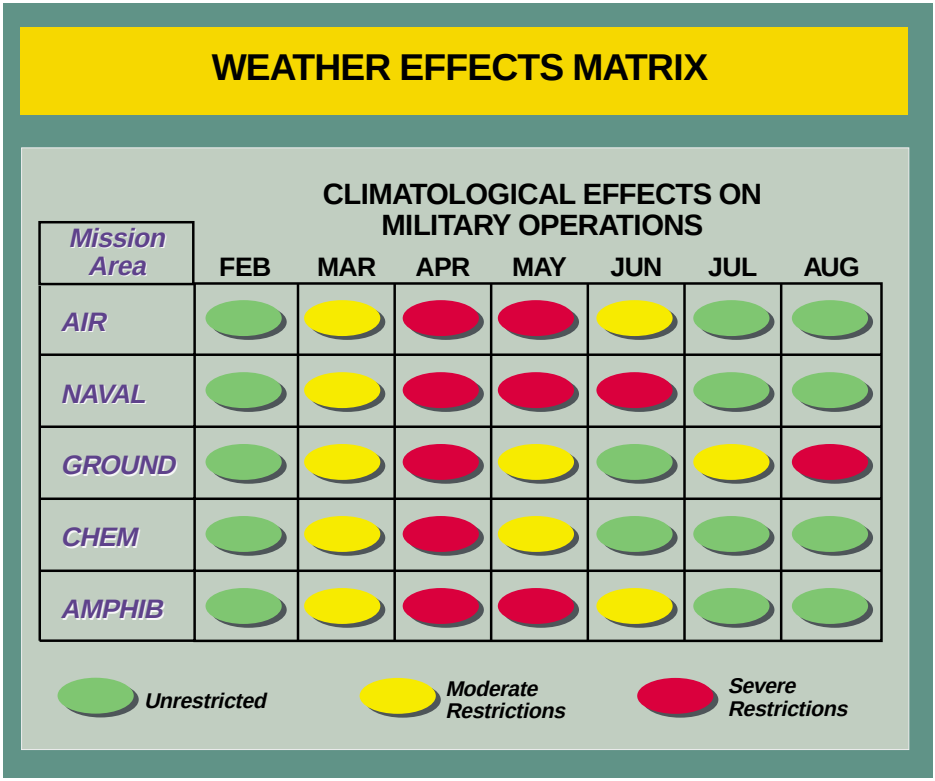


Figure II-16. Weather Effects Matrix

- **Political and Military Constraints.** ROE; establishment and location of exclusion zones and no-fly zones; maritime defense zones; territorial waters; excessive maritime claims; and air defense identification zones. Caution should be used in analyzing the effects of constraints that do not impose physical limitations, and could therefore be highly transitory.

- **Environmental and Health Hazards.** Presence of communicable diseases; locations of epidemics; methods of disease transmission; location, type and extent of environmental pollution (radiation, oil spills, contamination of drinking water).

- **Infrastructure**. Sources of potable water; transportation means and systems (road and rail networks, canals, and waterways); communications nodes; power production facilities and transmission grids.

- **Industry**. Bulk fuel storage and transport systems; natural resources; industrial centers; scientific and technological capabilities; chemical and nuclear facilities.

- **Agriculture**. Land use patterns; major crops; planting and harvesting seasons; land ownership; food distribution system.

- **Economics**. Economic system; currency; banking system; rate of inflation; key commercial areas.

- **Politics**. Local and regional governments; international relations; foreign alliances;

unofficial power centers (gangs, cartels, multinational organizations, and militias); political, ethnic, or religious grievances and affiliations.

- **History**. Past wars and military conflicts; territorial claims and disputes.

- **Evaluate the Effects of Other Characteristics on Military Operations.** The analysis of other characteristics of the battlespace must include an evaluation of their effects on friendly and adversary COAs. While these other characteristics are normally more significant at the operational and strategic levels, they may also play a major role at the tactical level during MOOTW. The country characteristics of an adversary nation should be developed through the analytic integration of all the social, economic, and political variables listed above. The analysis of an adversary's country characteristics will provide significant indications regarding the circumstances (ideals, goals, territory) that may cause that country to resort to the use of military force. For example, some nations may be willing to use military force to protect principles such as freedom of navigation, while others may fight only to protect their own national borders. Country characteristics can also provide important clues as to where a nation may use military force and to what degree. For example, a country will probably make an all-out effort to defend areas it deems critical, while other less crucial portions of its territory might be used to trade space for time.

13. Describe the Battlespace's Effects on Adversary and Friendly Capabilities and Broad Courses of Action

The evaluations of all the battlespace characteristics discussed above are ultimately combined into a single integrated product that focuses on the total environment's effects on all joint COAs available to both friendly and

RULES OF ENGAGEMENT DURING THE FALKLANDS WAR

During the early morning hours of 2 May 1982, the commander of a British carrier task force deploying to the Falklands was faced with a dilemma. As his task force approached the Falklands Islands, British intelligence reporting indicated that the Argentine aircraft carrier *Veintecinco de Mayo* was operating in the general area north of the total exclusion zone (TEZ) the British government had established around the Falklands. At the same time, the Argentine cruiser *General Belgrano* headed a surface action group that had been located by a British attack submarine, nuclear (SSN) operating south of the TEZ. British rules of engagement prohibited the British commander from attacking ships outside of the TEZ. However, as the British task force approached the Falklands it was vulnerable to an early morning pincer attack from the two Argentine battle groups which could make high speed runs into the TEZ using the hours of darkness as cover. The British commander requested and received a change to the rules of engagement; a change which resulted in the sinking of the *General Belgrano* by a British SSN later in the day. The attempt by the Argentine Navy to exploit two important political and military characteristics of the maritime environment (the TEZ and British rules of engagement) failed to consider the transitory nature of political constraints and the flexibility of the British commander.

SOURCE: Various Sources

An intelligence officer uses JIPB overlay to brief crews on the threats to be encountered during their mission.

adversary forces. This product may take the form of a briefing, set of overlays, written analysis of the operational area, intelligence estimate, or any other format the JFC deems appropriate. Regardless of format, this product is designed to support the development and evaluation of friendly joint COAs by providing the J-3 with an evaluated and prioritized set of land, sea, and air avenues of approach, potential engagement areas, key terrain and maritime geography, and an analysis identifying periods of optimal weather conditions for specific types of military operations. Likewise, the product enables the J-2 to evaluate the total battlespace environment from the adversary's perspective, and to express this evaluation in terms of a prioritized set of adversary COAs. In order to accomplish this, the joint force J-2 must remember to consider the general military capabilities of the adversary force as well as the total battlespace environment. For example, the battlespace may contain several excellent amphibious landing sites, but if the adversary has no amphibious support ships, then an amphibious attack is not a viable adversary COA. The J-2 should also consider the amount of military force normally located at each of the adversary's naval, ground, and air bases and should assess whether this constitutes an offensive or defensive posture. The final result of step two of the JIPB process is a preliminary prioritization of adversary COAs based on how well each is supported by the total battlespace environment. This preliminary prioritization of COAs will be further refined and adjusted during step four of the JIPB process, discussed later in this chapter.

SECTION C. EVALUATING THE ADVERSARY

"However absorbed a commander may be in the elaboration of his own thoughts, it is sometimes necessary to take the enemy into consideration."

Winston Churchill, 1874-1965

14. Overview

The third step in the JIPB process identifies and evaluates the adversary's military and relevant civil COGs, critical vulnerabilities, capabilities, limitations, and the doctrine and TTP employed by adversary forces, absent any constraints that may be imposed by the battlespace environment (see Figure II-17). During this step, models are developed that accurately portray how adversary forces normally execute operations or how they have reacted to specific military situations in the past.

a. The JIPB analyst must take care not to evaluate adversary joint capabilities by mirror imaging US joint doctrine. The joint doctrine of potential adversaries may be embryonic or nonexistent in many cases. Although an adversary's Service components may operate in the same geographic area and may try, more or less, to support each other, the concept that an officer from one Service may actually command forces from another may be more anathema than doctrine in most countries. Nevertheless, in virtually all cases, the Service components of an opposing force will at some level of command coordinate their operations according to a set of ad hoc or established procedures. The JIPB analyst must try to discern the adversary's joint doctrine and TTP, no matter how rudimentary it may appear.

b. Adversary capabilities are identified in terms of broad COAs and supporting operations that the adversary can take that may influence the accomplishment of the friendly mission. **Failure to accurately evaluate the adversary may cause the command to be surprised by an unexpected adversary capability, or result in the unnecessary expenditure of limited resources against adversary force capabilities that do not exist.**

15. Identify Adversary Centers of Gravity

COG analysis is conducted after an understanding of the broad operational environment has been obtained and before a detailed study of the adversary's forces occurs. The joint force staff further analyzes leadership, fielded forces, resources, infrastructure, population, transportation systems, and internal and external relationships of the adversary to determine from which elements the adversary derives freedom of action, physical strength, or the will to fight. A determination is made to see if candidate COGs are truly critical to the adversary strategy and must include a thorough examination of the mechanisms and linkages by which COGs influence and affect adversary strategy and potential COAs. Once determined, COGs identified in this step constitute a significant input to the

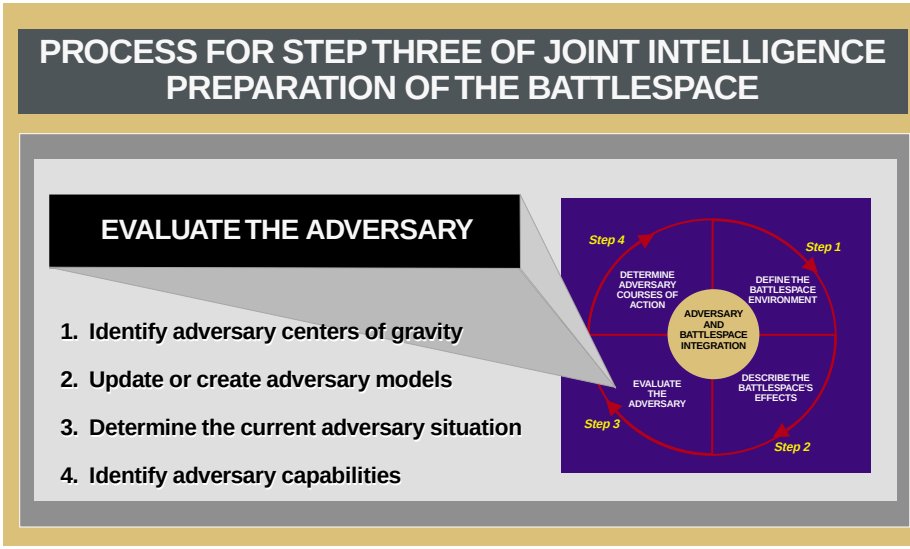


Figure II-17. Process for Step Three of Joint Intelligence Preparation of the Battlespace

development of a joint campaign strategy, joint and component OPLANs, and targets.

16. Update or Create Adversary Models

Adversary models depict how an opponent's military forces prefer to conduct operations under ideal conditions. They are based on a detailed study of the adversary's normal or "doctrinal" organization, equipment, and TTP. Adversary models are normally completed prior to deployment, and are continuously updated as required during military operations. The models consist of three major parts: graphical depictions of adversary doctrine or patterns of operations (doctrinal templates), descriptions of the adversary's preferred tactics and options, and the identification of high-value targets (HVTs).

a. **Doctrinal Templates.** Doctrinal templates illustrate the employment patterns and dispositions preferred by an adversary when not constrained by the effects of the battlespace environment. They are usually scaled graphic depictions of adversary dispositions for specific types of military (conventional or unconventional) operations such as: movements to contact, anti-surface warfare operations, insurgent attacks in urban areas, combat air patrols, and aerial ambushes. JIPB utilizes single Service doctrinal templates that portray adversary land, sea, air, special, or space operations, and produces joint doctrinal templates that portray the relationships between all the adversary's Service components when conducting joint operations. For example, a joint doctrinal template illustrating an adversary's conventional land offensive, in addition to showing ground force organization and disposition, would also portray the type, number, deployment pattern, and tactics of all supporting naval, air, space, and cyberspace assets. To avoid confusion, separate overlays may be constructed for each of the adversary's components that participate in or support the joint operation (see Figure II-18). Joint doctrinal templates should be constructed for all of an adversary's broad joint COAs, such as to attack, defend, reinforce, or retrograde. Doctrinal templates are constructed by analyzing all available intelligence on the adversary's doctrine and through an evaluation of the adversary's past operations and military exercises. Specific factors that should be addressed on a doctrinal template include, but are not limited to:

- Organization for combat;
- Distances (such as frontages, depths, boundaries, spacing between ships, and intervals between march units or waves of attacking aircraft);
- Engagement areas;
- Doctrine for the use of terrain and weather;
- Timing and phasing of operations; and
- Relative locations and groupings of forces and support units

b. **Description of Adversary Tactics and Options.** In addition to the graphic depiction of adversary operations portrayed on the doctrinal template, an adversary model must also include a written description of an opponent's preferred tactics. This description should address the types of activities and supporting operations that the various adversary units portrayed on the doctrinal template are expected to perform. It also contains a listing or description of the options (branches) available to the adversary — should either the joint operation or any of the supporting operations fail — or subsequent operations (sequels) if they succeed. For example, an opponent might prefer to follow successful attacks with pursuit. Should an attack begin to fail, the

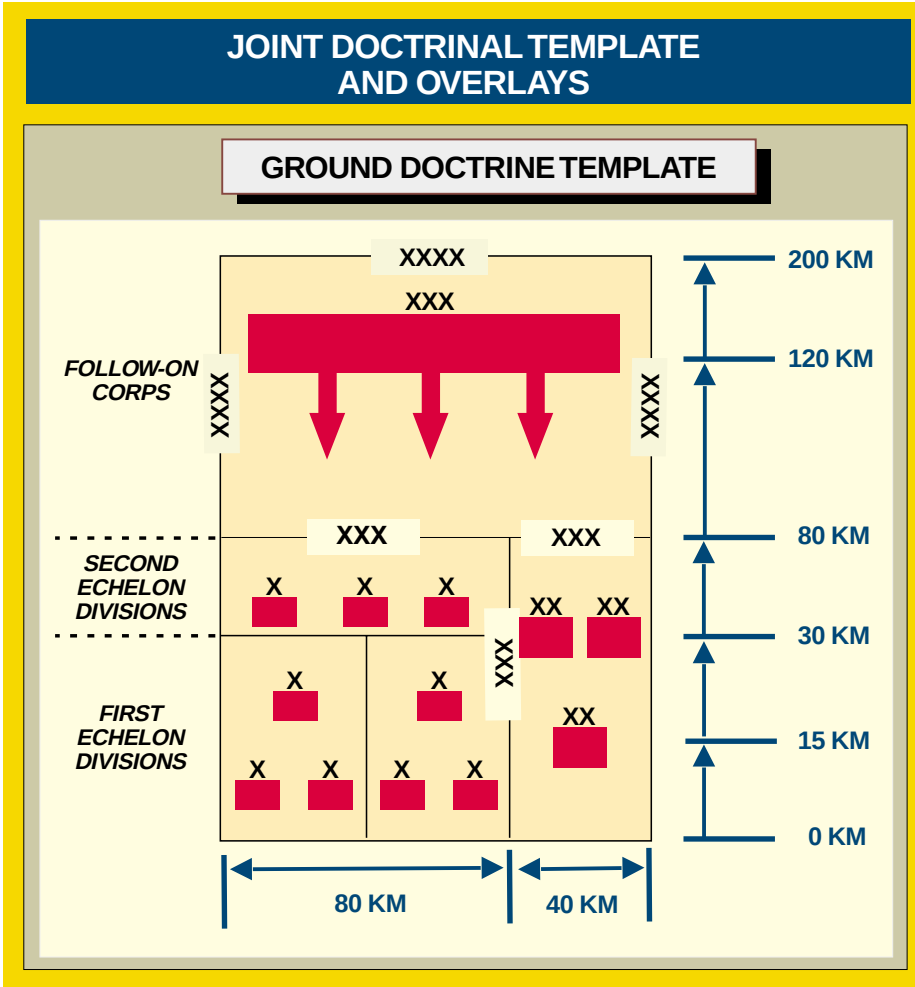


Figure II-18. Joint Doctrinal Template and Overlays

adversary's preferred branches might include committing reserves, reinforcements, or shifting the main effort. Should the attack fail, the preferred sequel might be a hasty defense. Additionally, an opponent's preferences regarding the use of weather or terrain must be addressed. For example, some adversaries may prefer to initiate offensive action during snowstorms or at night. The following are some suggested techniques for use when formulating a description of adversary tactics and options.

- Start by identifying a specific type of joint operation, such as an amphibious attack, and then analyze how each of the adversary's Service components "fits in" or provides support to that operation. In other words, identify the types of supporting operations each component is likely to conduct as part of the adversary's overall joint plan.

- Use time-event matrices to describe how an adversary normally conducts specific types of joint operations. For example, it may be impossible to graphically depict the complex relationships between the air, naval, and ground operations of a joint

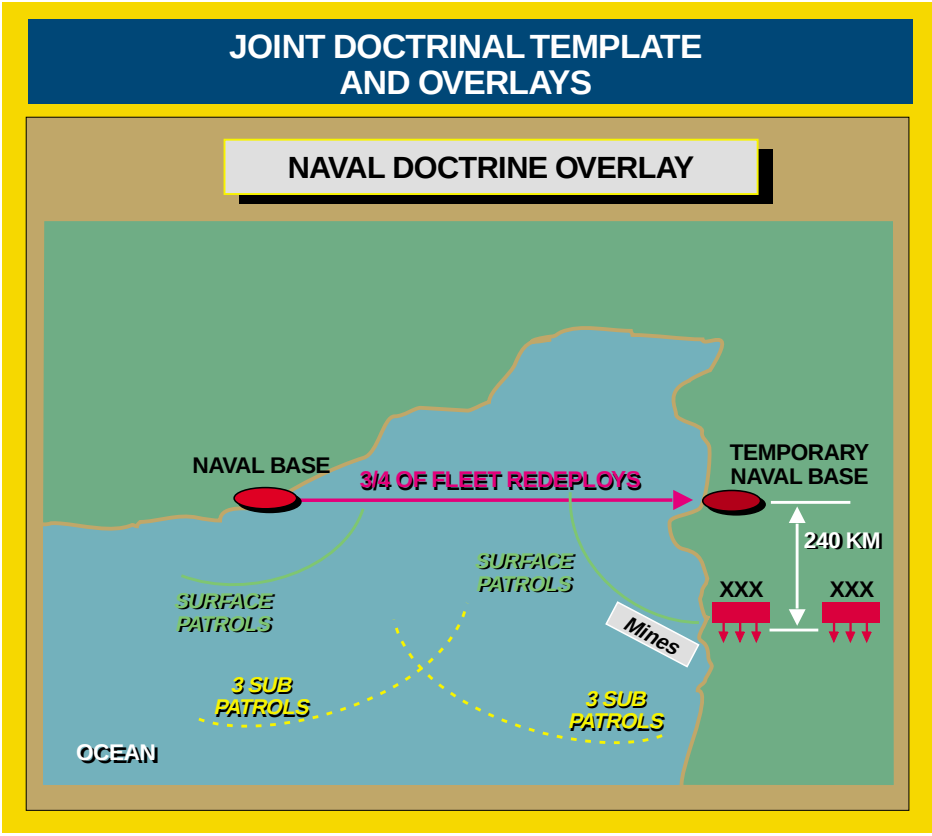


Figure II-18. Joint Doctrinal Template and Overlays (cont'd)

offensive campaign. In this case, a time event matrix could be used to show the sequencing of specific types of joint and/or single component supporting operations, as well as changes in the organization, composition, and likely disposition of adversary forces during each phase of the joint offensive (see Figure II-19).

- Annotate the doctrinal template with marginal notes that are tagged to key events or positions on the template. For example, marginal notes might describe how an adversary normally reallocates air assets if a breakthrough is achieved during a ground offensive.

- Identify and list any decision criteria known to cause the adversary to prefer one option over another. This information will aid in wargaming adversary and friendly COAs, targeting, and deception planning.

- Describe the actions of each component of the joint force in sufficient detail to facilitate the later identification of high-value and high-payoff targets. Since the target's value usually varies with its role in each phase of the operation, each phase should be examined and described separately.

c. **Identification of High-Value Targets.** The adversary model must also include a list of HVTs. HVTs are those assets that the adversary commander requires for the successful completion of the joint mission (and supporting missions) that are depicted

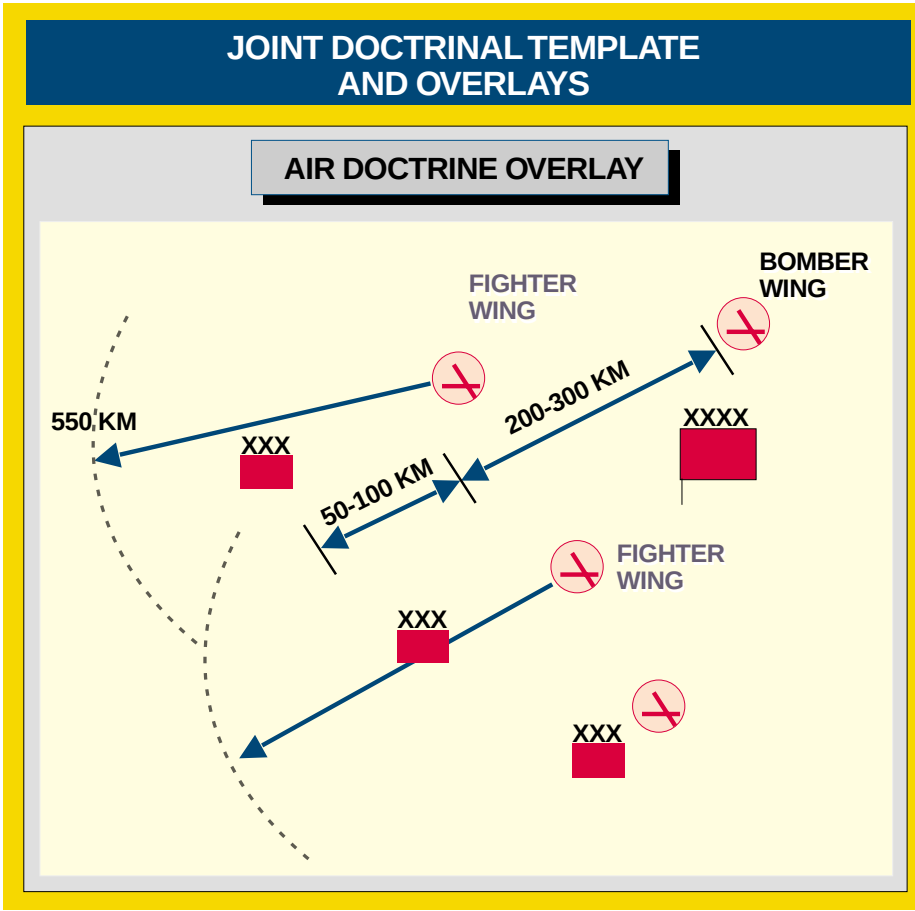


Figure II-18. Joint Doctrinal Template and Overlays (cont'd)

and described on the joint doctrinal template. These targets are identified by combining operational judgment with an evaluation of the information contained in the joint doctrinal template and description. Assets are identified that are critical to the joint mission's success, that are key to each component's supporting operation, or that are crucial to the adoption of various branches or sequels to the joint operation. For example, an adversary ground force defending a front across a peninsula may be vulnerable to amphibious flanking attacks in its rear area. In this situation, the adversary's ability to deny access to its rear area coastal waters may be crucial, and therefore its coastal defense assets (artillery, anti-ship cruise missiles, local surface and subsurface combatants) may constitute HVTs. The joint targeting community collaborates in the identification of HVTs with the responsible producers for various intelligence product category codes. This collaboration should be conducted by any available secure communications means (e.g., JWICS, video teleconference, secure voice, SECRET Internet Protocol Router Network). The following techniques may be useful in identifying and evaluating HVTs.

- Identify HVTs by mentally wargaming and thinking through the joint operation under consideration and how the adversary will use the assets of each component to support it.

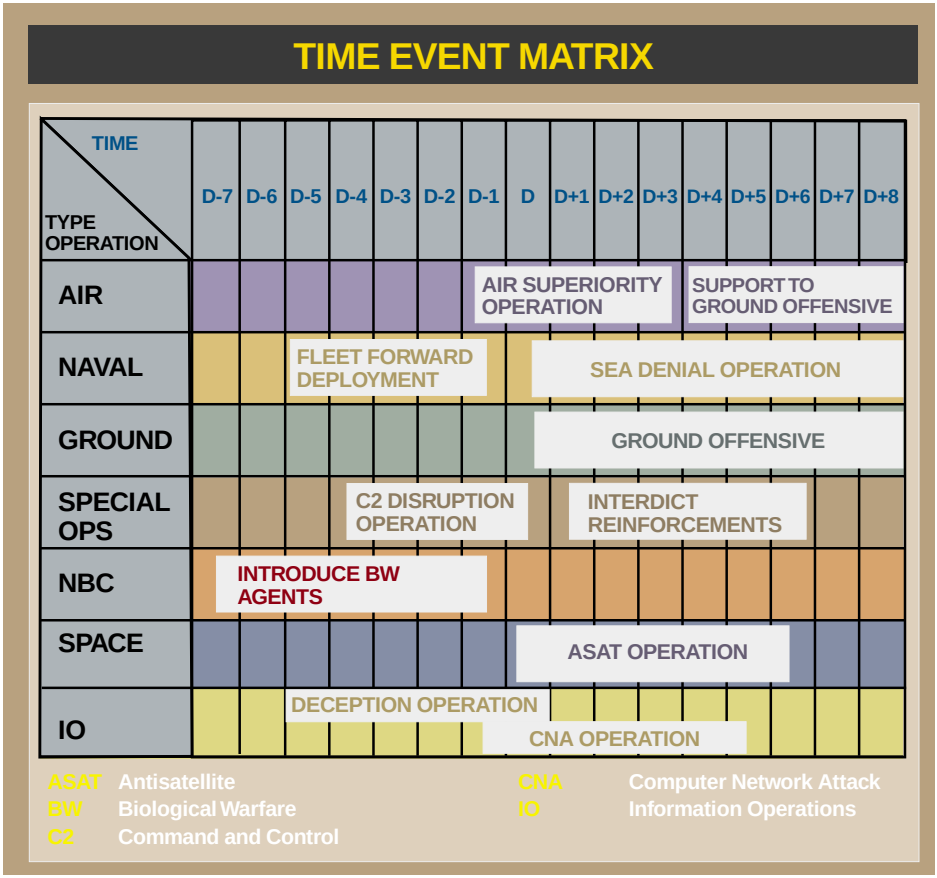


Figure II-19. Time Event Matrix

- Determine how the adversary might react to the loss of each identified HVT. Consider the adversary's ability to substitute other assets (from another component or a different operational area), or to adopt a different option.

- Evaluate and rank order all HVTs according to their relative worth to the adversary's operation. Also, analyze whether a target's value depends on, or changes with, each phase of the operation.

- Construct a target value matrix by grouping HVTs according to their function. The target value matrix should indicate the relative worth of each HVT category and describe how an attack on that category (to include the timing of the attack) would affect the adversary's operation (see Figure II-20).

Specific information on HVT identification and analysis is contained in JP 2-01.1, Joint Tactics, Techniques, and Procedures for Intelligence Support to Targeting.

17. Determine the Current Adversary Situation

All available intelligence sources, methods, and data bases should be continuously exploited in an effort to analyze and determine the current adversary situation.

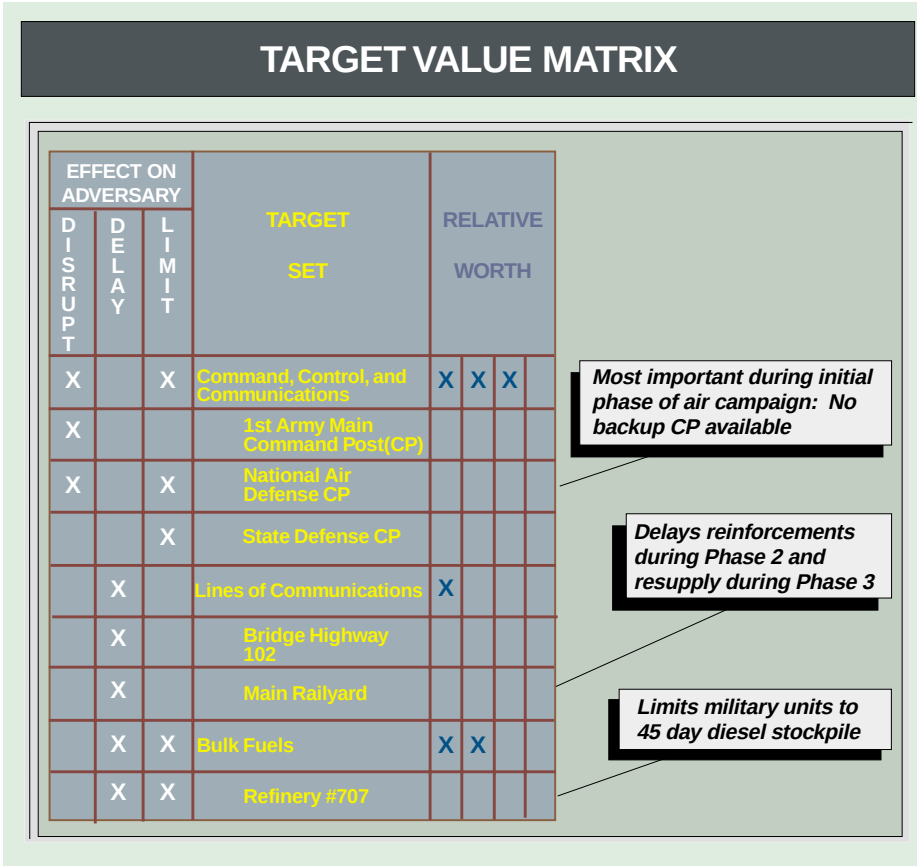


Figure II-20. Target Value Matrix

This analytic effort should focus on OB factors for each adversary air, naval, SOF, and ground unit known to be deployed within the AOI, or that is otherwise capable of interfering with the friendly mission.

a. Current information pertaining to the composition and disposition of adversary military units is particularly important and will normally be maintained on the joint force J-2's adversary situation overlay.

b. The current adversary situation is based on assessments of the following OB factors for each adversary military unit.

- Composition
- Disposition
- Strength
- TTP
- Training status
- Logistics
- Effectiveness
- Electronic technical data
- Miscellaneous data (biographic data on leaders, civil-military relations)

18. Identify Adversary Capabilities

Adversary capabilities are expressed in terms of the broad COAs and supporting operations that the adversary can take to interfere with the accomplishment of the friendly mission. In conventional operations, these are generally defined as offense, defense, reinforcement, and retrograde. Each of these broad COAs can be divided into a variety of more specific COAs. For example, a retrograde might take the form of a delay or withdrawal, while an offensive operation might consist of an envelopment or penetration. Other significant capabilities may include the use of NBC weapons, amphibious assaults, EW, or deception operations. Additionally, when appropriate, the techniques described below should also be applied to adversary nonmilitary or paramilitary groups capable of influencing the friendly mission.

JIPB planners must assess the likely objectives and desired end state of adversary leaders such as Slobodan Milosevic.

a. Adversary capabilities are determined by comparing the current adversary situation with each of the adversary models already constructed. Based on the current situation, the ability of the adversary to actually meet the criteria described by each doctrinal model is evaluated. Usually, the adversary's actual capabilities will vary from the ideal capabilities represented by a doctrinal model. Adversary capabilities that fall short of doctrinal requirements should be identified as vulnerabilities, while capabilities that meet or exceed requirements are listed as strengths. When time or some other factor is assessed to be a critical element in an adversary capability, it should be explicitly stated in the overall capability statement as shown below.

- "The adversary has the capability to attack with up to 6 divisions supported by 150 daily sorties of fixed-wing aircraft, but is capable of penetrating no further than line BRAVO due to insufficient fuel reserves."

- "The adversary has the capability to interdict friendly SLOCs at chokepoints GREY and BLUE after repositioning units of the 4th Fleet. Current naval deployments preclude an attack before 4 August."

- "Adversary insurgents will have the capability to resume offensive action after the fall harvest is completed in October."

b. The joint force J-2 should disseminate the evaluation of adversary capabilities, strengths, and weaknesses to the other joint force staff sections as soon as possible. The intelligence estimate is the traditional vehicle for disseminating this type of evaluation. However, in order to facilitate operational planning, the evaluation may be disseminated

by any means and in any form deemed appropriate by the JFC.

SECTION D. DETERMINING ADVERSARY COURSES OF ACTION

"How can one man say what he should do himself, if he is ignorant of what his adversary is about?"

Lt Gen Antoine-Henri, Baron de Jomini, 1838

19. Overview

The first three steps of the JIPB process help to satisfy the battlespace awareness requirements of the JFC and subordinate commanders by analyzing the effects of the battlespace environment, assessing adversary doctrine and capabilities, and identifying adversary COGs. The fourth step of the JIPB process seeks to go beyond the battlespace awareness achieved during the previous steps in order to help the JFC attain battlespace knowledge (i.e., a detailed understanding of the adversary's probable intent and future strategy). The process for step four (see Figure II-21) provides a disciplined methodology for analyzing the set of potential adversary COAs in order to identify the COA the adversary is most likely to adopt, and the COA that would be most dangerous to the friendly force or to mission accomplishment.

20. Identify the Adversary's Likely Objectives and Desired End State

The adversary's likely objectives and desired end state are identified by analyzing the current adversary military and political situation, strategic and operational capabilities, and the country characteristics of the adversary nation. The JIPB analyst should begin by identifying the adversary's overall strategic objective, which will form the basis for identifying subordinate objectives and desired end states. The joint force J-2 should identify likely objectives for all major adversary military forces operating in the joint force's AOI. Usually there will not be sufficient information available to state adversary objectives as fact. In such cases, the joint force J-2 will postulate likely adversary objectives and will identify them as assumptions. These assumptions should be coordinated with the JFC and joint force J-3. Adversary objectives may be expressed in terms of the echelon or type of military force to be decisively engaged (such as aircraft carriers, operational reserves, or lift capabilities) or as key geographic features to be seized or retained. Sometimes objectives will have dual purposes. During World War II, the Japanese attack against Midway was designed not only to seize key military geography, but also to force a situation in which US Pacific Fleet assets (especially aircraft carriers) could be decisively engaged and destroyed.

21. Identify the Full Set of Adversary Courses of Action

During this step, a consolidated list of all potential adversary COAs is constructed. At a minimum this list will include: all COAs that the adversary's doctrine considers appropriate to the current situation and accomplishment of likely objectives; all adversary COAs that could significantly influence the friendly mission, even if the adversary's doctrine considers them suboptimal under current conditions; and all adversary COAs indicated by recent activities or events.

a. Each identified COA should meet the following five criteria.

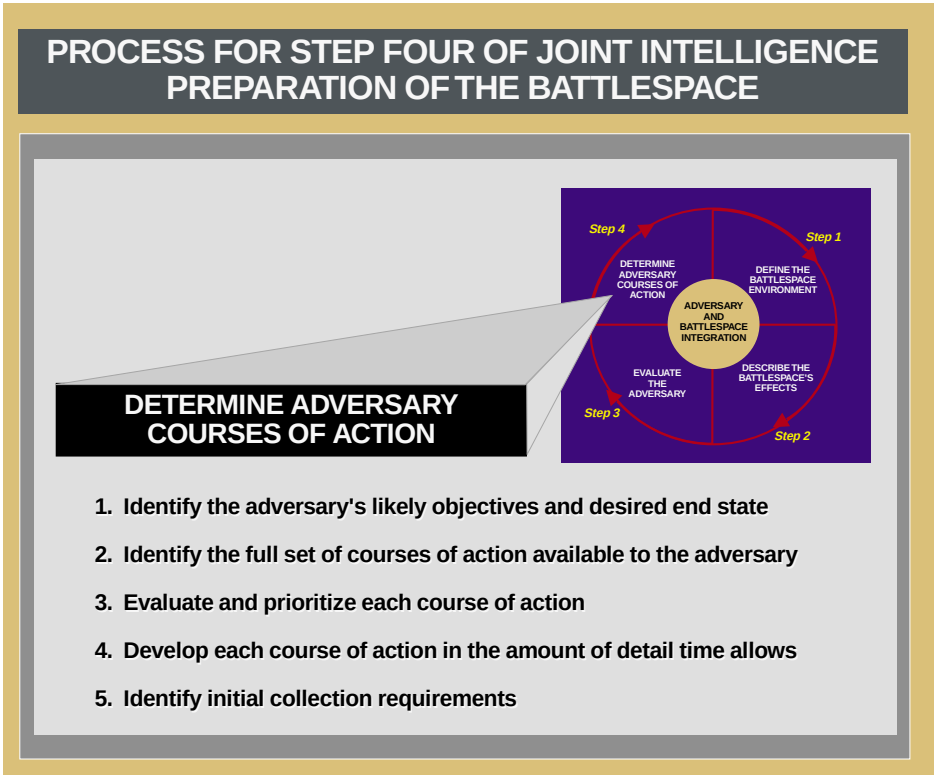


Figure II-21. Process for Step Four of Joint Intelligence Preparation of the Battlespace

- **Suitability**. An adversary COA must have the potential to accomplish the adversary's likely objective or desired end state.

- **Feasibility**. The adversary must have sufficient time, space, and resources to successfully execute the COA. However, a COA should not be assessed as unfeasible until all actions the adversary may take to overcome resource shortfalls are considered. For example, an adversary may make up for insufficient force ratios by conducting an economy of force operation in another sector. Always try to anticipate innovative or seemingly radical measures the adversary may adopt.

- **Acceptability**. The amount of risk associated with the COA should not exceed the level of risk acceptable to the adversary. The JIPB analyst should determine the adversary's level of risk acceptance by analyzing past adversary military activity, current OB factors, and the psychological profiles of adversary leaders. In some instances, however, an opponent may be willing to tolerate a higher level of risk than normal, particularly if a risky COA is the only means of accomplishing the objective. The increasing use of suicide attacks by terrorists and the proliferation of WMD illustrate the increased levels of risk now acceptable to potential adversaries.

- **Uniqueness**. Each adversary COA must be significantly different from the others; otherwise it should be considered a variation rather than a distinct COA. Factors contributing to the uniqueness of a COA may include its effect on the friendly COA, use of reserves, location of the main effort, scheme of maneuver, or task organization.

- **Consistency with Doctrine.** The COA should be consistent with the adversary's doctrine, TTP, and observed practices. However, caution should be taken to guard against an adversary's attempt to achieve surprise by deliberately deviating from known doctrine. Additionally, the availability of new technology or desperation may also drive an adversary to deviate from past doctrine. The challenge to the JIPB analyst is to anticipate such changes.

b. The consolidated list of adversary COAs is compared with the evaluation of adversary capabilities developed during step three of the JIPB process. Any COA that the adversary is not capable of executing is eliminated from the list. However, caution must be taken when eliminating adversary COAs from consideration. The JIPB analyst must have a high degree of confidence that the adversary truly lacks the means of adopting such COAs, and is incapable of innovation or a change in TTP that may make such a COA feasible.

c. The doctrinal templates (created during JIPB step three) associated with each of the remaining COAs are analyzed relative to the effects of the battlespace environment (described during JIPB step two). The JIPB analyst will assess how the battlespace environment may constrain or modify the actual implementation of the adversary models for each COA. Usually the effects of the battlespace environment will either help or hinder the application of an adversary's doctrine, thereby further delimiting the number of "feasible" COAs.

d. Each of the remaining broad COAs are refined into more specific COAs by adding details such as the timing or phasing of operations and the location of the adversary's main and supporting efforts.

e. All factors that may lead the adversary to adopt "wildcard" COAs should be considered. These factors may include:

- The adversary's perception of friendly force capabilities, dispositions, and intentions;

- An unsophisticated understanding of military art and science;

- Immature decision making processes;

- The relative importance of "other characteristics of the battlespace" (especially politics); and

- Desperation.

22. Evaluate and Prioritize Each Course of Action

The full set of identified adversary COAs are evaluated and ranked according to their likely order of adoption. The purpose of the prioritized list of adversary COAs is to provide JFCs and their staffs with a starting point for the development of an OPLAN that takes into consideration the most likely adversary COA as well as the adversary COA most dangerous to the friendly force or mission accomplishment.

a. Caution should be exercised to remember that these COAs are only

assumptions about the adversary, not facts. It should also be kept in mind that actions associated with a friendly COA may cause the adversary to change to a different COA than the one originally adopted. Therefore, the adversary's reaction to changes in friendly force dispositions should be continuously analyzed to determine if the adversary has changed to a different COA. This, in turn, may require a reprioritization of the initial list of adversary COAs.

b. The JIPB analyst must also be constantly on guard against possible adversary deception efforts. The adversary may deliberately adopt a less than optimum COA in order to maximize surprise. Additionally the adversary may gradually increase preparations for a specific COA over a lengthy period of time, thereby "psychologically conditioning" the JIPB analyst to accept a level and type of adversary activity, previously considered to be abnormal, as a new norm.

c. The following procedures should be used when prioritizing adversary COAs.

- Analyze each COA to identify its strengths and weaknesses, COGs, and decisive points.
- Evaluate how well each COA meets the criteria of suitability, feasibility, acceptability, uniqueness, and consistency with doctrine. The JIPB analyst should avoid cultural bias by considering these criteria in the context of the adversary's culture.
- Evaluate how well each COA takes advantage of the battlespace environment.
- Compare each COA and determine which one offers the greatest advantages while minimizing risk.

EGYPTIAN DECEPTION AND "CONDITIONING" DURING THE 1973 WAR

Over a period of four months Egyptian forces gradually moved towards the Canal, but even when the date for the attack approached great care was taken to ensure that the Israelis would not notice that anything untoward was happening. The water-crossing equipment was hidden from view until as near as possible to the operation; special crates were constructed to house the equipment and hide it from inquisitive eyes; deep trenches were dug near the Canal into which the trucks drove with the equipment at night; even the movement of troops was coordinated in order to convince the Israelis that in fact some exercise was being carried out. For instance a brigade would move by day into the line along the Canal, carrying its equipment for crossing the Canal down to the water edge. At night only one battalion of that brigade would travel back from the Canal to the rear with full lights, creating the impression that on the completion of the training the entire force had withdrawn from the Canal . . . The presence of the Egyptian Army in strength along the Canal was not in itself an indication of impending war, as this deployment had been in effect since 1969, nor, it was argued, were the signs of escalation a definitive signal, as three previous mobilizations had taken place since 1971 without the subsequent aggressive strike.

SOURCE: Chaim Herzog
***The War of Atonement, October, 1973*, 1975**

- Consider the possibility that the adversary may choose the second or third most likely COA while attempting a deception operation portraying adoption of the best COA.

- Analyze the adversary's current dispositions and recent activity to determine if there are indications that one COA has already been adopted.

- Guard against being "psychologically conditioned" to accept abnormal levels and types of adversary activity as normal. Identify and focus in greater detail on those adversary preparations, not yet completed, that are nevertheless mission essential to accomplish a specific COA.

23. Develop Each Course of Action in Amount of Detail Time Allows

Subject to the amount of time available for analysis, each adversary COA is developed in sufficient detail to describe: the type of military operation; the earliest time military action could commence; the location of the sectors, zones of attack, avenues of approach, and objectives that make up the COA; the OPLAN, to include scheme of maneuver and force dispositions; and the objective or desired end state. Each COA should be developed in the order of its probability of adoption, and should consist of a situation template, a description of the COA, and a listing of HVTs.

a. **Situation Template.** Situation templates are graphic depictions of expected adversary force dispositions at a specific time and place relative to an individual COA. As such, they represent "snapshots in time" of how the adversary will array and maneuver military forces based on doctrine and the effects of the battlespace environment. Depending on its complexity, an adversary COA may be depicted by a single situation template (usually depicting the most critical point of the adversary's operation) or a series of situation templates depicting points where the adversary might adopt branches or

The adversary may choose to adopt "wild card" COAs, such as setting fire to oil wells in Kuwait during Operation DESERT STORM.

sequels to the main COA. Situation templates are designed to facilitate wargaming by the JFC and joint force staff. The following techniques (see Figure II-22) should be used when constructing situation templates.

- Select the adversary model representative of the military operation under consideration. Overlay the doctrinal template on the MCOO or other products that depict the battlespace environment's effects on the operation. Based on the adversary's preferred tactics, adjust the dispositions portrayed on the doctrinal template to account for the battlespace environment's effects. Check the situation template to ensure that all the adversary's major assets are accounted for and that none have been inadvertently duplicated. Ensure that the situation template depicts the locations and activities of all the HVTs listed in the adversary model.

- Analyze and wargame the adversary's likely scheme of maneuver from current dispositions to the objective. Identify how each of the adversary's force components fits in and supports the scheme of maneuver. Based on

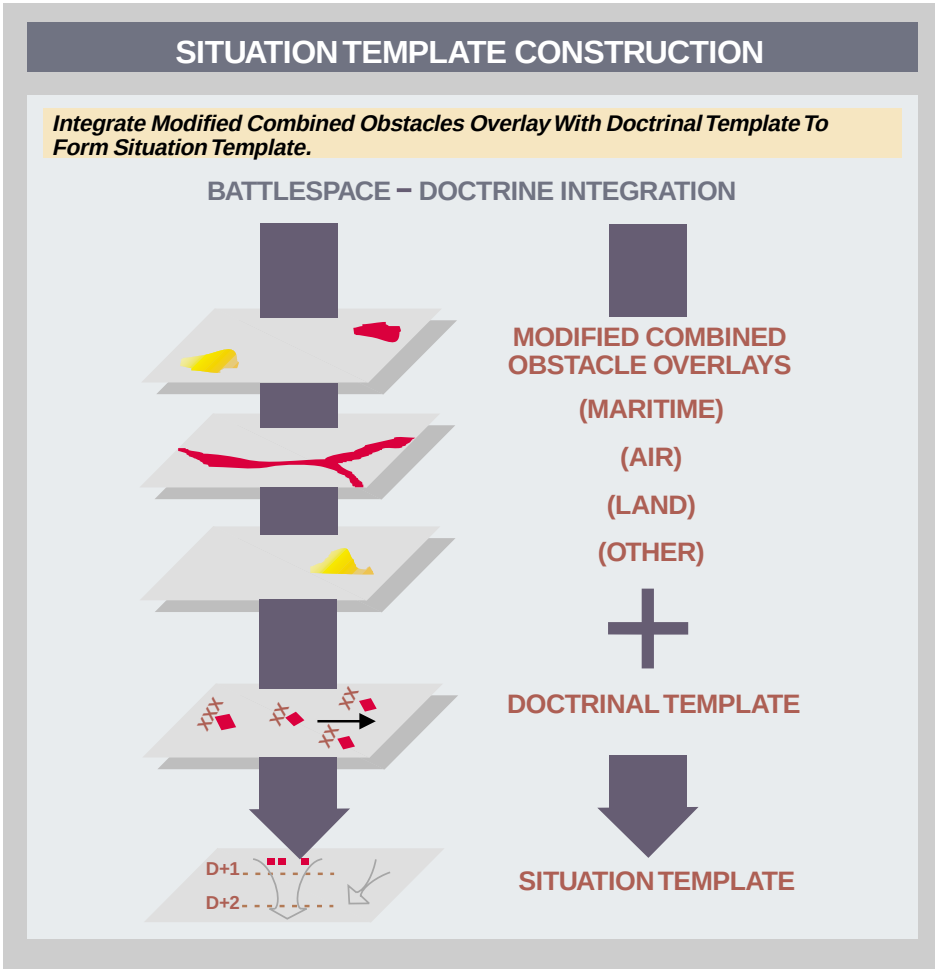


Figure II-22. Situation Template Construction

adversary movement doctrine and capabilities as well as time and space factors, time phase lines should be placed on the situation template to depict the expected progress of adversary force movements. Modify time phase lines as necessary based on the anticipated effects of friendly military action and the current situation on adversary force movement capabilities (see Figure II-23).

- Due to the relative complexity of some types of joint operations, some adversary COAs may be better presented in a matrix vice overlay format. A situation matrix may be particularly useful in depicting the phasing of the supporting operations conducted by each of the adversary's force components (see Figure II-24).

b. **COA Description.** Each COA must include a description of the expected activities of the adversary forces depicted on the situation template. This will usually consist of a narrative description that addresses the earliest time the COA can be executed, location of the main effort, supporting operations, and time and phase lines associated with the COA. Critical decisions that the adversary commander must make during the implementation of the COA are described in terms of their location in time and space (decision points) and all relative decision making criteria.

c. **High-Value Targets.** The HVTs listed on the doctrinal templates associated with each COA should be refined and reevaluated. The relative worth of each HVT will vary with the specific situation under consideration and over the course of the COA's conduct. Each COA should be mentally wargamed to determine potential deployment locations for each HVT, and the point in time when each target is most valuable to the COA's success. Those areas where the adversary is most likely to deploy HVTs at the time when they are most crucial to the adversary's operation should be identified and passed to the joint force's targeting element. These areas should be designated as target areas of interest (TAIs) and can be annotated on the situation template or maintained on a separate list and overlay.

23. Identify Initial Collection Requirements

The identification of initial intelligence collection requirements depends on the prediction of specific activities and the areas in which they are expected to occur which, when observed, will reveal which COA the adversary has adopted. The areas in which these activities or indicators are expected to take place are designated as NAI. The NAI and their associated indicators are depicted on the event template and event matrix.

a. **The Event Template.** The event template is developed by comparing the analyses depicted on the situation templates for each of the COAs that the adversary is capable of executing (see Figure II-25). The purpose of this comparison is to identify those NAI that are unique to the adoption of a specific adversary COA or a limited set of COAs. Conversely, those areas and activities that are common to all COAs are eliminated from consideration because they are not useful in differentiating the adoption of one COA over another. The NAI for all the adversary's COAs are consolidated and depicted on the event template. An NAI can be a specific point, route, or area, and can match obvious geographic features or arbitrary features such as timed phase lines or engagement areas. They should be large enough to encompass the activity that serves as the indicator of the adversary's COA (see Figure II-26).

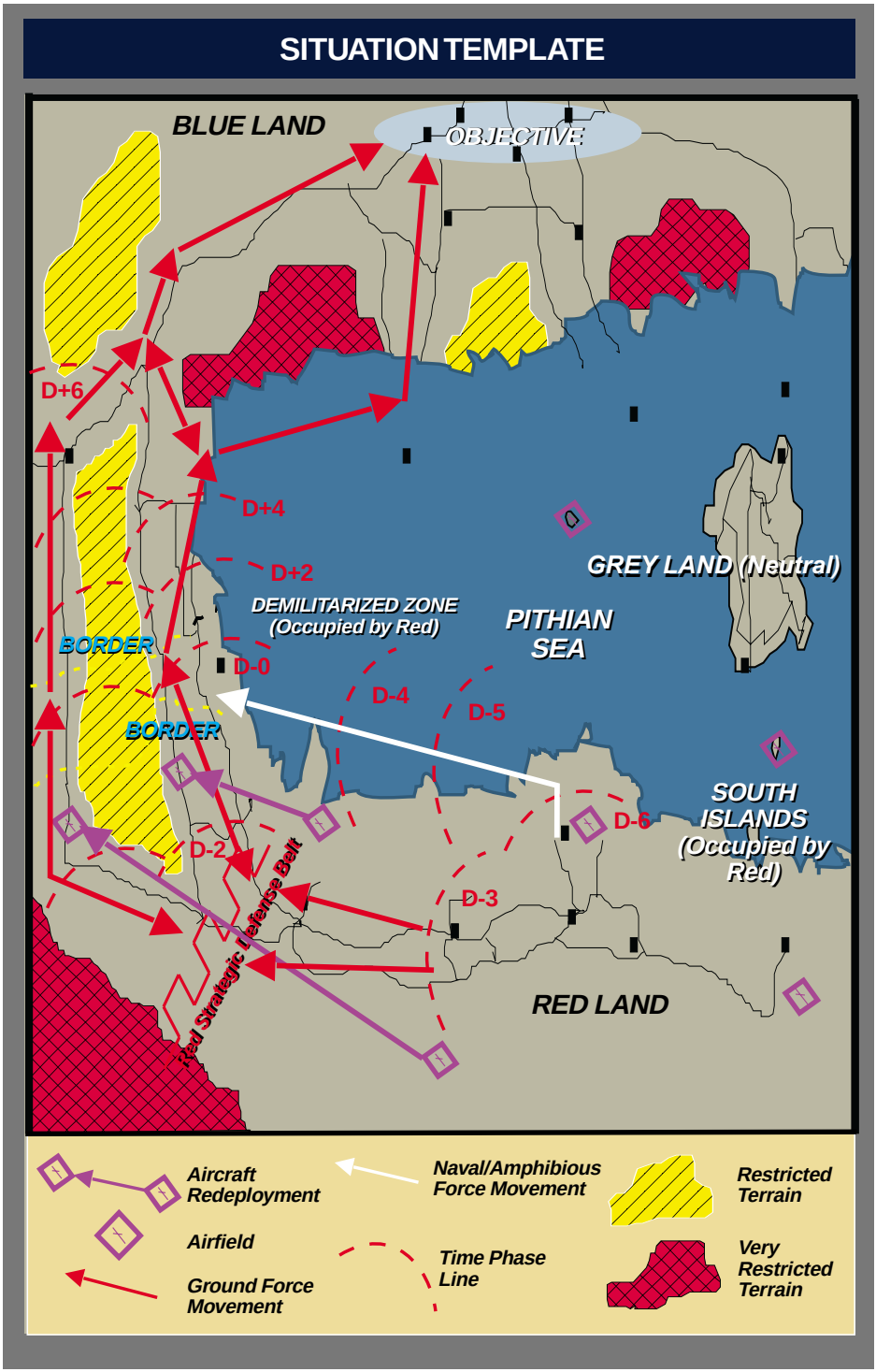


Figure II-23. Situation Template

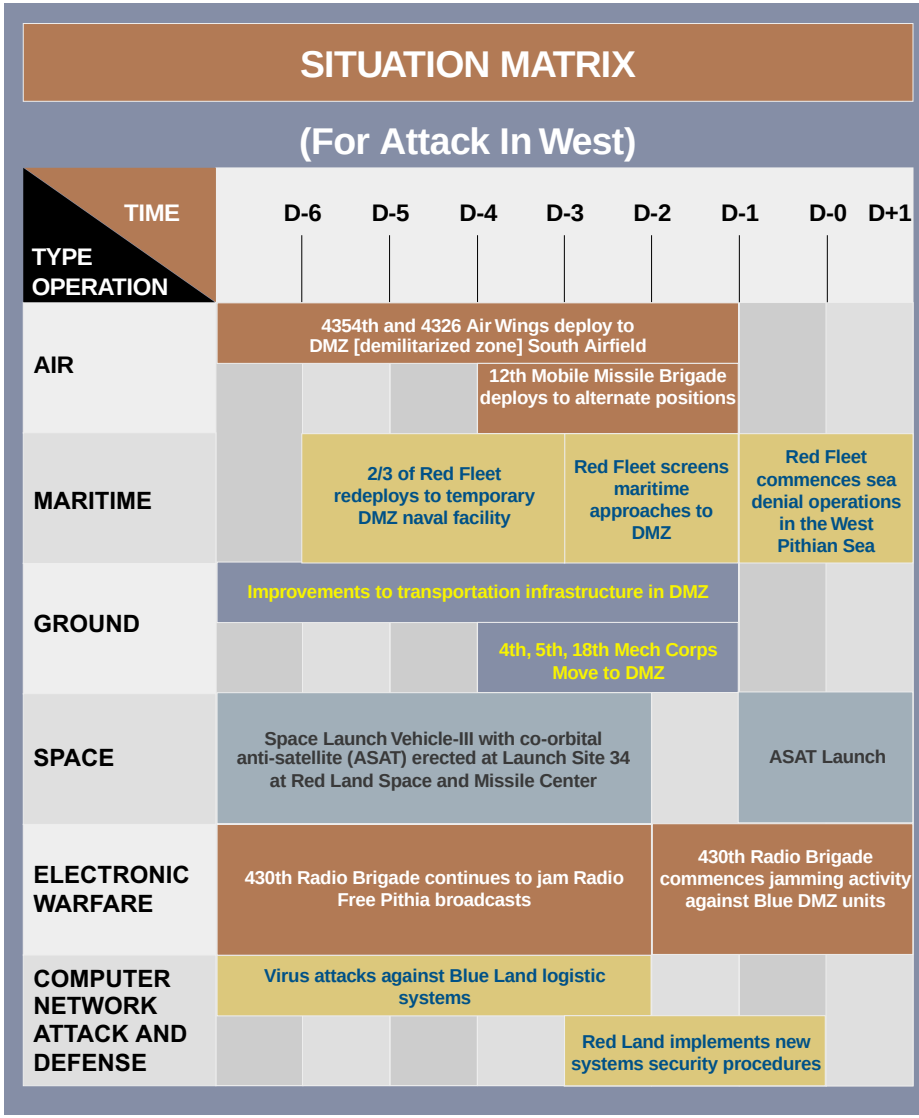


Figure II-24. Situation Matrix

b. **The Event Matrix.** The event matrix supports the event template by providing details on the type of activity expected in each NAI, the times the activity is expected to occur, and the COAs the activity is associated with. Although the primary purpose of the event matrix is to facilitate intelligence collection planning, it can also serve as a useful aid in situation development and wargaming (see Figure II-27 and Figure II-28).

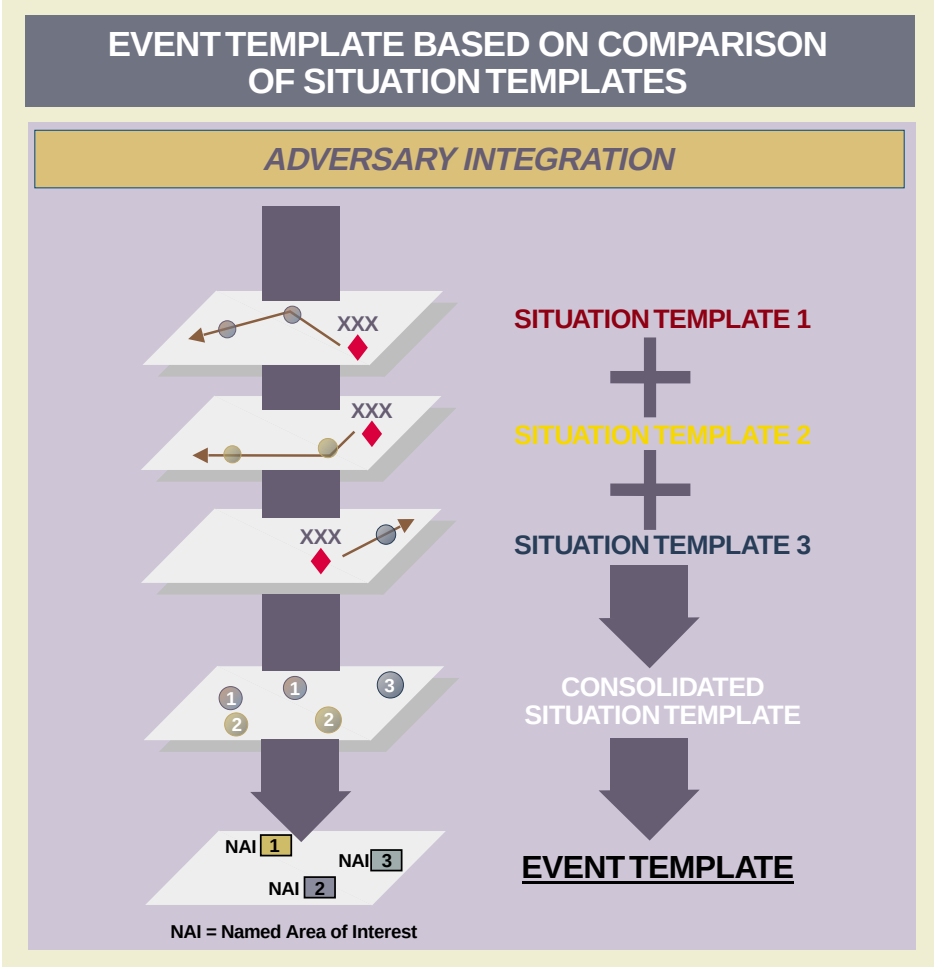


Figure II-25. Event Template Based on Comparison of Situation Templates

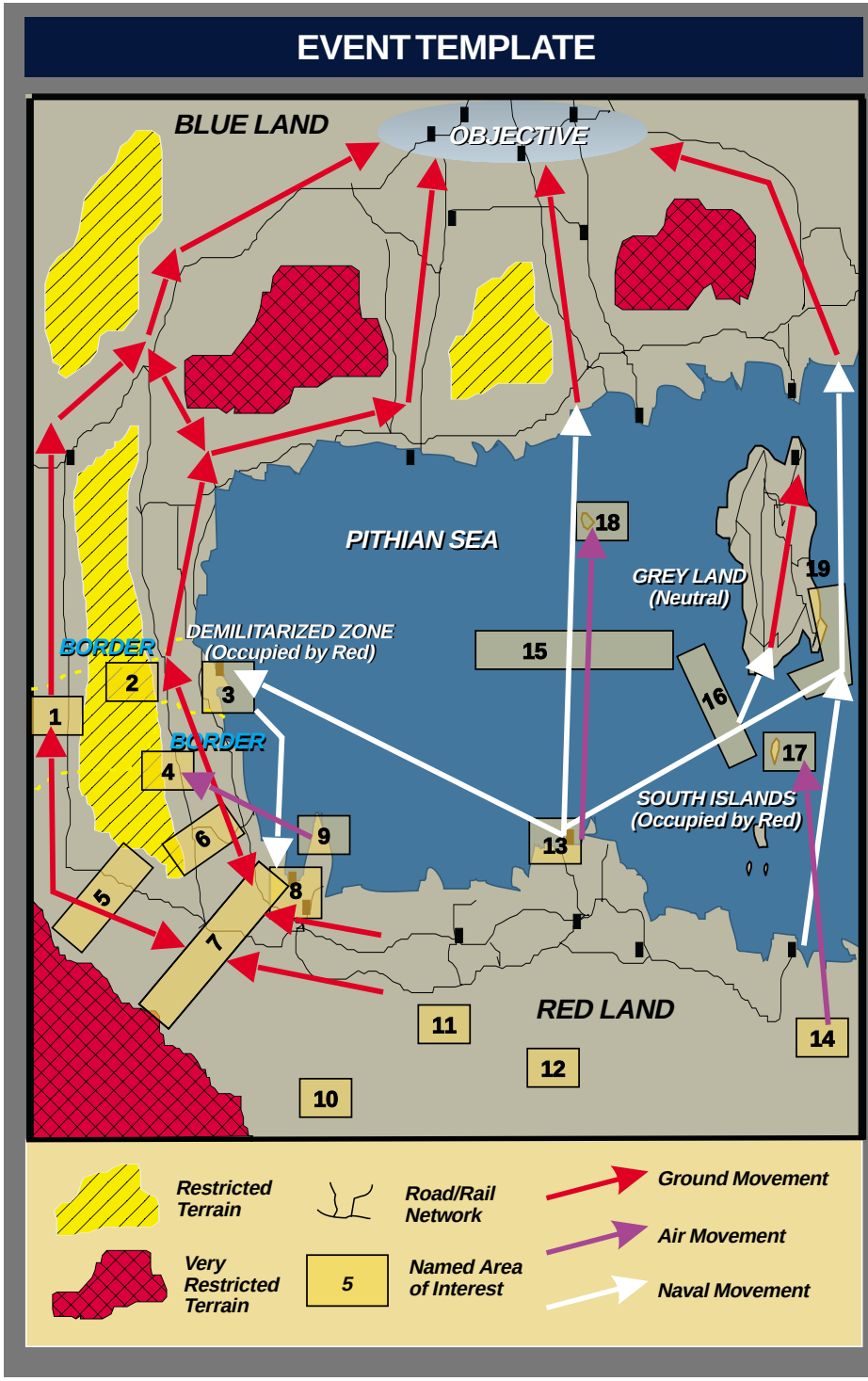


Figure II-26. Event Template

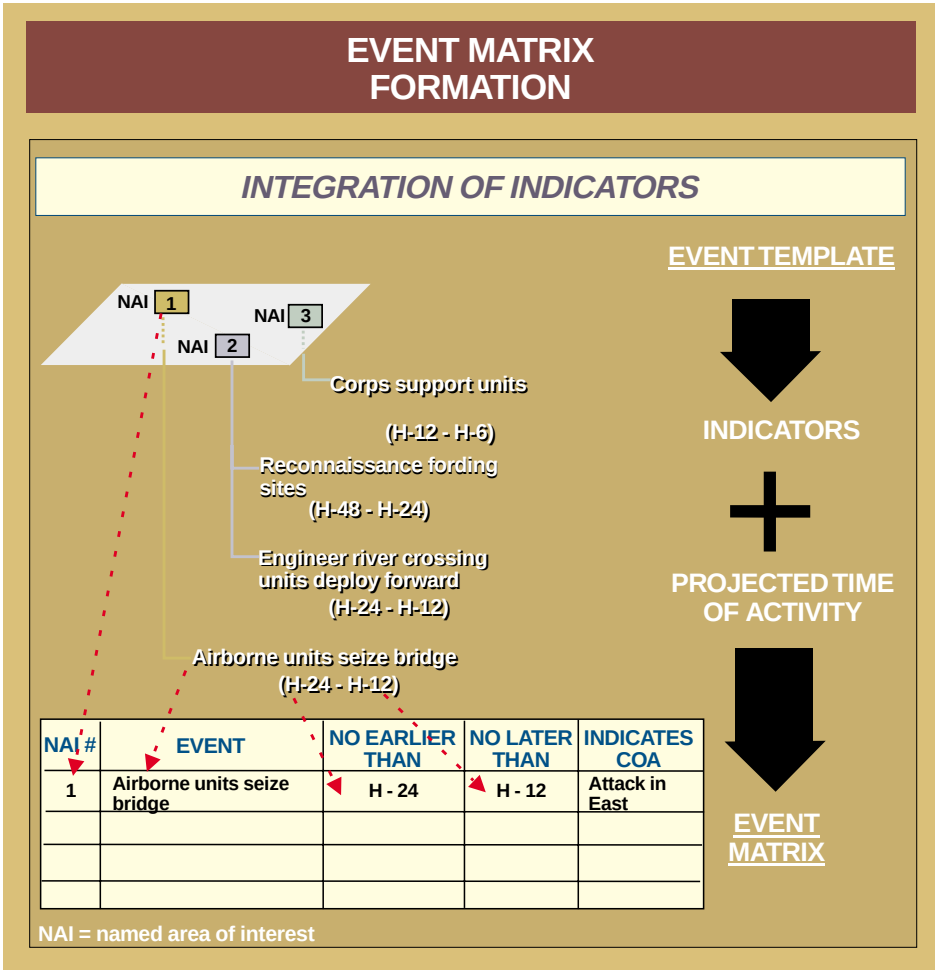


Figure II-27. Event Matrix Formation

EVENT MATRIX

NAI	EVENT	TIME		INDICATE
		Earliest	Latest	COA
1	Laying of minefields and construction of obstacles in depth in the demilitarized zone (DMZ).	D-10	D-0	Defend
2	Improvements to transportation infrastructure in northern DMZ.	D-10	D-1	Attack (in West)
3	Presence of additional surface combatants and minelayers at DMZ port.	D-7	D-3	Reinforce
4	Deployment of additional combat aircraft at forward airfield.	D-7	D-1	Reinforce
5	Northward movement of red corps size force.	D-3	D-1	Attack (in West)
6	Northward movement of two more corps.	D-3	D-1	Attack (in West)
7	Occupation of red strategic defense belt by second echelon units.	D-2	D-1	Retrograde
8	Presence of red surface combatants and minelayers.	D-3	D-1	Retrograde
9	Deployment of additional combat aircraft near red strategic defense belt.	D-7	D-1	Retrograde
10	Departure of mobile missile units from garrison and local dispersal areas.	D-3	D-1	Attack
11	Concentration of additional aircraft at rear airfield.	D-2	D-1	Defend
12	Presence of intermediate-range ballistic missiles on or near launch pad.	D-3	D-1	Attack
13	Departure of surface combatants and amphibious support ships from port.	D-6	D-4	Attack
14	Concentration of additional combat aircraft.	D-2	D-1	Defend
15	Northward transit of amphibious task force.	D-6	D-3	Attack (in Center)
16	Eastward transit of amphibious task force.	D-6	D-4	Attack (in East)
17	Deployment of additional combat aircraft.	D-3	D-1	Attack (in East)
18	Deployment of additional combat aircraft.	D-3	D-1	Attack (in Center)
19	Northward transit of amphibious task force.	D-5	D-3	Attack (in East)

Figure II-28. Event Matrix

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CHAPTER III
JIPB SUPPORT TO DECISION MAKING

"A general should say to himself many times a day: 'If the hostile army were to make its appearance to my front, on my right, or on my left, what would I do?' And if he is embarrassed, his arrangements are bad; there is something wrong; he must rectify his mistake."

Napoleon Bonaparte
(1769-1821)

1. Introduction

The primary purpose of JIPB is to support joint campaign planning and the JFC's and component commander's decision making needs by identifying, assessing, and estimating the adversary's COGs, critical vulnerabilities, capabilities, limitations, intentions, and COAs that are most likely to be encountered based on the situation. JIPB supports several critical facets of joint force campaign planning and decision making, to include mission analysis, COA development, and the analysis and comparison of friendly COAs. JIPB products help to provide the framework used by the joint force staff to develop friendly COAs and provide a foundation for the JFC's decision regarding which friendly COA to adopt. Although JIPB support to decision making is both dynamic and continuous, it must also be "front loaded" in the sense that the bulk of JIPB analysis must be completed early enough to be factored into the JFC's decision making effort (see Figure III-1). Furthermore, prepared or "on the shelf" JIPB products will provide the foundation on which JIPB support in a time-constrained environment is based. The joint force J-2, J-3, and/or J-5 work together to ensure that all JIPB products and analyses are fully integrated into the joint force's deliberate and crisis action planning. They accomplish this through wargaming friendly versus adversary COAs, and by mutually developing products designed to assist the JFC's decision making process.

President Bush receives a briefing from DIA in the National Military Joint Intelligence Center during Operation JUST CAUSE.

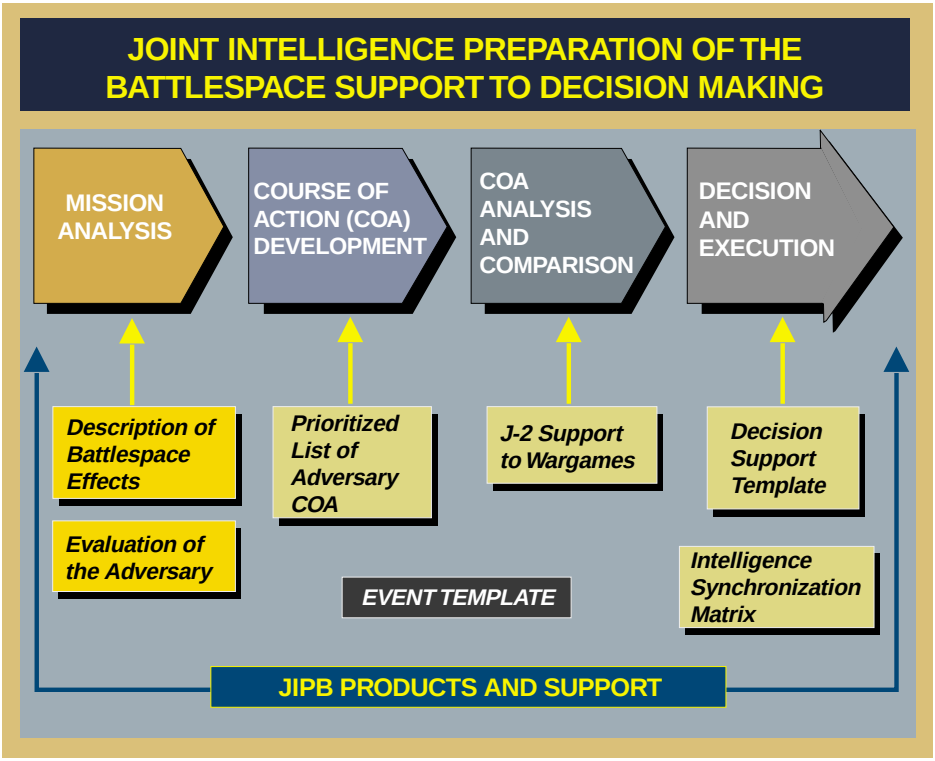


Figure III-1. Joint Intelligence Preparation of the Battlespace Support to Decision Making

2. Mission Analysis

In order for the joint force staff to identify potential COAs, the JFC must formulate planning guidance based on an analysis of the friendly mission. This analysis helps to identify specified and implied tasks, possible follow-on missions, and any constraints on the application of military force. JIPB supports mission analysis by enabling the JFC and joint force staff to visualize the full extent of the battlespace, to distinguish the known from the unknown, and to establish working assumptions regarding how adversary and friendly forces will interact within the constraints of the battlespace environment. JIPB assists JFCs in formulating their planning guidance by identifying significant adversary capabilities and by pointing out critical battlespace factors, such as the locations of key geography, attitudes of indigenous populations, and potential land, air, and sea avenues of approach. Mission analysis and JFC guidance form the basis for the subsequent development of friendly COAs by the joint force staff. It is therefore imperative that at least an initial version of the JIPB description of the battlespace's effects (JIPB step two) and evaluation of the adversary (JIPB step three) be made available to JFCs during their mission analysis and prior to the formulation of their planning guidance.

3. Course of Action Development

The joint force J-3 and J-5 develop friendly COAs designed to accomplish the joint force's mission within the guidelines established by the JFC. In developing friendly COAs, the J-3 and J-5 take into consideration factors such as relative force ratios, initial force dispositions, and possible schemes of

maneuver. The number of friendly COAs developed should remain manageable while still addressing each adversary COA. The joint force J-2 facilitates this process by ensuring that all adversary COAs are identified, evaluated, and prioritized (JIPB step four) in sufficient time to be integrated into the friendly COA development effort. Additionally, the evaluation of the adversary (JIPB step three) is used by the joint force J-3 and J-5 to estimate force ratios. The process of estimating force ratios may be complicated due to wide disparities between friendly and adversary unit organization and equipment capabilities. In such situations, the joint force J-2, J-3, and J-5 may choose to develop local techniques and procedures for evaluating adversary units and equipment in terms of friendly force equivalents. The J-3 also depends heavily on JIPB products prepared during the analysis of the adversary situation and the evaluation of the battlespace's effects in order to formulate initial friendly force dispositions and schemes of maneuver. Additionally, the JIPB analysis of HVTs is used by the J-3 and J-5 to identify targets whose loss to the adversary would significantly contribute to the success of a friendly COA. These targets are refined through wargaming and are designated as high-payoff targets (HPTs). JIPB also provides significant input to the formulation of deception plans by analyzing adversary intelligence collection capabilities and the perceptual biases of adversary decision makers.

4. Course of Action Analysis and Comparison

All joint force staff sections participate in an analysis and comparison of the friendly COAs developed by the J-3 and J-5. The purpose of this effort is to identify any aspects of a particular COA that would make it infeasible, and to determine which COA best accomplishes the joint force's mission. The best method of analyzing friendly COAs is through wargaming.

a. **Wargaming.** Wargaming stimulates thought and provides insight into aspects of the friendly COA that might not otherwise have occurred. It is a conscious attempt to visualize the flow of a military operation, given friendly strengths and dispositions, adversary assets and possible COAs, and a specific battlespace environment. It forecasts how the neutralization of specific adversary targets will affect each friendly COA, thereby facilitating the analysis and identification of HPTs. Wargaming attempts to foresee the action, reaction, and counteraction dynamics between a pair of friendly and adversary COAs.

- **Preparation for the Wargame.** Wargaming depends to a significant degree on the amount of preparation put into the effort. The following procedures will help maximize the benefits of the wargame.

  •• The amount of time available for wargaming must be determined. If possible, sufficient time should be allocated to wargame each friendly COA against the complete set of all adversary COAs. If time constraints do not permit this, then each friendly COA must, at a minimum, be wargamed against the adversary's most likely COA and most dangerous COA.

  •• Time limits must be established for wargaming each part of the operation. If time limits are not established, the staff may spend too much time wargaming specific aspects of the operation at the expense of others.

  •• The joint force J-2 must ensure that the adversary situation, force dispositions, analysis of HVTs, and

adversary doctrinal templates are current prior to the start of wargaming.

•• Assumptions regarding the battlespace and adversary must be realistic. Avoid constructing assumptions that are deliberately designed to support premature conclusions or conceptual bias that favors one COA over another.

•• All known critical events that may require a decision should be identified. Critical events identified before the wargame are usually specified or implied tasks that are essential to mission accomplishment. Other critical events will become apparent during the wargame. The joint force staff should agree to explore and pre-plan decisions that the JFC might have to make during the operation.

- **Conduct of the Wargame.** The wargame should follow a sequence of "action — reaction — counteraction" in which the joint force J-2 plays the role of adversary commander. The side taking the initiative will begin the process by describing the COA. The opposing side will interrupt, as appropriate, to describe their reaction. The initial force will then interrupt the opposition to describe their counteraction. Each interruption represents a decision that must be made by the friendly or adversary commander or staff during the actual execution of the COA. Some basic rules for successful wargaming include the following.

•• Avoid comparing one COA with another during the wargame. The **comparison** of friendly COAs should wait until **after** all COAs have been wargamed.

•• Each friendly COA should be wargamed first against the adversary's most likely COA and then against the most dangerous adversary COA. The other adversary COAs should be wargamed in accordance with the JFC's guidance.

•• Ensure that each friendly COA remains feasible. If for any reason during the wargame a friendly COA is determined to be infeasible, the wargame should be stopped and that COA should be rejected.

•• Each interruption in the "action — reaction — counteraction" drill corresponds to a decision that would have to be made by the JFC or the joint force staff. Each time such a decision point is identified during the wargame, it should be recorded on a decision support template.

b. **Decision Support Template.** The decision support template (see Figure III-2) is essentially a combined intelligence estimate and operations estimate in graphic form. It relates the detail contained on the event template (prepared during JIPB step four) to the times and locations of critical battlespace areas, events, and activities that would necessitate a command decision, such as shifting the location of the main effort or redeploying forces. Although the decision support template does not dictate decisions to the JFC, it is a useful tool for indicating points in time and space (decision points) where action by the JFC may be required. The decision support template is constructed by combining the event template with data developed during the wargame. The joint force J-2, J-3, J-4, J-5, and J-6 collaborate in the production of the decision support template, which is fully coordinated with all joint force staff elements. The decision support template displays TAIs, avenues of

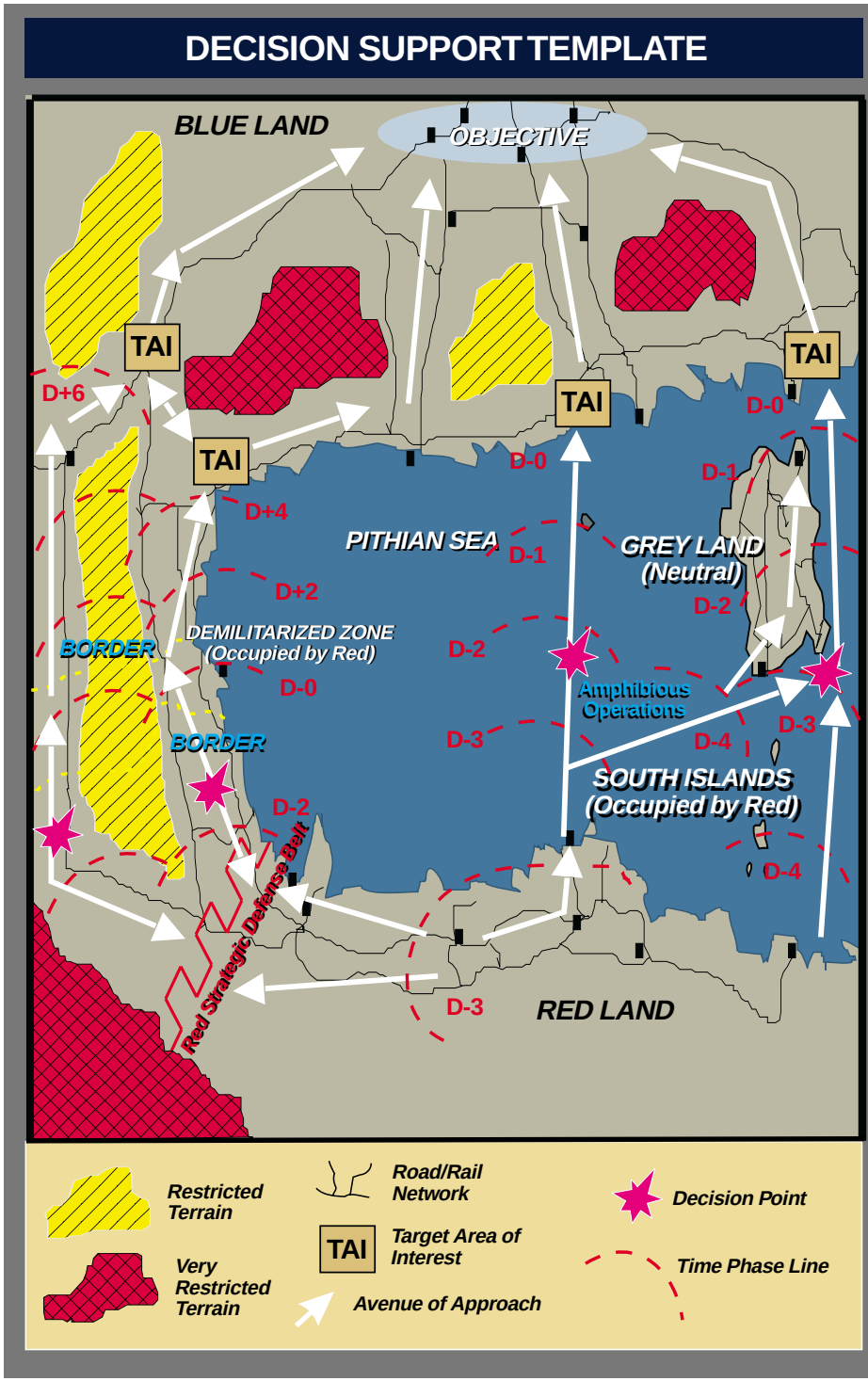


Figure III-2. Decision Support Template

approach, objectives, and time phase lines derived from the JIPB event template.

- **Target Areas of Interest.** Each of the TAIs identified during the fourth step of JIPB are displayed on the decision support template. Each of these locations is associated with a corresponding decision point that, if activated, will confirm the adversary's intention to move into the TAI. This relationship is crucial and mirrors the relationship between intelligence and operations. Thus, intelligence collection against the decision point is designed to provide the joint force J-3 with the necessary tip-off information to engage the adversary force in the TAI.

- **Decision Points.** A decision point identifies an event, time, and battlespace location where a command decision is required in order to engage the adversary in an associated TAI. The locations of decision points depends both on the availability and response time of friendly forces as well as the anticipated activity, capabilities, and movement rates of adversary forces. The joint force J-2 will assist the J-3 and J-5 in identifying decision points that support the overall concept of operations. Both staff elements must work together to ensure that the distance between decision points and their associated TAIs permit sufficient time to synchronize friendly actions before the adversary reaches the engagement area. Specifically, the distance between a decision point and its associated TAI must permit sufficient time and space for:

  •• The collection of intelligence confirming that the anticipated adversary activity has occurred at the decision point;

  •• The processing and dissemination of this intelligence to the JFC;

  •• The preparation and movement of friendly forces to engage the adversary in the TAI; and

  •• The movement of the adversary from the decision point to the TAI.

c. **Comparison of Friendly COAs.** Following wargaming, the staff compares friendly COAs to identify the one that has the highest probability of success against the full set of adversary COAs. **Each joint force staff section uses different criteria for comparing friendly COAs, according to their own staff area of expertise.** For example, the joint force J-3 and J-5 compare friendly COA based on the friendly force's ability to defeat each adversary COA, whereas the J-2 assesses the overall capabilities of intelligence collection and production to support each friendly COA. Additionally, each staff section must ensure that they have fully considered the JFC's initial planning guidance for COA selection.

5. Decision and Execution

After comparing friendly COAs, each joint force staff element presents its findings to the remainder of the staff. Together they determine which friendly COA they will recommend to the JFC. The joint force J-3 then briefs the COAs to the JFC using graphic aids, such as the decision support template and matrix. The JFC decides upon a COA and announces the concept of the operation. Using the results of wargaming associated with the selected COA, the joint force staff prepares plans and orders that implement the JFC's decision. The joint force J-2 prioritizes intelligence requirements and synchronizes intelligence collection requirements to support the COA selected by the JFC.

a. **Prioritization of Intelligence Requirements.** The joint force J-2 uses the JFC's concept of operations and the results of the wargame to refine the initial set of intelligence requirements developed during step one of the JIPB process. The J-2 should analyze the specific types of adversary activity that are expected to occur at each decision point. These indicators provide the basis for tailoring the list of intelligence requirements to support the COA selected by the JFC. The J-2 prioritizes the list of intelligence requirements and presents it to the JFC for approval. The JFC will designate the most important intelligence requirements as PIRs. The remaining requirements are prioritized as supporting information requirements. If intelligence requirements vary over the course of an operation, the J-2 prepares several prioritized lists designed to support each of the different phases of an operation.

b. **Synchronization of Intelligence Collection.** The joint force J-2 must direct the intelligence collection effort, receive the information it produces, process it, and then produce and disseminate the relevant intelligence in time to support the JFC's decision making requirements. The coordination of this entire cycle is known as intelligence synchronization. In order to collect and provide in a timely manner all the intelligence required to support the friendly COA, an intelligence synchronization matrix may be designed (see Figure III-3). The joint force J-2 constructs the intelligence synchronization matrix by establishing intelligence collection deadlines for satisfying each intelligence requirement. The J-2 bases these deadlines on the decision making timeline requirements of the JFC and the joint force's planning staff, also factoring in the time required to process and disseminate the intelligence. The J-2 then develops a collection strategy for each intelligence requirement that will ensure it is answered on time. This collection strategy is depicted on the intelligence synchronization matrix. The collection strategy should consider:

- Collection systems capabilities and availability at all levels: tactical, operational, strategic, and national;
- Tasking timelines associated with each collection system or discipline;
- Collection and processing timelines;
- Exploitation timelines;
- Dissemination timelines;
- Type of target or activity collected against;
- Location of the NAI collected against;
- Timelines associated with the expected adversary activity; and
- Competing collection requirements.

INTELLIGENCE SYNCHRONIZATION MATRIX

	D-2		D-1		D-0		D+1		
TIMELINE	2400	1200	2400	1200	2400	1200	2400	1200	2400
PIR No:	PIR 1			PIR 2/3		PIR 4			
IR No:	IR 1/2		IR 3				IR 4/5		
IMINT	X					X			
SIGINT			X	X		X			
HUMINT	X			X			X		
MASINT	X						X		
TECHINT			X			X			
OSINT	X					X			
CI			X	X					

CI	Counterintelligence	OSINT	Open-source Intelligence
HUMINT	Human Intelligence	PIR	Priority Intelligence Requirement
IMINT	Imagery Intelligence	SIGINT	Signals Intelligence
IR	Information Requirement	TECHINT	Technical Intelligence
MASINT	Measurement and Signature Intelligence		

Figure III-3. Intelligence Synchronization Matrix

CHAPTER IV
JIPB SUPPORT TO COUNTERING ASYMMETRIC WARFARE THREATS

"Asymmetric warfare--attacking an adversary's weaknesses with unexpected or innovative means while avoiding his strengths--is as old as warfare itself. In the modern era, many forms of asymmetric attack are possible--to include [information warfare, cybernetic warfare, transnational infrastructure warfare] terrorism, guerilla operations, and the use of WMD. Because of our dominant military position, we are very likely to be the focus of numerous asymmetric strategies . . ."

LTG Patrick M. Hughes, USA
***Global Threats and Challenges: The Decades Ahead,* 1998**

1. Introduction

Potential adversaries are likely to use asymmetric warfare as a method of degrading or negating the battlespace dominance of friendly forces. Several types of joint force activities and operations are applicable to deterring or countering an adversary's use of asymmetric warfare. JIPB support to these types of joint force activities may require a slightly different focus than that described in previous chapters. Although the basic four-step JIPB process remains the same, each activity will require detailed information relating to its own unique set of requirements. The following information, although not all-inclusive, provides examples of **some** of the factors that should be considered when applying the JIPB process to support some of the joint force activities and operations capable of countering asymmetric threats (see Figure IV-1).

2. Information Operations

IO are those actions taken to affect adversary information and information systems while defending one's own

Joint operations are critically dependent upon the information superiority provided by automated information systems.

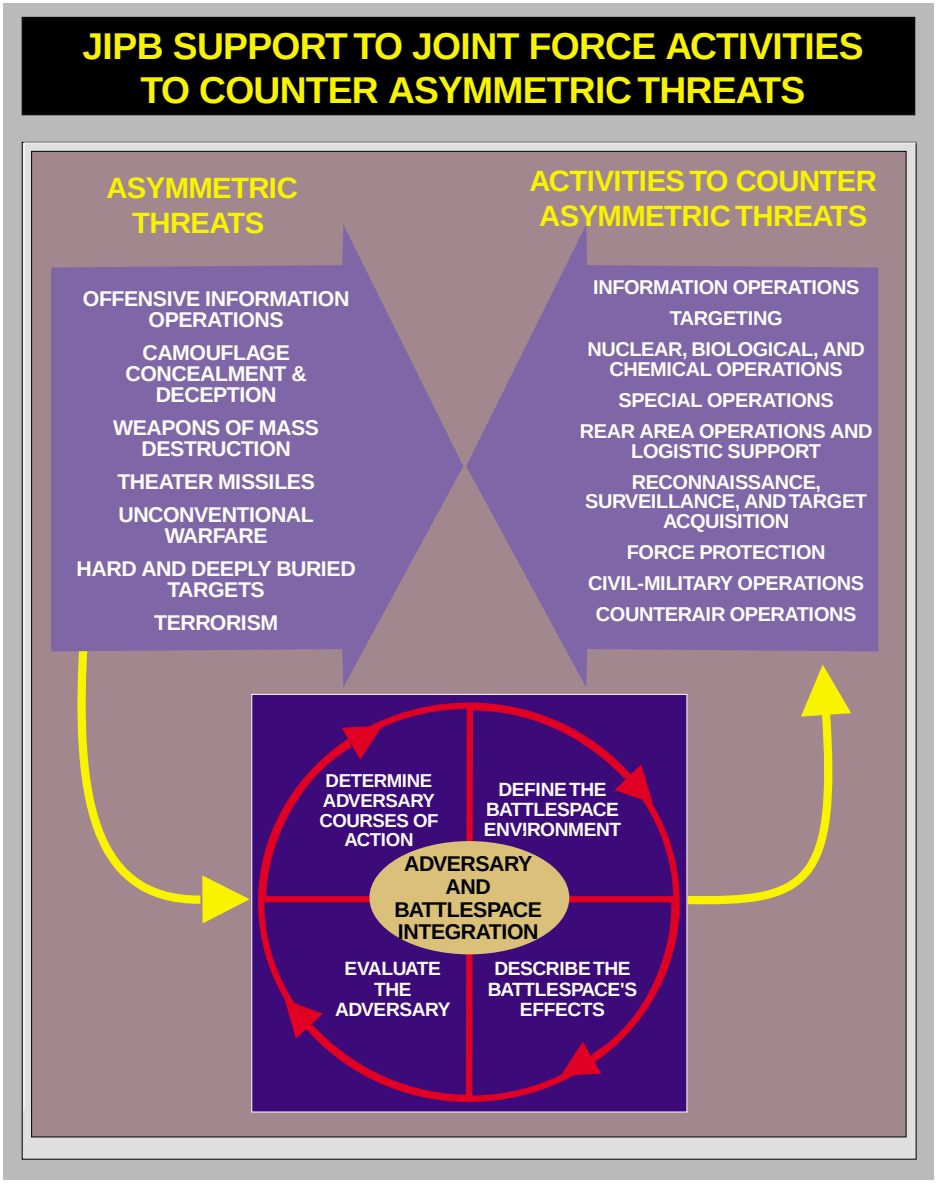


Figure IV-1. JIPB Support to Joint Force Activities to Counter Asymmetric Threats

information and information systems. Potential adversaries are likely to conduct offensive IO to counter the information superiority of friendly forces. JIPB supports IO by identifying adversary capabilities, vulnerabilities, and strategies relative to CNA, PSYOP, and influencing public opinion and decision making.

For detailed guidance on IO, see JP 3-13, Joint Doctrine for Information Operations.

a. **Define the Battlespace Environment.** The size and general characteristics of the battlespace, as it pertains to IO, will vary depending on factors such as:

- The capabilities and geographic reach of the friendly and adversary intelligence collection and information gathering systems;

- The sources of information upon which friendly and adversary forces base significant decisions.

- The capabilities of friendly and adversary information processing, transmission, reception, and storage systems; and

- The strategic goals, political motivations, and psychological mindset of the adversary country or group.

b. **Describe the Battlespace's Effects.** The effects of the cyberspace, electromagnetic, and human dimensions on both friendly and adversary forces should be analyzed in order to:

- Evaluate existing and potential impediments to the flow of information required to support the decision making process.

- Identify and evaluate critical nodes in information collection, processing, and dissemination systems.

- Determine the characteristics and vulnerabilities of specific command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) equipment and systems.

- Evaluate the level of adversary and friendly operations security and communications security discipline.

- Assess to what degree the values, beliefs, and motivations of key adversary population groups and military forces coincide or conflict with those of political leaders or may influence decision making.

- Identify potential vulnerabilities of friendly forces to specific types of adversary PSYOP themes or disinformation.

- Determine the effects of the environment on the dissemination of PSYOP products.

c. **Evaluate the Adversary**

- Identify and assess adversary organizations engaged in CNA research.

- Identify adversary propaganda themes and techniques for exploiting internal and external public opinion.

- Identify potential "agents of influence" that could be used by the adversary to influence external public opinion or decision making.

- Assess the personality type, perceptual biases, and decision making style of adversary leaders.

- Identify and prioritize significant adversary sources of information and decision making criteria.

- Analyze the adversary's C4ISR doctrine and capabilities with attention to factors such as:

  •• The communications net structure, organization, and deployment of C4ISR systems;

  •• Techniques and procedures for the remoting of radio communications systems;

•• Procedures for shifting to backup systems or making use of another nation's assets or networks; and

•• Frequency allocation techniques.

- Identify what adversary political and military leaders perceive to be their own vulnerabilities.

- Assess potentially exploitable areas of friendly and adversary soldier-level perceptions regarding the situation, military objectives, general morale, and opposing forces.

d. **Determine Adversary Courses of Action**

- Correlate the activation of specific command, control, communications, and computers (C4) nets with adversary COAs postulated to be associated with those nets.

- Postulate how the adversary will react to the loss or degradation of specific information systems at critical junctures during the operation. Analyze at what points and under what circumstances the adversary will shift to backup systems.

- Identify likely friendly and adversary reactions to specific PSYOP messages and/or themes.

3. Targeting

Targeting is the analysis of enemy situations relative to the commander's mission, objectives, and capabilities at the commander's disposal, to identify and nominate specific vulnerabilities that, if exploited, will accomplish the commander's purposes through influencing, delaying, disrupting, disabling, or destroying enemy forces or resources critical to the enemy. An adversary may use asymmetric means to complicate friendly targeting efforts (e.g., use of hard or deeply buried facilities, dispersal of mobile infrastructure, innovative air defense tactics). The JIPB process is capable of supporting all phases of the joint targeting cycle to include issuing guidance and objectives, target development, mission planning, force execution, and combat assessment.

For more specific details on targeting, refer to JP 2-01.1, Joint Tactics, Techniques, and Procedures for Intelligence Support to Targeting, *JP 3-60,* Joint Doctrine for Targeting, *and JP 3-05.2,* Joint Tactics, Techniques, and Procedures for Special Operations Targeting and Mission Planning.

a. **Define the Battlespace Environment**

- Assist the JFC in formulating targeting objectives and guidance by identifying significant adversary military, economic, and political systems that may pose a threat to mission accomplishment.

- Assess the overall capability of the adversary's air defense system.

- Identify potential airfields and supporting infrastructure under adversary or third-party control that may be made available for friendly or adversary use.

b. **Describe the Battlespace's Effects**

- Assess the adversary's capability to relocate underground, or disperse to remote areas, critical infrastructure and military assets (e.g., factories, storage depots, aircraft, theater missiles).

- Identify all political, economic, social, religious, or other factors that may restrict attacks against specific types of adversary targets or locations.

Even hard targets, such as this Iraqi bunker destroyed by Allied forces during the liberation of Kuwait, are vulnerable to the combination of precision munitions and accurate JIPB data.

- Determine those areas where the effectiveness of adversary air defense systems is optimized.

- Identify areas where adversary air defense systems are least effective due to factors such as terrain masking or ground clutter effects.

- Locate all subsurface facilities (subways, tunnels, mines, overpasses) of potential use to the adversary in relocating or hiding mobile targets.

- Assess the relative importance and vulnerability of adversary target systems. Identify geographic areas where fixed HVTs and HPTs are clustered, such as industrial regions, commercial centers, or transportation nodes. Identify geographic areas where mobile HVTs and HPTs might be located.

c. **Evaluate the Adversary**

- Analyze the adversary's potential use of air defense assets in new or innovative ways.

- Conduct nodal analysis for specific types of adversary economic or political target system components. An example might be a chart depicting the steps in the operation of a typical adversary oil refinery.

- Assess the adversary's use of OPSEC to counter friendly target acquisition.

- Construct doctrinal templates identifying locations where the adversary is most likely to deploy military HVT and HPT at each phase of specific COAs.

- Assess the adversary's capability to effectively employ equipment decoys.

- Identify the most critical and most vulnerable elements within each of the adversary's target system components.

- Analyze hard and deeply buried targets for points of vulnerability to precision munitions.

d. **Determine Adversary Courses of Action**

- Postulate how the adversary will react to the loss of each HVT. Anticipate which alternative COA the adversary may adopt as the result of the loss of a specific HVT.
- Project how the adversary's air defense posture and deployments may respond to friendly occupation of specific air bases or attacks against specific target sets.

4. Nuclear, Biological, and Chemical Operations

The joint force NBC staff is concerned with friendly, adversary, and third-party capabilities to employ nuclear weapons as well as friendly vulnerability to adversary nuclear weapons and chemical and biological agents. The potential for accidental or natural release of NBC agents within the battlespace is also a major concern.

a. **Define the Battlespace Environment.** With regard to NBC weapons, the total battlespace should encompass:

- All adversary countries or groups as well as potential belligerents known or suspected of possessing an NBC capability;
- All current and potential locations of adversary and potential belligerent missiles, artillery, and aircraft capable of delivering NBC weapons; and
- All adversary known and suspected NBC agents and their storage and production facilities.

b. **Describe the Battlespace's Effects**

- Identify and assess the vulnerability of key logistic facilities and infrastructure to NBC attack.
- Identify all known and suspected NBC agents.
- Identify critical weather information needed to determine the effects of weather on the use of NBC weapons. Analyze the seasonal or monthly normal variations in weather patterns that might affect the use of NBC weapons.
- Analyze the land and maritime surface dimensions to identify potential target areas for NBC attack, such as choke points, key terrain, and transportation nodes.

c. **Evaluate the Adversary**

- Analyze adversary capabilities and will to employ specific types of NBC weapons. Determine the locations, volume and condition of adversary NBC stockpiles.
- Identify the specific types and characteristics of all adversary NBC delivery systems, with special attention to minimum and maximum ranges.
- Evaluate adversary NBC doctrine to determine if NBC employment is terrain-oriented, force-oriented, or a combination of both.
- Assess the level and proficiency of adversary NBC training and protective measures.
- Assess the practicality and timeliness of an adversary exploiting a new or different technology to develop an NBC capability (including delivery means).

d. **Determine Adversary Courses of Action**

- Identify friendly assets that the adversary is most likely to target for NBC attack.
- Determine those locations where the adversary is most likely to deploy NBC delivery systems. These locations should be within range of potentially targeted friendly assets, yet still consistent with the adversary's deployment doctrine.
- Evaluate those characteristics of the adversary's NBC stockpile that may dictate or constrain NBC weapons use. These may include factors such as the quantity and yield of nuclear weapons, the age and shelf-life of stored chemical munitions, and the production and handling requirements for biological agents.

5. Special Operations

Special operations encompass the use of specially organized, trained, and equipped units to achieve military, political, economic, or psychological objectives by unconventional military means in hostile, denied, or politically sensitive areas. Special operations can be used to counter asymmetric threats by attacking or neutralizing adversary targets that may be inappropriate for engagement by conventional means alone. Due to the high level of physical and political risk involved, special operations require extremely detailed JIPB products.

For detailed guidance on the conduct of special operations, see JP 3-05, Doctrine for Joint Special Operations, *and JP 3-05.5,* Joint Special Operations Targeting and Mission Planning Procedures.

a. **Define the Battlespace Environment.** The joint force special operations component commander (JFSOCC) may employ SOF throughout the joint force's operational areas in close coordination with the other component commanders. The AOI of the JFSOCC extends throughout and beyond the joint force's operational areas, but with emphasis from the special operations force home base, through operational bases, into the joint force's battlespace, to the TAI. The AOI for special operations should encompass:

- Infiltration and exfiltration routes and corridors;
- Areas or countries that provide military, political, economic, psychological, or social aid to the target forces or threats to the mission; and
- PSYOP target areas.

Due to the high level of physical and political risk involved, special operations require extremely detailed JIPB products.

b. **Describe the Battlespace's Effects**

- As special operations forces (SOF) operational capabilities significantly differ from those of conventional forces, SOF specific environmental effects analysis is usually required. The following factors should be considered when evaluating the effects of the geographic environment on special operations.

  •• Identify all potential zones of entry as well as infiltration and exfiltration corridors. Include often overlooked means such as waterborne access routes and rooftop zones of entry and egress.

  •• Identify sources of food and potable water.

  •• Evaluate low level flight corridors with regard to obstacles and adversary air infiltration and exfiltration detection capabilities.

  •• Identify potential ground and beach landing zones as well as helicopter landing and airdrop zones.

- Evaluate the effects of METOC on infiltration and exfiltration operations, with particular attention to factors such as:

  •• The effects of surface and upper air winds on airborne operations;

  •• The effects and benefits of clouds and low visibility on SOF air operations and special reconnaissance;

  •• The effects of extreme temperatures, humidity, or sand on SOF personnel, aircraft, and other equipment;

  •• The effects of tides, currents, and sea state as well as water temperature and bioluminescence on waterborne operations; and

  •• The effects of illumination on surveillance and navigation.

- Analyze the effects of the electromagnetic environment on SOF communications.

- The "other characteristics" of the battlespace take on increased importance when conducting special operations. Particular attention should be paid to factors such as:

  •• Issues motivating political, economic, social, or military behaviors of groups;

  •• Economic or social programs that could cause desired changes in population behavior;

  •• The goals and strategies of political organizations and special interest groups capable of influencing the mission;

  •• The formal and informal political, economic, and social power structure; and

  •• The history and nature of political violence in the country.

c. **Evaluate the Adversary**

- Assess the capabilities and procedures of the adversary's conventional, internal security, and paramilitary forces.

- Evaluate the TTP used by all groups supporting the adversary.

- Identify the motivations and potential sources of discord within the adversary force.

- Assess the adversary's capabilities or limitations to cope with or exploit adverse METOC conditions.

d. **Determine Adversary Courses of Action**

- Identify how the adversary will attempt to counter the special operations mission. Determine to what degree the adversary's likely response will include political, economic, social, or military countermeasures.

- Assess the adversary's capability to secure all identified infiltration and exfiltration routes. Determine to what degree the adversary's strengthening of internal security in one area will detract from security in a different area.

6. Rear Area Operations and Logistic Support

The JRA is designated by the JFC to facilitate protection and operation of installations and forces supporting the joint force. Threats to the JRA are divided into three categories. Level I threats include adversary controlled agents or sympathizers, terrorism, demonstrations, and civil disturbances. Level II threats include guerrilla units, unconventional forces, and small tactical units. Level III threats are conventional forces, air or missile attacks, and NBC weapons. The security of the JRA is paramount to the conduct of joint logistic operations.

For detailed guidance on rear area operations, see JP 3-10, Doctrine for Joint Rear Area Operations.

a. **Define the Battlespace Environment.** The JRA is designated by the JFC and is usually located to the rear of, but not necessarily contiguous to, the combat zone. The JRA normally does not include either adjacent sea areas that are included in a naval area of operation or the airspace above the JRA. The AOI for the JRA should include the following.

- Locations of adversary NBC delivery systems.

- Adjacent areas into which the JRA may be required to expand in order to support follow-on missions, especially areas containing required infrastructure such as ports and airfields.

- Operating areas of terrorists, insurgents, unconventional forces and organizations, and ethnic, religious, or special interest groups that may interfere with JRA or logistic operations. Since the operating area for some of these forces may not be restricted geographically, the AOI pertaining to the terrorist or unconventional threat to the JRA may be worldwide.

- Locations of adversary operational reserves capable of penetrating forward defenses and attacking the JRA.

b. **Describe the Battlespace's Effects**

- Evaluate the effects of the land environment on rear area and logistic operations. Consider factors such as:

  •• Areas vulnerable to the insertion of adversary forces, such as landing zones, drop zones, and air avenues of approach;

  •• Infiltration and exfiltration lanes and hiding locations for insurgents, light infantry, or unconventional forces; and

  •• Likely ambush locations along LOCs as well as vulnerable terrain near established or potential depot locations.

- Identify the effects of weather on infrastructure, supplies, and adversary operations.

•• Assess how rain, snow, and ice may degrade LOCs and how storms may affect port and airbase logistic throughput.

•• Estimate how temperature and humidity will affect supplies in storage.

•• Consider how periods of low visibility will facilitate adversary infiltration into, and exfiltration out of, the JRA.

•• Determine the weather effects on the adversary's employment of NBC munitions within the JRA.

- Due to the nature of rear area operations, other characteristics of the battlespace such as demographics and economic infrastructure take on added importance. Particular attention should be paid to the following.

•• Facilities and infrastructure needed to sustain future friendly offensive operations. These areas should be nominated for inclusion on the no-strike target list.

•• Individuals, groups, and equipment that might be productively employed to support logistic operations.

•• Individuals or groups that might support insurgents, terrorists, or adversary forces.

•• Local sources of water, stockpiles of supplies, transportation systems, communications infrastructure, and electrical power facilities.

c. **Evaluate the Adversary**

- Analyze the organization and procedures used by conventional forces during pursuit and exploitation operations. Pay particular attention to reserves and second echelon units that might penetrate main defenses to attack the JRA.

- Identify the means of infiltration and techniques for deep attack used by adversary air assault, airborne, and light infantry units.

- Assess the organization, methods, and procedures used by insurgents and terrorists in conducting raids and ambushes.

- Analyze adversary doctrine and capabilities to determine the types of friendly assets the adversary is most likely to target. Prioritize possible targeted assets to support the application of appropriate force protection measures.

d. **Determine Adversary Courses of Action**

- Identify likely areas where adversary ground forces are most likely to penetrate forward defenses as well as avenues of approach leading into the JRA.

- Determine likely objectives in the JRA for adversary ground forces.

- Identify friendly activities and LOCs in the JRA that the adversary is most likely to disrupt to support each adversary COA.

- Evaluate insurgent and unconventional forces COAs, to include assembly areas, hiding locations, infiltration and movement to the objective, and exfiltration.

7. Reconnaissance, Surveillance, and Target Acquisition

The objective of joint reconnaissance, surveillance, and target acquisition (RSTA)

The effectiveness of high altitude reconnaissance assets such as the U-2 are affected by adversary camouflage, concealment, and deception.

is to facilitate the JFC's awareness and understanding of the battlespace and the adversary. The adversary may attempt to counter friendly RSTA capabilities through camouflage, concealment, and deception, frequent repositioning of assets, and the selective use of air defense systems to force airborne RSTA assets to less than optimum flight profiles. JIPB support to RSTA is designed to optimize the employment of RSTA assets by identifying the times and locations of anticipated adversary activity. Additionally, RSTA collects the information required to update the joint force's JIPB products. RSTA is therefore both a consumer and provider of JIPB data. JIPB support to counter the adversary's RSTA capabilities is discussed under force protection.

For more information on RSTA, see JP 3-55, Doctrine for Reconnaissance, Surveillance, and Target Acquisition (RSTA) Support for Joint Operations.

a. **Define the Battlespace Environment.** The battlespace must encompass all dimensions of the battlespace relevant to adversary capabilities that may affect the joint force mission. In addition to the locations of all adversary military forces, the battlespace should include:

- All portions of the electromagnetic and information environments used, or projected to be used, by the adversary;
- Adversary or third-nation air defense envelopes and anti-satellite launch locations;
- Military and civilian space satellites and their associated ground control infrastructure used by, or potentially available to, the adversary; and
- Actual and potential sources of third-nation assistance to the adversary regarding friendly RSTA capabilities, schedules, and flight profiles.

b. **Describe the Battlespace's Effects**

- Identify and analyze potential deployment locations for land-, air-, and sea-based RSTA assets. Consider factors such as:

  •• Location of RSTA targets vice the range of RSTA assets;

- •• Accessibility to the RSTA site;
- •• Optical and radio line of sight from the RSTA site to adversary locations; and
- •• Defense against Level I, II, and III rear area threats.

- Locate obstacles to RSTA operations such as:
  - •• Areas with good natural camouflage and concealment;
  - •• Objects that may interfere with ground, airborne, and naval RSTA operations, such as high power transmission lines, jungle vegetation, buildings, mountains, reefs, sandbars, defensive obstacles, and barriers; and
  - •• Widespread non-adversary military, commercial, and civilian use of radio frequencies.

- Evaluate how environmental conditions will affect both friendly and adversary RSTA systems. Consider how extreme temperatures, winds, humidity, dust, cloud cover, atmospheric effects, and electromagnetic storms will affect:
  - •• Sensitive electronic equipment and antennas;
  - •• Flight operations of RSTA airborne platforms;
  - •• Line-of-sight observation for optical, infrared, millimeter wave, and other sights and sensors; and
  - •• Imagery resolution and radio frequency propagation.

c. **Evaluate the Adversary.** Analyze the standard OB factors for each adversary unit, concentrating on how the adversary will appear to friendly RSTA systems.

- Identify signatures for specific adversary units and items of equipment.
- Analyze the adversary's capability, techniques, and procedures for conducting camouflage, concealment, and deception (CCD).
- Assess the adversary's normal state of operations security (OPSEC).
- Analyze the adversary's capability to locate and destroy friendly RSTA assets.

d. **Determine Adversary Courses of Action.** Identify and analyze adversary COAs that could directly affect friendly RSTA operations, such as:

- Level I, II, and III attacks on friendly RSTA assets located in the JRA;
- Specific types of CCD operations to counter friendly RSTA; and
- Reallocation of adversary air defense units and rear area security forces to areas vulnerable to RSTA operations.

8. Force Protection

US military and civilian personnel deployed abroad are potential targets of asymmetric warfare. Force protection is a security program designed to protect Service members, civilian employees, family members, facilities, and equipment in all locations and situations, accomplished through planned and integrated application of combatting terrorism, physical security, OPSEC, and personal protective services and supported by intelligence, counterintelligence, and other security programs.

For detailed guidance on antiterrorism see JP 3-07.2, Joint Tactics, Techniques, and Procedures for Antiterrorism.

a. **Define the Battlespace Environment.** The battlespace, relative to force protection, may incorporate an area larger than that associated with conventional warfare operations. The battlespace should include the locations of adversary forces (particularly terrorist groups, unconventional forces, and NBC delivery systems), as well as the likely targets of such forces (such as military housing units, transportation networks, and rear area installations).

- Consider which terrorist or potentially hostile groups are most likely to attack friendly personnel, equipment, and assets. Determine where they are normally based, and what third countries may shelter and support them.

- Anticipate how additional missions such as a noncombatant evacuation operation (NEO) or peacekeeping operation may affect force protection.

b. **Describe the Battlespace's Effects**

- Determine the demographic issues that make protected areas or personnel attractive to terrorist groups or adversary unconventional forces.

- Assess the vulnerability of specific targets to attack. Consider both physical security issues and time constraints that might limit the availability of a target.

- Identify probable avenues of approach as well as infiltration and exfiltration routes.

c. **Evaluate the Adversary.** As discussed in the section on rear area operations and logistics, all Level I, II, and III adversary forces must be evaluated.

- Analyze the strengths and weaknesses of the adversary's RSTA capabilities against force protection-related targets. Determine the sources of the adversary's information.

The Khobar Towers in Saudia Arabia are a grim reminder of the importance of force protection.

- Assess the degree of risk the adversary is willing to take in order to attack various types of force protection targets. Determine which types of targets the adversary considers most valuable.

- Identify the goals, motivations, political or social grievances, dedication, and training of terrorist groups. Evaluate how these factors may affect target selection.

- Identify the adversary's preferred methods of attack such as bombing, kidnapping, assassination, arson, hijacking, hostage-taking, maiming, raids, seizure, sabotage, or use of NBC weapons.

- Determine how and from where the adversary receives external support.

d. **Determine Adversary Courses of Action**

- Identify the adversary's most likely targets by matching friendly vulnerabilities against adversary capabilities, objectives, and risk acceptance.

- Assess the status of specific types of support activities that may indicate the adoption of a specific COA.

- Identify possible infiltration routes, assembly areas, and surveillance locations near each of the adversary's likely objectives.

9. Civil-Military Operations

Civil-military operations (CMO) are the activities of a commander that establish, maintain, influence, or exploit relationships between military forces and civil authorities, both governmental and nongovernmental, and the civilian populace in a friendly, neutral, or hostile operational area to facilitate military operations and consolidate operational objectives. CMO may include activities and functions normally the responsibility of the local government. These activities may occur prior to, during, or subsequent to military actions. They may also occur, if directed, in the absence of other military operations. Effectively executed CMO are capable of countering potential asymmetric threats, such as attempts by the adversary to incite hostility toward friendly forces, or to use crowds, demonstrations, or refugees to hinder friendly military operations. JIPB support to CMO focuses on many of the factors discussed under force protection and rear area operations and logistics.

For detailed guidance on civil-military operations, see JP 3-57, Doctrine for Joint Civil-Military Operations (CMO).

a. **Define the Battlespace Environment.** The authority to conduct CMO activities or exercise controls in a given area or country may arise as a result of successful military operations, international cooperative agreement, or from an agreement between the US Government and the government of the area or country in which US and friendly forces may be employed. When defining the battlespace environment, consider factors such as the following.

- Military, paramilitary, governmental, and nongovernmental organizations that may interact with the friendly force.

- The extent to which international law constrains CMO activities both during and after hostilities.

- Sources of food and water, pattern of population distribution, and locations of critical infrastructure.

Civil-military operations must anticipate asymmetric strategies, such as the exploitation of crowds to provoke a reaction from friendly forces.

- The existence of severe weather patterns, terrorists, gangs, paramilitary groups, or adversary stay-behind forces.

- The attitudes of the population toward US and friendly forces and toward civil government in general.

b. **Describe the Battlespace's Effects**

- Determine how military operations will affect the distribution of the population and critical resources.

  •• Project how the loss of infrastructure (such as transportation nodes, electrical power generation facilities, housing, and food distribution) will affect the civil population.

  •• Estimate where and when military action is likely to result in an influx of displaced persons and refugees.

- Assess how the attitudes, values, and motivations of the civil populace will facilitate or constrain CMO activities. For example, nationalism or religious beliefs may cause the population to resent or resist certain types of CMO activities.

- Analyze the attitude of the local populace toward the existing or pre-hostilities civil government. Assess how this may affect CMO activities conducted through or in conjunction with local civil officials.

- Survey the extent of damage to local infrastructure, estimate the level of infrastructure capacity required to support the populace (including additional refugees), and determine if local sources of repair materials are sufficient.

c. **Evaluate the Adversary.** The term "adversary" used in CMO must be understood to mean players (groups or individuals) that may interact with the joint force and could hamper mission accomplishment.

- Identify the motivations, TTP, and areas controlled or influenced by unofficial

groups such as religious, ethnic, or political factions, paramilitary forces, gangs, and terrorists.

- Estimate how and where the weather and environment might threaten the CMO mission. For example, drought may exacerbate food shortages, while flooding may increase the number of refugees and create shortages of shelter. Consider factors such as the potential for disease, water contamination, and food spoilage.

- Analyze and evaluate the adversary's capability to conduct IO affecting friendly CMO operations.

d. **Determine Adversary Courses of Action**

- Postulate how the civil populace is likely to respond to various types of CMO activities, and how the adversary may attempt to leverage or exploit such responses. For example, the adversary may attempt to conduct PSYOP operations against a vaccination program or try to gain control over food distribution centers.

- Determine how the population could be prepared for various CMO programs that might otherwise face resistance, and how the adversary might counter such preparations.

- Consider the effect that the adversary's perception of friendly forces may have on COA selection. If friendly forces appear overwhelmingly powerful, non-confrontational COAs may be preferred, whereas the appearance of weakness may invite the adversary to pursue higher risk COAs.

- Identify likely targets of looting, vandalism, or rioting.

10. Counterair Operations

Counterair operations provide force protection and establish air superiority through the destruction or neutralization of adversary forces. Counterair operations focus on the threats posed by manned and unmanned aircraft, theater ballistic missiles, and cruise missiles.

For additional guidance, see JP 3-01, Joint Doctrine for Countering Air and Missile Threats, *and JP 3-01.5,* Doctrine for Joint Theater Missile Defense.

a. **Define the Battlespace Environment.** The battlespace for counterair operations should incorporate portions of the air, land, maritime, and space dimensions. Consider factors such as the following.

- Areas likely to be targeted by adversary aircraft or theater ballistic or cruise missiles.

- Theater ballistic and cruise missile targets, launch locations, potential hide sites, forward operating locations, related locations, garrison locations, and associated infrastructure.

- Locations of friendly and adversary operational and potentially operational airfields.

- Range characteristics and flight profiles of adversary aircraft as well as theater ballistic and cruise missiles.

- Locations of potential landing zones and drop zones.

- Bases, normal operating areas, and ranges of adversary SLCM-capable naval forces.

b. **Describe the Battlespace's Effects**

- Determine the locations of targets within range of specific adversary missile launch sites or airfields. Analyze the geography between the target and adversary base to determine potential missile trajectories and air avenues of approach for aircraft.

- Identify areas for likely standoff attack orbits, SLCM launch locations, and aircraft carrier operating areas.

- Determine optimal times on target based on weather patterns, adversary launch and attack cycles, and light data.

- Determine line of sight from friendly air defense systems and radar.

c. **Evaluate the Adversary**

- Assess the adversary's flight operations tactics, ordnance delivery techniques, and target selection priorities.

- Consider the adversary's demonstrated capabilities, level of training and readiness status, operational cycles, and C2 regime, as well as actual equipment and hardware capabilities.

- Evaluate the threat to friendly air defense systems, to include adversary artillery, unconventional forces, and electronic warfare assets.

- Determine the adversary's requirements for air and missile base infrastructure, navigation aids, and C4 support equipment.

- Analyze the availability and quantity of specific types of ordnance and associated launch platforms.

d. **Determine Adversary Courses of Action.** Although the employment flexibility of mobile missiles and modern aircraft make the determination of specific air COAs difficult, the JIPB analyst should postulate how air operations will support the adversary's joint campaign. Consider factors such as:

- Likely timing of air and missile strikes or airborne operations;

EF-111A Raven pilots receive an intelligence brief prior to NATO airstrikes against the Bosnian Serbs.

- Likely targets, objectives, air corridors, and air avenues of approach;
- Occupation or preparation of forward air bases;
- Strike package composition, flight profiles, distance between platforms and/or weapons, and time intervals between strikes; and
- Friendly air defense locations and coverage, and their likely effect on adversary air operations.

CHAPTER V
JIPB SUPPORT TO MILITARY OPERATIONS OTHER THAN WAR

"…the [United States] must prepare to face a wider range of threats, emerging unpredictably, employing varying combinations of technology, and challenging us at varying levels of intensity."

Joint Vision 2010

1. Introduction

MOOTW can occur unilaterally or in conjunction with other military operations. It is possible that US forces could be involved in MOOTW while the host nation is at war, or in MOOTW that can evolve to war. MOOTW include the 16 types of operations described in JP 3-07, *Joint Doctrine for Military Operations Other Than War* (see Figure V-1).

a. **JIPB support to MOOTW must facilitate parallel planning by all strategic, operational, and tactical units involved in the operation.** JIPB products developed to support strategic level planning should also be simultaneously disseminated to all appropriate operational and tactical headquarters. This is especially true during initial planning periods when headquarters at intermediate echelons may tend to filter information as it travels down to tactical units.

b. Regardless of the specific type of operation, JIPB must support the six principles applicable to joint MOOTW shown in Figure V-2.

2. MOOTW and the JIPB Process

The primary difference between JIPB for conventional war and MOOTW is one of focus; particularly in the high level of detail required, and the strong emphasis placed on demographic analysis, to support

Peacekeeping operations such as the NATO presence in Kosovo require highly detailed, demographically oriented JIPB products.

TYPES OF MILITARY OPERATIONS OTHER THAN WAR

- Arms Control
- Combatting Terrorism
- Department of Defense Support to Counterdrug Operations
- Enforcement of Sanctions and Maritime Intercept Operations
- Enforcing Exclusion Zones
- Ensuring Freedom of Navigation and Overflight
- Foreign Humanitarian Assistance
- Domestic Support Operations
- Nation Assistance and Support to Counterinsurgency
- Noncombatant Evacuation Operations
- Peace Operations
- Protection of Shipping
- Recovery Operations
- Show of Force Operations
- Strikes and Raids
- Support to Insurgency

Figure V-1. Types of Military Operations Other Than War

THE NEED FOR JIPB TO SUPPORT PARALLEL PLANNING

Parallel planning implies concurrent planning and simultaneous coordination among planners from the strategic to the tactical levels. [During Operation RESTORE HOPE], early parallel planning . . . would have provided access to the strategic aspects of intelligence related to preparation of the battlefield. The information needed by subordinate commanders includes more than classical intelligence data. The operational commander needs a synthesis of data from all . . . operating systems for his own use and for analysis by the planning staff. This information should not be filtered out between headquarters. It should be flashed to the operational and tactical headquarters simultaneously to facilitate detailed planning at all levels.

SOURCE: MG S.L. Arnold, USA, Commander 10th Mountain Division, ARFOR Commander during Operation HURRICANE ANDREW and Operation RESTORE HOPE, *PARAMETERS*, Winter 93-94.

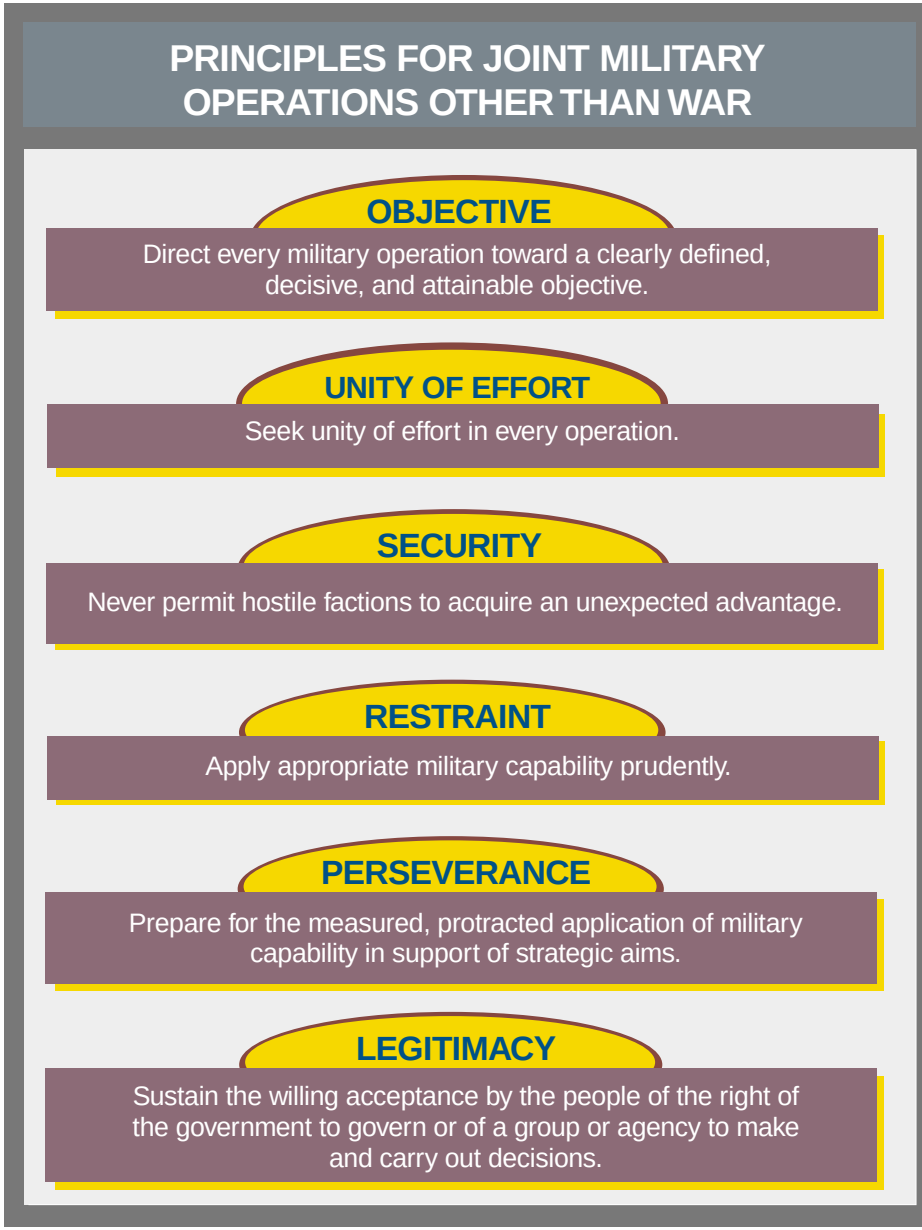


Figure V-2. Principles for Joint Military Operations Other Than War

MOOTW operational planning. Limited objectives, and a sometimes less-than-explicit tie to national interests, may intensify political pressures to minimize casualties and collateral damage. **The primary purpose of JIPB support to MOOTW is to heighten the JFC's awareness of the battlespace and threats the joint force is most likely to encounter.** Because a single set of JIPB products does not necessarily apply to all 16 types of MOOTW, it is important that the analyst understand the intent of each step in the JIPB process. This understanding will allow the analyst to modify or adapt the JIPB

process, as necessary, to each unique MOOTW situation and to create new and innovative types of JIPB products.

a. **Define the Battlespace Environment.** The joint battlespace includes the operational areas and AOIs designated for each MOOTW in which the joint force is participating. JIPB support to MOOTW is both dynamic and challenging because a joint force may participate in several MOOTW simultaneously, yet the battlespace environment and situation can be significantly different for each type of MOOTW. The amount of time available to the JIPB analyst for pre-deployment planning is usually critically short, due to the unanticipated nature of many MOOTW. The following are some critical planning factors that should be considered during this step in the JIPB process.

- GI&S support assumes increased importance in JIPB support to MOOTW. It is essential that geospatial softcopy and/or hardcopy support is coordinated in advance between the joint force, national agencies, component commands, and allied and host nation forces in order to form a common point of reference and framework for IPB and JIPB analysis. The accuracy and scale of foreign maps and charts may vary widely from US products. Additionally, release of US geospatial and JIPB products and information may require foreign disclosure approval. While joint operations graphics are often used as the standard scale for joint plans and operations, the nature of MOOTW requires extremely precise and accurate geospatial products and information capable of reflecting significantly different levels of geospatial detail. It is incumbent upon mapping agencies, including NIMA, to produce this required level of detail. The JFC must ensure that all subordinate commands participating in the MOOTW utilize the same geospatial products and that they are compatible with JIPB products developed by the joint force J-2. The joint force GI&S staff officer will assist all units and activities participating in the MOOTW to acquire all geospatial products prescribed by the JFC.

THE CHALLENGE OF MAPPING THE NEW WORLD DISORDER

Imagine cartography in three dimensions, as if in a hologram. In this hologram would be the overlapping sediments of group and other identities atop the merely two-dimensional color markings of city-states and the remaining nations, themselves confused in places by shadowy tentacles, hovering overhead, indicating the power of drug cartels, mafias, and private security agencies. Instead of borders, there would be moving "centers" of power, as in the Middle Ages. Many of these layers would be in motion. Replacing fixed and abrupt lines on a flat space would be a shifting pattern of buffer entities . . . To this protean cartographic hologram one must add other factors, such as migrations of populations, explosions of birth rates, vectors of disease. Henceforward the map of the world will never be static. This future map — in a sense, the "Last Map" — will be an ever-mutating representation of chaos.

SOURCE: Robert D. Kaplan, "The Coming Anarchy," *The Atlantic Monthly*, Feb 1994

- **In MOOTW conducted outside the United States, HUMINT may provide the most useful source of information.** However, a HUMINT infrastructure may not be in place when US forces initially arrive. Appropriate liaison channels need to be established as quickly as possible with allies, coalition partners, and appropriate elements within the host nation while HUMINT operations are established. This will require early planning and release authority for exchanging intelligence with the host nation and other coalition partners. Operational circumstances may also require insertion of HUMINT personnel into the operational area ahead of a joint force. HUMINT can provide route reconnaissance, ground truth reporting, and enabling support for other intelligence disciplines such as MASINT, SIGINT, and imagery intelligence (IMINT), which are typically relied upon to produce JIPB overlays and template products. In addition, HUMINT and counterintelligence (CI) operations provide information on foreign intelligence services and terrorist activities in the operational area that allow CI assets to identify, exploit, or neutralize an adversary's capabilities and initiative.

- Significant characteristics of the battlespace which will influence friendly and adversary operations during MOOTW include geography, weather, infrastructures, local economic and health conditions, demographic (political, religious, and ethnic) factors, and the effectiveness of the host nation government, military forces, and law enforcement agencies. **Also critical are ROE, which may be more complex than during wartime due to the more restrictive nature of MOOTW.** An adversary may choose to adopt a COA specifically designed to exploit the ROE restrictions placed on US and allied forces.

- The following additional considerations are common to most MOOTW and may be used to help define the battlespace environment.

  •• **Include in the AOI all potential sources of outside influence on the friendly operation.** Consider factors such as nongovernmental, private voluntary, and international political interest groups and organizations, the media, and third-nation support.

  •• **Identify the legal parameters that bind the activities of the host nation, adversary nation or group, and US forces in the region.** This includes treaties, domestic and international law, status-of-forces agreements, and ROE restrictions. Because of the rapidly changing nature of law and the importance of strict compliance with ROE, legal assistance is necessary to identify legal restrictions and should be sought from the judge advocate or legal staff servicing the joint force.

  •• **Identify the best and worse case timelines for the operation.**

  •• **Review the recent history of the situation** to fully identify the scope of the problem which precipitated the introduction of US forces, and how a continuation of the situation could impact the presence of US forces.

  •• **Identify the pertinent demographic and economic issues**, including living conditions, religious beliefs, cultural distinctions, allocation of wealth, political grievances, social status, or political affiliations.

  •• **Identify the general characteristics and capabilities of all potential threats.** This should include natural (disease, environmental hazards) and manmade

(criminal activity, riots, insurgency) threats.

b. **Describe the Battlespace's Effects.** As in the JIPB process supporting conventional warfare, the battlespace must be analyzed during MOOTW to determine what effect the environment may have on friendly and adversary capabilities and COAs. JIPB analysis requires fused, all-source intelligence.

- **Intelligence collection and analysis to support MOOTW requires a greater focus on demographics and infrastructure than is usually the case with conventional warfare.** MOOTW support must often address unique and subtle problems not always encountered in war. Population distribution patterns, ethnic divisions, religious beliefs, language divisions, tribe and clan loyalties, health hazards, and political sympathies must all be considered for their effects on MOOTW. Likewise, logistic and service infrastructures such as road and rail networks, sources of food and water, telecommunications, oil and gas, electric power, housing, hospitals, sewer services, law enforcement, and other emergency services must all be considered for their effects on MOOTW.

- **The following factors are common to most MOOTW and should be considered when describing the battlespace's effects.**

  •• Determine the present and potential extent of the problem.

  •• Evaluate all air, sea, and land avenues of approach and withdrawal for both friendly and adversary forces. All MOOTW involve the entry and exit of US forces from the operational area and therefore must have clearly defined routes.

  •• Determine the effect of terrain and weather.

  •• Determine the effect of demographic changes.

  •• Assess the effect of the infrastructure or the lack thereof.

c. **Evaluate the Adversary. In MOOTW, the adversary could be greatly different from the adversary normally associated with wartime operations.** Often these adversaries are not willing to commit to decisive engagements, and often deliberately attempt to avoid force-on-force confrontations with military and paramilitary forces. **Additionally, in some MOOTW the term "adversary" must be broadly applied to include organizations, groups, decision makers, or even physical factors that can delay, degrade, or prevent the joint force from accomplishing its mission. In some cases, the analysis of the adversary will actually focus on a problem situation facing the JFC, such as a flood or a civil disturbance.** Given these circumstances, the analysis of the adversary or problem situation may be highly complex, while at the same time intelligence collection may be subject to US or international legal constraints. Conducting analysis of an adversary or problem situation during MOOTW may require coordination with civil authorities, law enforcement and numerous governmental organizations, nongovernmental organizations (NGOs), private voluntary organizations (PVOs), and regional and international organizations. Where long-term problems precede a deepening crisis, NGOs and PVOs are frequently on the scene before US forces and are willing to operate in high-risk areas. The activities and capabilities of NGOs and PVOs must be factored into the JFC's assessment of conditions and resources because their extensive involvement, local contacts, and experience in various nations make them

valuable sources of information about local and regional governments as well as civilian attitudes toward the operation.

See JP 3-08, Interagency Coordination During Joint Operations, *for detailed guidance on the interagency process.*

- **Updating or Creating Adversary Models for MOOTW.** An adversary model based on historical operating patterns forms the basis of a doctrinal template, which depicts how the adversary operates when unconstrained by the effects of the environment. When facing a well-known adversary, the joint force J-2 can rely on historical data bases and well-developed models. When operating against a new or less well-known adversary, as is likely in MOOTW, intelligence data bases and adversary models may need to be developed concurrently.

- **Identifying Adversary Capabilities.** In MOOTW, the JFC will initially have limited or incomplete intelligence on adversary capabilities. MOOTW are difficult to plan for in advance because they are difficult to predict and are usually not covered in an existing OPLAN. As such, the JFC will rely heavily on outside agencies and on allied and host-nation support to acquire the necessary information and to fill the intelligence gaps regarding adversary capabilities. HUMINT will be the primary intelligence discipline in most MOOTW operations, providing the most useful source of information on adversary capabilities.

- **The following factors are common to most MOOTW and should be considered when evaluating the adversary.**

  •• **Determine the OB of the adversary.** This is necessary in order to know and understand the potential capabilities of the adversary.

  •• **Study the psychology of all key decision makers.** Establish a profile based on past actions.

  •• **Know the adversary's doctrine.** This will assist the JFC in assessing how adversary capabilities will be employed.

  •• **Identify all factions involved in the operation.** This is necessary to minimize surprise.

  •• **Identify the root causes that influence the situation.** This is necessary to understanding what motivates the adversary.

  •• **Identify HVTs in the operational area.** Identify the COGs from which the adversary derives freedom of action, physical strength, or will to fight.

d. **Determine Adversary COAs.** Step four in the JIPB process integrates the results of the previous steps into a product to assist in identifying the adversary's most probable COA. It begins by defining the likely adversary objectives and developing adversary COAs. All COAs must be considered. **In MOOTW, this is the culminating step of a risk management process which aids the commander in making threat-appropriate, cost-effective, and rational decisions to meet friendly objectives and thereby accomplish the mission without being surprised by an unanticipated adversary action.** MOOTW JIPB analysis uses the same procedures and tools (situation templates, event templates, and event matrices) that are used to support COA analysis for joint campaign planning.

- **MOOTW situation templates** are graphic depictions of expected adversary dispositions should they adopt a particular COA. They usually depict the most critical point in the operation.

  •• To construct a MOOTW situation template, overlay the doctrinal template that was produced in step three on the environmental effects templates developed in step two. The adversary is then adjusted on the doctrinal template to allow for the effects of the environment.

  •• Due to the potential complexity of MOOTW, some situation templates may be more suited to presentation in a matrix format. Figure V-3 illustrates a situation template in matrix format that shows one adversary COA for an ambush against a friendly resupply convoy during a foreign humanitarian affairs (FHA) MOOTW.

- **MOOTW event templates** are guides for intelligence collection and reconnaissance and surveillance planning. They depict where information can be collected that may indicate the COA that the adversary is most likely to have adopted.

- **The following factors should be considered when determining adversary COAs relative to MOOTW.**

  •• Determine the adversary's capabilities to interfere with the joint mission or threaten the joint force.

  •• Determine the assets that the adversary is likely to use.

  •• Identify the adversary's likely objectives and desired end state.

SITUATION MATRIX FOR CONVOY SECURITY

	H-20 min	H-15 min	H-10 min	H-8 min	H-5 min	H-2 min
POINT #1	EW PACKAGE	ADA PACKAGE	STRIKE PACKAGE	AIR RECON PACKAGE		
POINT #2		EW PACKAGE	ADA PACKAGE	STRIKE PACKAGE	AIR RECON PACKAGE	
POINT #3			EW PACKAGE	ADA PACKAGE	STRIKE PACKAGE	AIR RECON PACKAGE
POINT #4				EW PACKAGE	ADA PACKAGE	STRIKE PACKAGE

EW	Early warning
ADA	Air defense artillery
RECON	Reconnaissance

Figure V-3. Situation Matrix for Convoy Security

Intelligence staff officers discuss current activity in the former Yugoslav Republic of Macedonia.

•• Template the likely time lines for the adversary to attain the desired goal or objective.

•• Identify the full set of COAs available to the adversary.

•• Evaluate and prioritize each COA.

•• Develop each COA to the maximum extent possible.

•• Identify information gaps and collection requirements.

•• Analyze the adversary's doctrine or how they traditionally operate.

•• Identify the adversary's COAs in reaction to the US-stated and perceived MOOTW mission and published ROE that could significantly influence the command's mission. Determine the worse case scenario.

•• Determine the adversary's COAs indicated by the most recent historical events and actions.

3. JIPB Support to Specific MOOTW

The development of JIPB products to support specific MOOTW requires flexibility, innovation, and a detailed understanding of each type of operation. In addition to the JIPB products already discussed in Chapter II, "The JIPB Process," and Chapter III, "JIPB Support to Decision Making," MOOTW-related JIPB products may include air defense overlays in support of joint air operations; obstacle overlays in support of amphibious operations; and demographic and infrastructure-related overlays in support of urban operations. Overlays that depict religious, political, social, and economic factors have also proven to be extremely valuable to MOOTW planning, and should be constructed as early as possible. Additionally, areas where disease is prevalent or environmental contamination exists should also be the subject for JIPB analysis. JIPB products developed to support MOOTW might include **but are not limited to** those shown in Figure V-4. The examples of JIPB products depicted as part of the following discussions of specific MOOTW

JIPB PRODUCTS THAT CAN SUPPORT MILITARY OPERATIONS OTHER THAN WAR

- Activities matrix
- Air defense overlay
- Association matrix
- Course of action overlay or matrix
- Cover and concealment overlay
- Doctrinal template
- Event template and matrix
- Infrastructure overlay
- Critical asset overlay
- Landing zone overlay
- Legal status overlay
- Line of sight overlay
- Lines of communications overlay
- Logistics sustainability overlay
- Mobile missile deployment area overlay
- Nuclear, biological, and chemical overlay
- Pattern analysis plot sheet
- Population status overlay
- Primary and secondary route overlay
- Psychological profile
- Quarantine overlay
- Shallow water and coastal beach overlay
- Situation template
- Target overlay
- Time event chart
- Weather effects matrix

Figure V-4. JIPB Products That Can Support Military Operations Other Than War

may be modified, as appropriate, to support several different types of MOOTW.

a. **Arms Control**

- The main purpose of arms control is to enhance national security. While it is frequently viewed as a diplomatic mission, US forces may play a vital role in verifying an arms control treaty; seizing WMD; escorting authorized deliveries of weapons and other materials to preclude loss or unauthorized use of these assets; or dismantling or destroying weapons with or without the consent of the host nation.

- **Arms control governs any aspect of the following:** the numbers, types, and performance characteristics of weapon systems (including the C2, logistic support arrangements, and any related intelligence gathering mechanism); and the numerical strength, organization, equipment, deployment or employment of the armed forces retained by the parties.

- Though not a comprehensive list, the following types of JIPB products may be useful for arms control support.

  •• **Primary and Secondary Route Overlay.** This overlay may be used to show planned and potential routes for escorting the movement of US and foreign WMD and their delivery means. These weapons can theoretically be transported by road, rail, air, sea, or a combination thereof. Transportation planning may include primary and alternate route overlays in addition to overlays depicting the locations of emergency facilities that can react to unexpected circumstances (see Figure V-5).

  •• **Psychological Profiles.** A key to successful arms control negotiations is understanding how each party to the negotiations thinks and operates. Important factors influencing arms control decision makers include their personalities, culture, instructions, doctrine and strategy, patterns of behavior, and historical approach to similar negotiations. In addition to open-source intelligence research, the profiles can be fleshed out through intelligence derived from SIGINT and HUMINT.

  •• **Mobile Missile Deployment Area Overlay.** This type of overlay depicts the locations of treaty limited strategic assets, such as rail-mobile missile launchers in garrison, and restricted areas for road-mobile missile launchers, as well as the proximity to logistic support, rail transfer points, and weapon storage areas.

  •• **Pattern Analysis Plot Sheet.** This type of product is useful to arms control for such things as graphically depicting when and how frequently a party deploys its forces in a major strategic exercise. This product could facilitate achieving an objective in a negotiation by ensuring that US negotiators are aware of the other party's current practices.

  •• **Association Matrix.** This type of matrix can be used to show the relationship of companies to capabilities and products, such as the relationships between solid rocket motor manufacturers and the production of the first stage of a strategic missile.

  •• **Quarantine Overlay.** This type of overlay would be useful in depicting the potential locations on each base subject

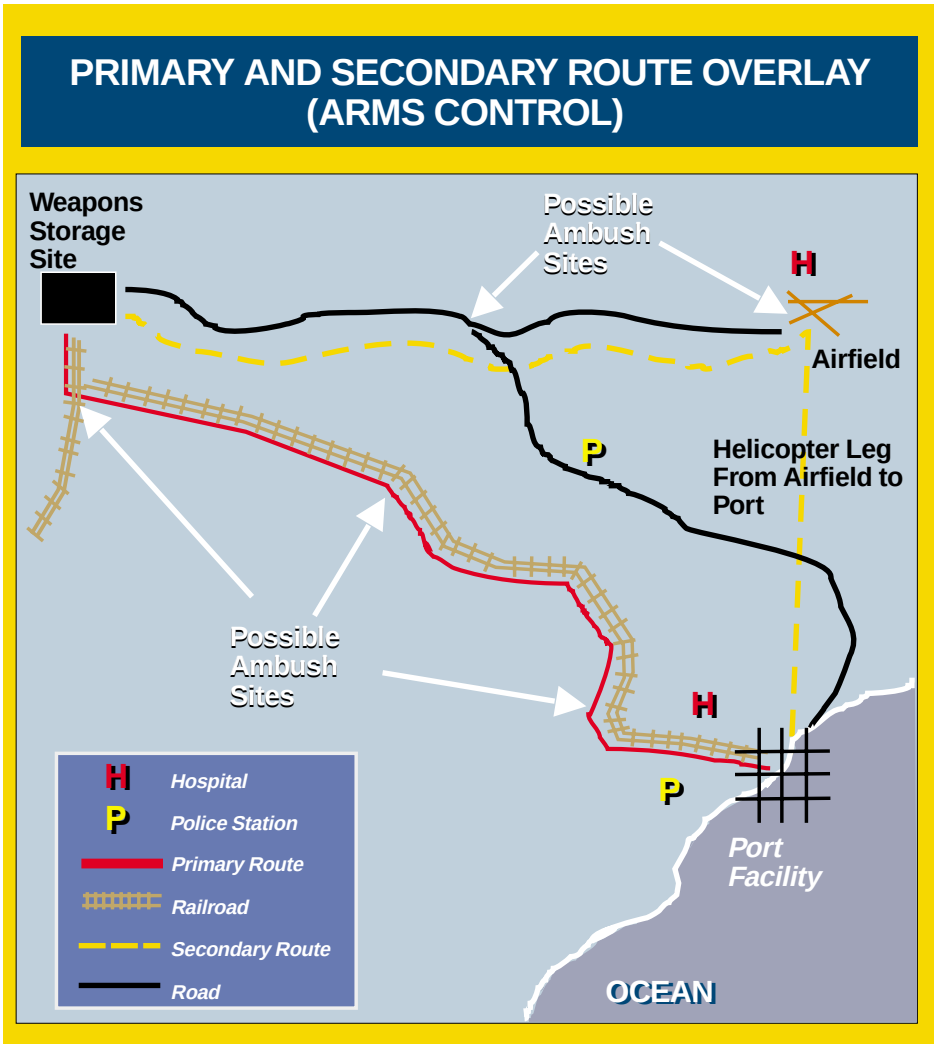


Figure V-5. Primary and Secondary Route Overlay (Arms Control)

to movement restrictions (quarantine) prior to and during on-site inspections. For example, a depiction of areas to be inspected overlaid on a base and/or facility map would highlight all entrances and exits to the inspection area. Arms control inspectors and intelligence collection assets could focus on exit points to prevent or observe any unauthorized removal of materials prior to, or during, an inspection.

•• **Course of Action Matrix.** This product would be useful to describe and compare possible negotiating responses that a party may make to a US arms control proposal.

b. **Combatting Terrorism**

- Combatting terrorism has two major subcomponents: antiterrorism (defensive) and counterterrorism

(offensive). During peacetime, US forces combat terrorism primarily through antiterrorism (passive defense measures taken to minimize vulnerability to terrorism). Antiterrorism contributes to force protection and is thus the responsibility of the JFC at all levels. Antiterrorism complements counterterrorism, which is the full range of offensive measures taken to prevent, deter, and respond to terrorism.

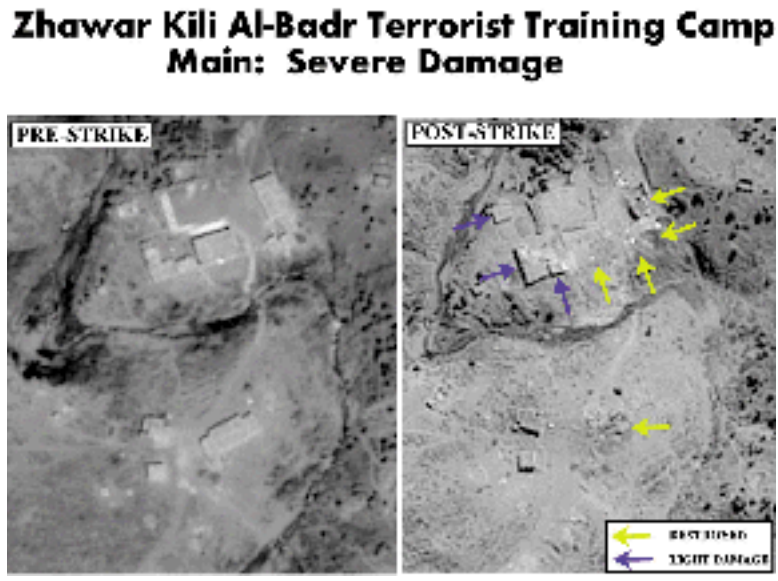
See JP 3-07.2, Joint Tactics, Techniques, and Procedures for Antiterrorism, *for detailed guidance.*

- Possible JIPB products developed for this MOOTW include the following.

  •• **Critical Asset Overlay.** This overlay identifies those assets which the JFC has determined to be critical in the operational area. By identifying critical assets in combination with the known capabilities and intentions of indigenous terrorist groups, the JFC can employ security countermeasures in an appropriate, cost-effective, and rational manner. **The identification of critical assets is a crucial and necessary part of risk management decisions by the JFC** (see Figure V-6).

  •• **Psychological Profiles.** Countering terrorism relies heavily on HUMINT collection. Most terrorist groups involve small cells of people. The methods of operation of these groups can be profiled or templated based on previous terrorist actions, the personalities of the terrorist leaders, or published statements by the terrorist group.

  •• **Pattern Analysis Plot Sheets.** A time-pattern analysis can be used in JIPB to determine the periods of highest threat. Knowing the times of highest threat allows the JFC to plan critical stages in the operation, such as the movement of noncombatants, for low-threat periods. Figure V-7 is an example of a pattern analysis plot sheet covering a 24-hour period during the course of a week.



Zhawar Kili Al-Badr Terrorist Training Camp

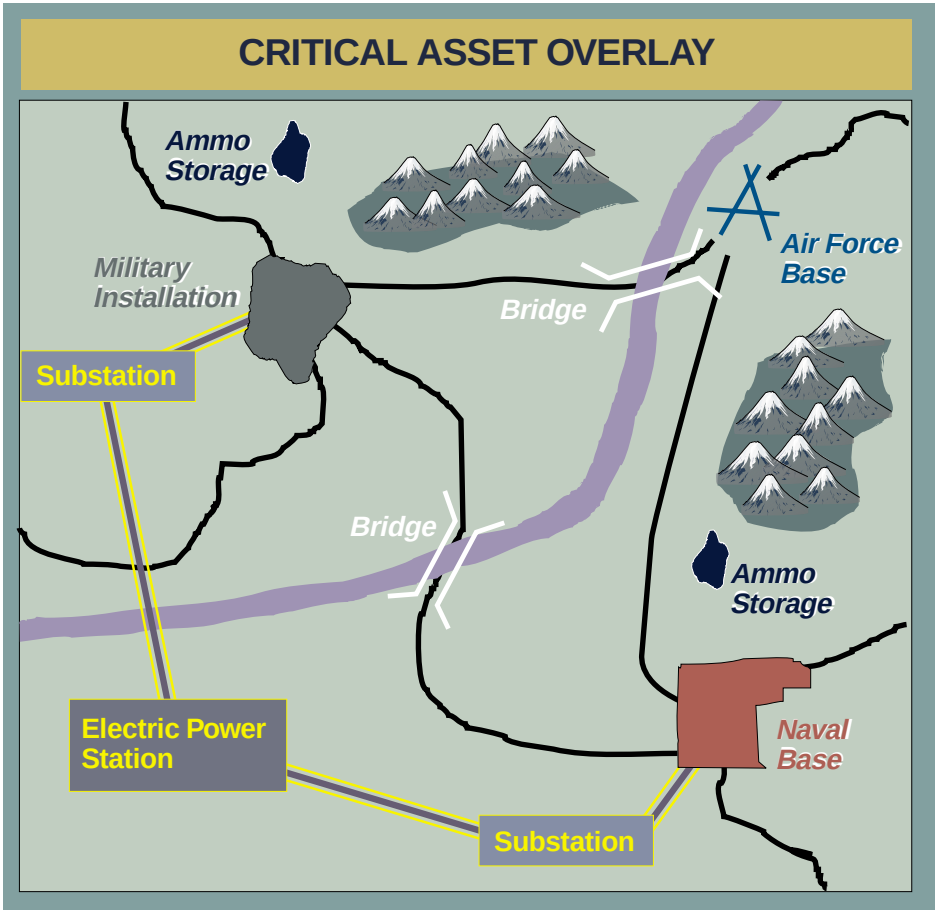


Figure V-6. Critical Asset Overlay

c. **Department of Defense Support to Counterdrug Operations**

- JIPB is ideally suited to support counterdrug operations. Military efforts support and complement rather than replace the counterdrug efforts of other US agencies, state and local governments, and cooperating foreign governments. Military support can occur in any or all phases of a combined and synchronized effort to attack the flow of illegal drugs at the source, in transit, and during distribution. Military participation in counterdrug operations will normally be in support of law enforcement agencies or US ambassadors overseas.

  See JP 3-07.4, Joint Counterdrug Operations, *for detailed guidance.*

- Support to host nations includes assistance to their forces to destroy drug production facilities, collaboration with host nation armed forces to prevent export of illegal drugs, and nation assistance to help develop economic alternatives to drug-related activities. JIPB support to counterdrug operations may include products depicting the drug production cycle and smuggling

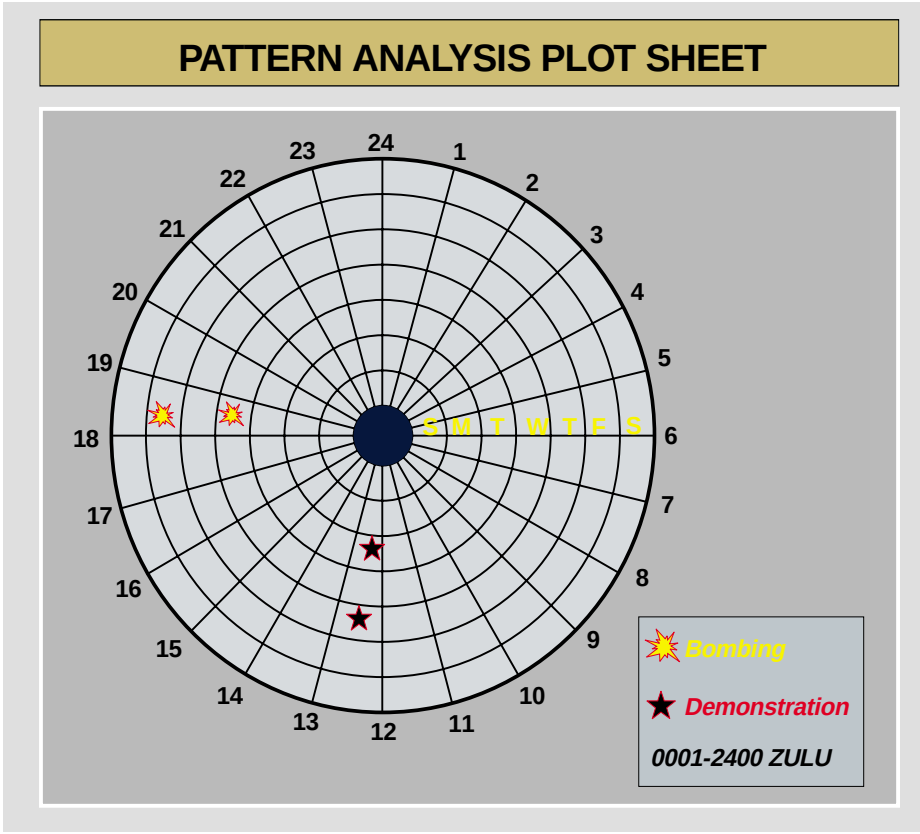


Figure V-7. Pattern Analysis Plot Sheet

networks, agricultural areas suitable for opium and other drug-related crops, suspected and confirmed locations of drug processing laboratories, and drug transportation routes. An example of a drug infrastructure overlay is shown at Figure V-8.

- Support for domestic counterdrug operations includes military planning and training assistance for domestic law enforcement agencies, participation by the National Guard and Reserves, equipment loans and transfers, use of military facilities, and other assistance as requested and authorized. **The US military is also the lead agency for detecting and monitoring aerial and maritime transit of illegal drugs into the United States, and integrates the command, control, communications, and intelligence assets of the United States to provide support to the interdiction of illegal drugs.**

d. **Enforcement of Sanctions and Maritime Intercept Operations**. Sanctions enforcement and maritime intercept operations are often used to meet national security policy goals. JIPB can assist JFCs by identifying the most likely routes and speed used by sanctions violators so US forces can be better positioned for intercept (see Figure V-9).

e. **Enforcing Exclusion Zones.** Exclusion zones are established by belligerents to contain the geographic area of a conflict or to keep neutral parties at a safe distance from areas of actual or potential hostilities. They may be used to reduce neutrals' exposure to collateral damage and incidental injury, and are lawful so long as they do not unreasonably interfere with legitimate neutral commerce. JIPB support to exclusion zone enforcement must analyze the capabilities, vulnerabilities, and deployments of all military forces that may attempt to violate the exclusion zone. The JIPB analyst should also consider the economic, social, and political effects of the exclusion zone on both the belligerents and neutrals when determining potential adversary COAs. Figure V-10 is an example of a COA matrix depicting the capabilities and vulnerabilities of an adversary force relative to various COAs for interfering with an exclusion zone.

f. **Ensuring Freedom of Navigation and Overflight.** These operations are conducted to demonstrate US or international rights to navigate sea or air routes. Freedom of navigation and overflight are sovereign rights established and preserved by international law. Because some nations will impose limitations to navigation and overflight outside the norms established and recognized by international law, a JFC may be tasked to challenge excessive claims. JIPB products supporting freedom of navigation and overflight must depict the exact limits of the adversary's territorial claims, and should identify all potential adversary reactions to US operations in contested areas. The JIPB analyst should concentrate on details

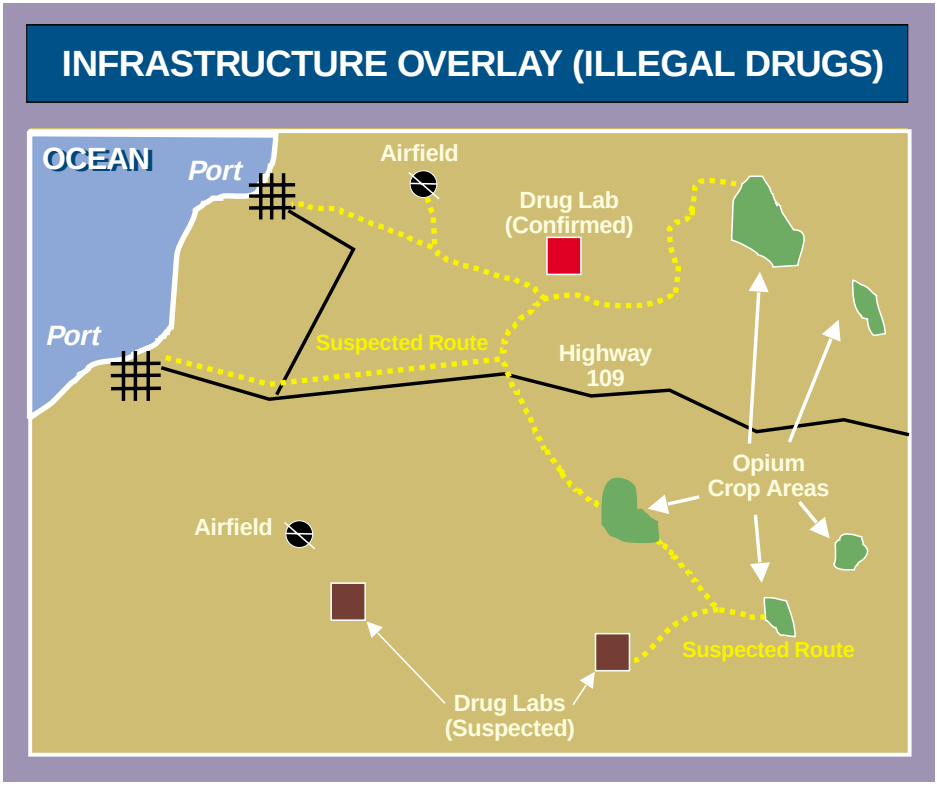


Figure V-8. Infrastructure Overlay (Illegal Drugs)

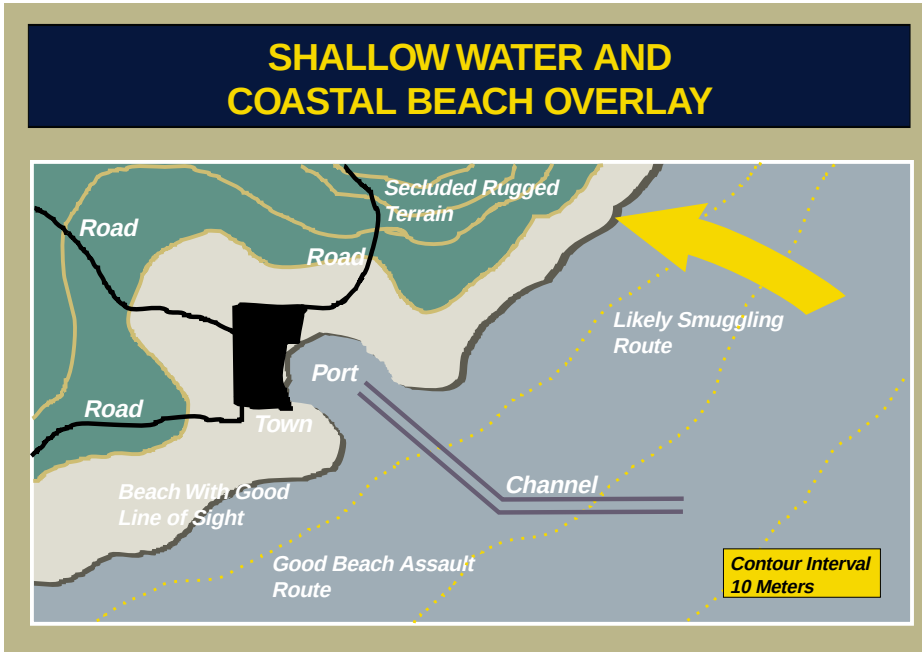


Figure V-9. Shallow Water and Coastal Beach Overlay

COURSE OF ACTION MATRIX

Adversary Counter Exclusion Zone COAs

Course of Action (COA) / ADVERSARY COMPONENT	Blockade	Small Raids	Support Insurgency	Nuclear, Biological, and Chemical Attack	Full Military Incursion
Ground Force	Requires cooperation of country B	No air insertion capability	5th SOF Brigade available	Good capability	70% of force immediately available
Air Force	Reconnaissance support only	No air insertion capability	10 air resupply sorties in North only	No air delivery capability	Requires air support from country C
Naval Force	Insufficient combatants available	Good capability	Good capability	No capability	Insufficient combatants available
Nuclear, Biological, and Chemical Units	Poor capability	Poor capability	Poor capability	Excellent capability	Good capability
Special Operations Forces (SOF)	Poor capability	Good capability	Excellent capability	No capability	Good capability

Figure V-10. Course of Action Matrix

regarding adversary counterair capabilities, air and naval force reaction times, likely intercept routes, and potential engagement areas.

g. **Foreign Humanitarian Assistance.** FHA operations provide emergency relief to victims of either natural or manmade disasters or endemic conditions, when initiated in response to foreign government or international agency requests for immediate help and rehabilitation. JIPB support to FHA should consider factors such as current and potential sources of food and clean water, availability of medical resources (e.g., hospitals, trained medical personnel, pharmaceuticals), locations of available temporary shelter, the status of local police and security personnel, and the locations of areas quarantined for medical or security reasons (see Figure V-11). The following examples illustrate the importance of JIPB support, as well as the difficulty of providing JIPB support, to this type of MOOTW.

- **Operation PROVIDE COMFORT** is an example of humanitarian assistance in a contingency environment. Both IMINT and HUMINT were extensively employed to identify refugee locations, and the best available zones for food and assistance packages to be airdropped. IMINT also provided data on tent requirements for the refugees. Finally, JIPB was specifically employed to identify safer locations for the refugee sites. JIPB analysts also helped

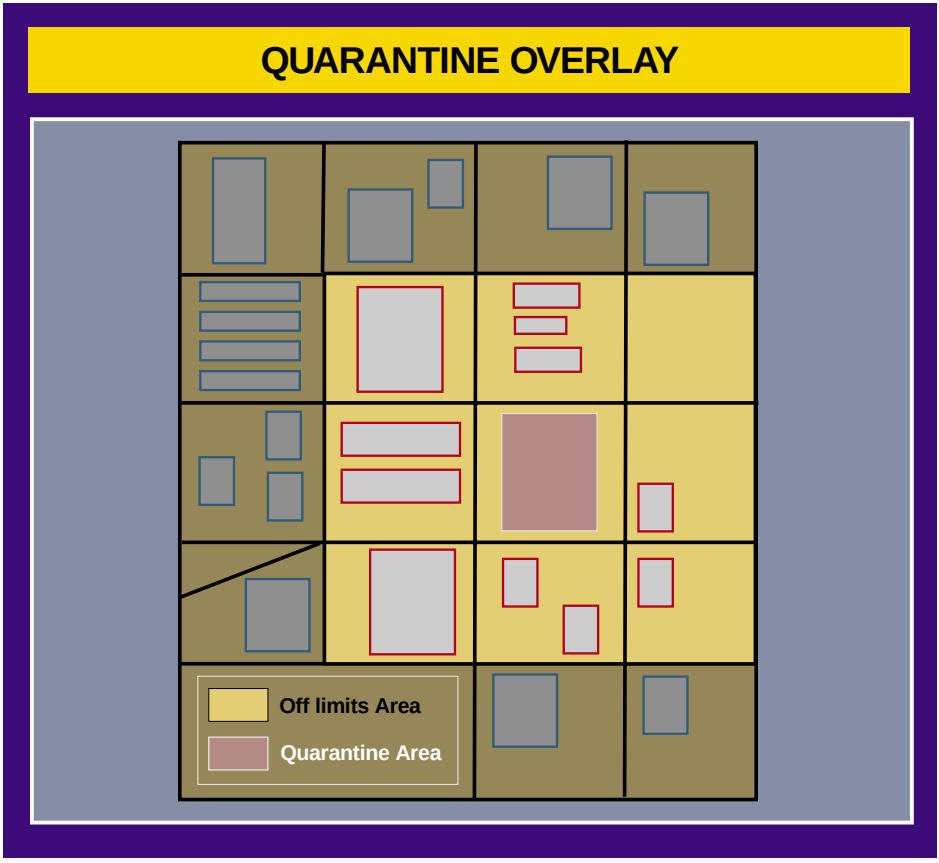


Figure V-11. Quarantine Overlay

OPERATION HURRICANE ANDREW RELIEF

Having deployed on 6 hours' notice, the advance parties of US Forces had little time to conduct a standard joint intelligence preparation of the battlespace assessment. Staff analysis begun at home stations continued at the departure airfield and finally culminated in-sector in Florida. Initially, the armed gangs prevalent to the Miami area seemed to be the greatest threat to US Forces, but that assessment soon changed. Aerial reconnaissance revealed that power and high-tension wires blocked roadways throughout southern Dade County. Ground reconnaissance teams reported the community was concerned about the quality of tap water and sewage was backing up. Pumping stations had no power, and automobile accidents were rampant because traffic lights were inoperative. Senior citizens were asking about medical supplies and heat casualties were commonplace.

As the commanders and staffs began to analyze the spot reports, it became obvious the greatest "threat" to US Forces was from electrocution or contaminated drinking water. Commanders issued instructions to protect the force from waterborne diseases, electrocution, the stifling heat, and traffic accidents. At this point, the greatest threat to US Forces was not armed gangs, but the environment in which they lived.

SOURCE: Various Sources

identify drop zones for additional supply packages that would effectively motivate the refugees to move to the new refugee sites.

- During Operation RESTORE HOPE, JIPB was hindered by a lack of historical patterns to analyze. Additionally, data bases for the adversary had to be developed after US forces arrived in-country, since national and strategic intelligence collection systems were unable to provide detailed initial tactical information prior to deployment. Standard map product coverage of the Operation RESTORE HOPE joint operations area was very limited, which prevented planners from having the terrain products they needed at the outset of the operation.

h. **Domestic Support Operations.** At the request of other federal agencies for support, and upon approval by the Secretary of Defense or a designated representative, the armed forces may provide assistance to federal agencies in domestic emergencies such as disaster relief within the United States, its territories, and possessions. When authorized by presidential executive order, the Secretary of Defense may direct the employment of active military forces to assist civil law enforcement agencies in the event of domestic civil disturbances. Techniques for applying JIPB in operations that provide support to domestic authorities are determined primarily by the type of operation undertaken. During support to law enforcement agencies engaged in counterdrug operations, the JFC would use the considerations put forth for support to counterdrug operations. If supporting disaster relief, the JFC would use the same considerations described under FHA.

i. **Nation Assistance and Support to Counterinsurgency**

- US military forces may assist host nation governments opposing an insurgency by predominantly supporting political, economic, and informational objectives. Nation assistance is primarily provided

through security assistance and foreign internal defense (FID).

- Security assistance refers to a group of programs that provide defense articles and services, including training, to eligible foreign countries and international organizations that further US national security objectives.

- FID supports a host nation's fight against lawlessness, subversion, and insurgency. Specific tools used in executing FID programs may include multinational exercises, exchange programs, CMO, intelligence and communications sharing, logistic support of security assistance, and combat operations.

JP 3-07.1, Joint Tactics, Techniques, and Procedures for Foreign Internal Defense (FID), *provides more specific information.*

- JIPB for nation assistance and support to counterinsurgency MOOTW is divided into five categories:

  •• operational area evaluation;

  •• geographic analysis;

  •• population analysis;

  •• climatology analysis; and

  •• threat evaluation

- Possible JIPB products developed for nation assistance and counterinsurgency include the following.

  •• **Association Matrix.** (See Figure V-12.) This product is useful for depicting the extent to which suspect individuals associate, and can help point

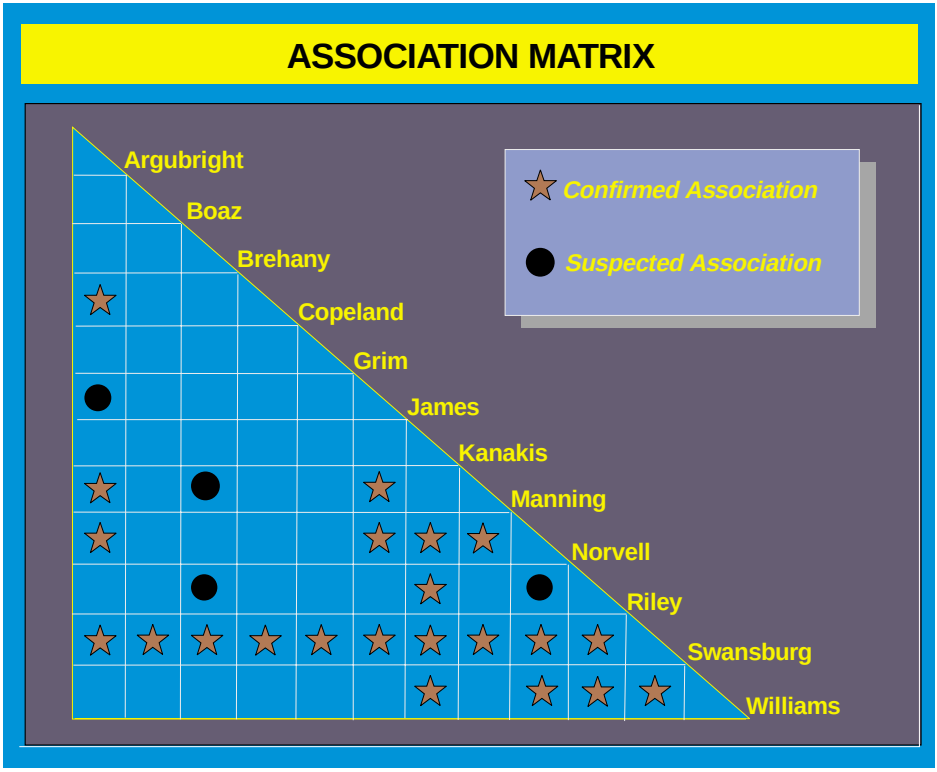


Figure V-12. Association Matrix

out possible leaders of an insurgency movement.

•• **Population Status Overlay.** The generic population status overlay graphically represents the sectors of the population that are pro-government, antigovernment, pro-threat, anti-threat, and uncommitted or neutral (see Figure V-13).

•• **Cover and Concealment Overlay.** The cover and concealment overlay graphically depicts the availability, density, type, and location of cover and concealment from the ground as well as from the air. In areas of significant threat of aerial attack or observation, overhead cover and concealment may be important considerations for adversary selection of base camps, mission support sites, drug laboratories, or other enemy areas.

•• **Logistic Sustainability Overlay.** Logistics is essential to friendly and adversary operations. The detection and location of supply lines and bases are critical to finding and defeating hostile activities. Attention is given to basic food, water, medicine, and materiel supply. In rural areas, the logistics sustainability overlay depicts potable water supplies, farms, orchards, growing seasons, and more. In built-up areas, this overlay depicts supermarkets, food

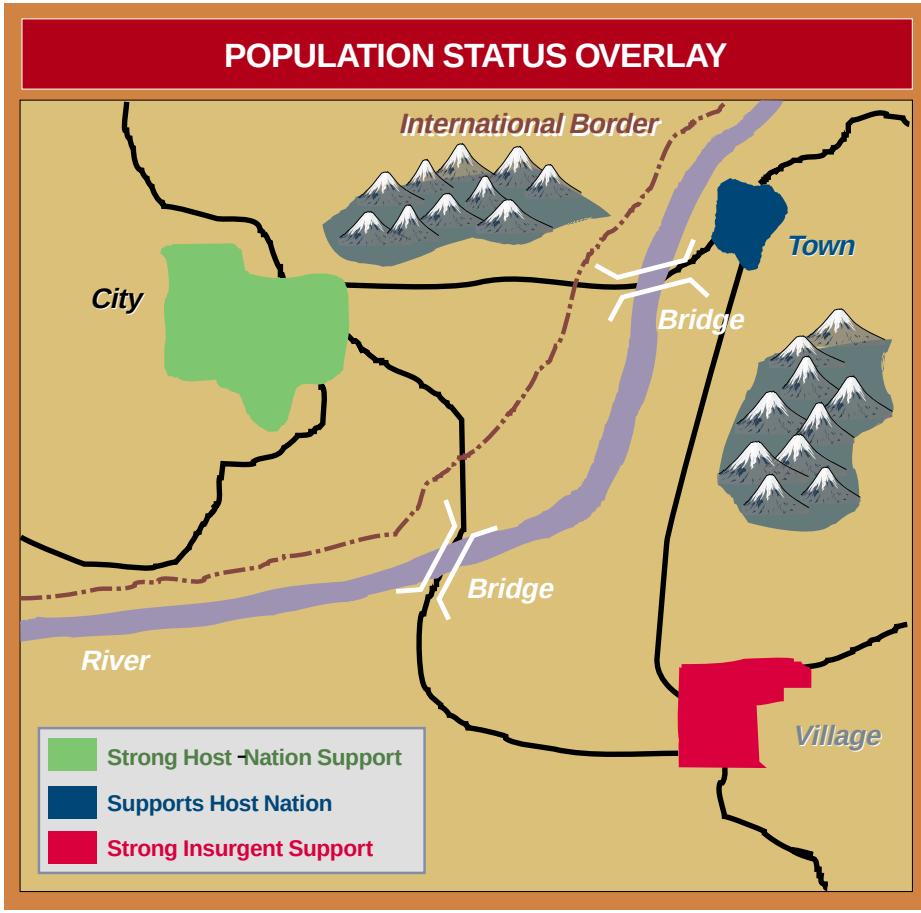


Figure V-13. Population Status Overlay

warehouses, pharmacies, hospitals, clinics, and residences of doctors and other key medical personnel.

•• **Target Overlay.** The target overlay graphically portrays the location of possible adversary targets within the area. In counterinsurgency environments, this overlay depicts banks, bridges, armories, electric power installations, bulk petroleum and chemical facilities, military and government facilities, the residences and work places of key friendly personnel, and other specific points most susceptible to attack based on adversary capabilities and intentions. Since the ambush is usually the tactic of choice for insurgents, the target overlay should also include likely ambush sites. In addition to target overlays, JIPB analysts should produce legal status overlays that annotate potential "no strike" areas in accordance with established ROE and international law (see Figure V-14).

•• **Lines of Communications Overlay.** The LOCs overlay highlights transportation systems and nodes within the area such as railways, roads, trails,

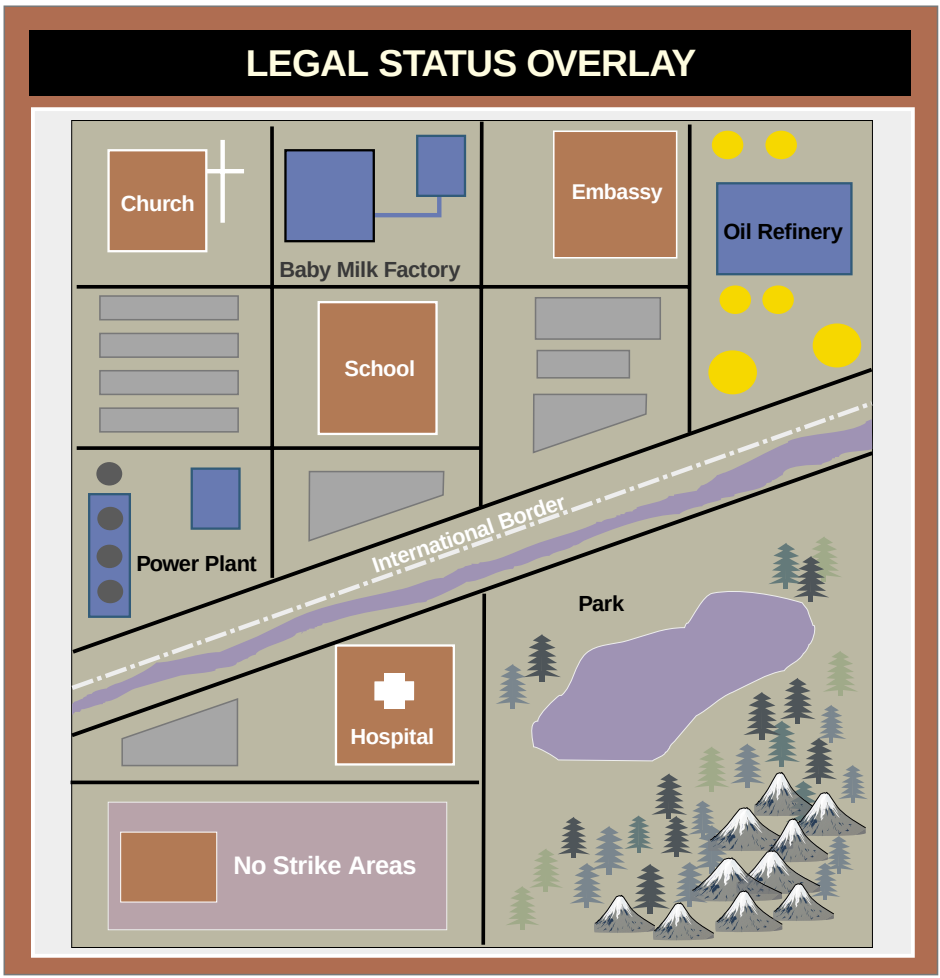


Figure V-14. Legal Status Overlay

navigable waterways, airfields, drop zones, and landing zones. In urban environments, mass public transit routes and schedules, as well as underground sewage, drainage and utility tunnels, ditches and culverts, and large open areas are also shown.

- The above JIPB products should be used in concert to determine where insurgents are most likely to operate and locate their camps. For example, an insurgent base camp would most likely be located in an area with good cover and concealment and access to sources of supply, near a sparse or friendly population. Once potential base camp locations are determined, the LOC and target overlays should be used to determine the most likely routes an insurgent group would use to move between their base camps and their targets.

j. **Noncombatant Evacuation Operation.** NEOs relocate threatened civilian noncombatants from locations in a foreign country or host nation. These operations involve US citizens (or friendly host nation or third-country nationals) whose lives are in danger. NEOs may occur in a permissive environment or require the use of force. JIPB support to NEO should include an in-depth analysis of all possible evacuation routes, the number and locations of US and allied personnel to be evacuated, transportation infrastructure, and potential reactions by potential adversaries and the indigenous civil population. JIPB products applicable to NEO support include infrastructure overlays, primary and secondary route overlays, landing zone overlays, air defense overlays, shallow water and coastal beach overlays, and population status overlays. JIPB products should depict the locations of all Department of State-designated assembly areas; designated, nominated, and potential helicopter landing zones; routes from assembly areas to pickup zones; and beach landing sites (see Figure V-15).

See JP 3-07.5, Joint Tactics, Techniques, and Procedures for Noncombatant Evacuation Operations, *for more information.*

k. **Peace Operations**

- Peace operations are described in JP 3-07.3, *Joint Tactics, Techniques, and Procedures for Peace Operations*. Peace operations generally encompass one of three general areas: peacemaking (diplomatic actions), peacekeeping (noncombat military operations), and peace enforcement (coercive use of military force).

- Peacemaking operations support diplomatic efforts to maintain peace in areas of potential conflict. They stabilize conflict between two or more belligerent nations and, as such, require the consent of all parties involved in the dispute. The United States may participate in peacemaking operations when requested by the United Nations, with a regional affiliation of nations, with other unaffiliated countries, or unilaterally.

- Peacekeeping operations follow diplomatic negotiations that establish the mandate for the peacekeeping force. The mandate describes the scope of the peacekeeping mission in detail. US personnel may function as observers, as part of an international peacekeeping force, or in a supervisory and assistance role.

- Peace enforcement operations are military operations in support of diplomatic efforts to restore peace between hostile factions which may not be consenting to intervention and may be engaged in combat activities. Peace

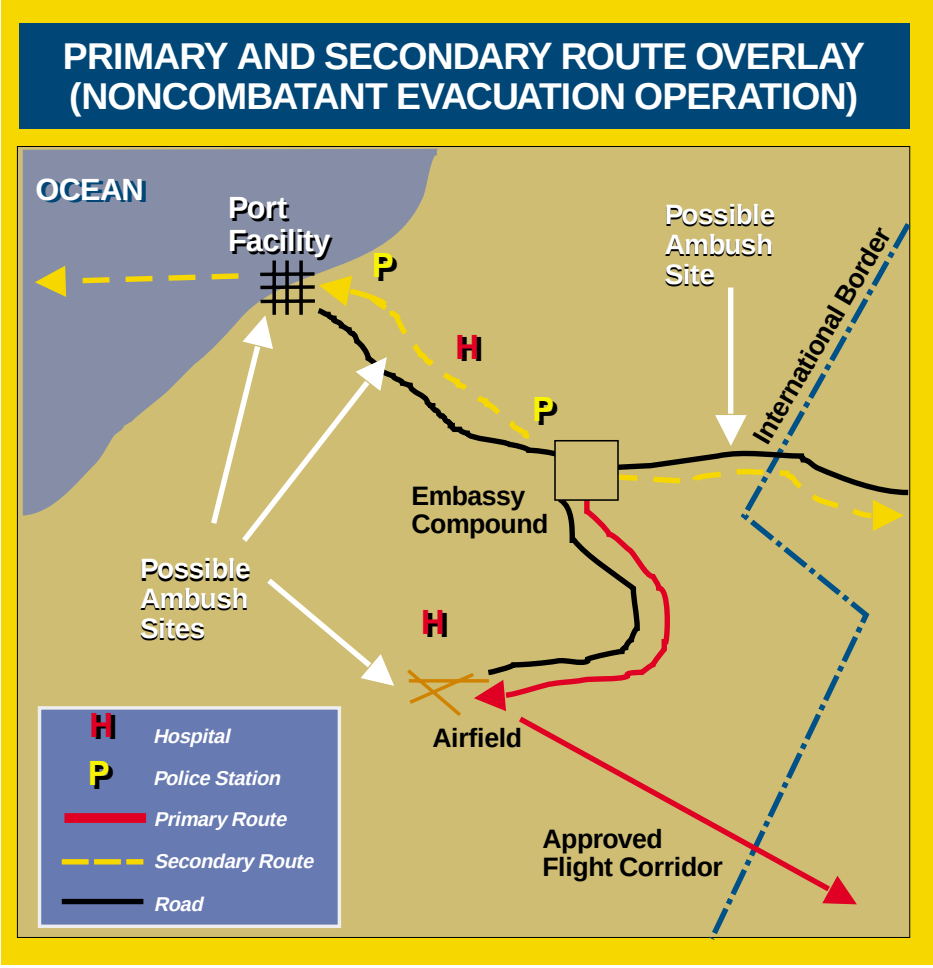


Figure V-15. Primary and Secondary Route Overlay (Noncombatant Evacuation Operation)

enforcement implies the use of force or its threat to coerce hostile factions to cease and desist from violent actions.

- JIPB support to peace enforcement MOOTW could include the entire range of JIPB products due to the diverse nature of the situation. Peace enforcers generally have full combat capabilities.

l. **Protection of Shipping.** In international waters or littoral areas where shipping is sometimes subject to attack from criminals or belligerent countries, US forces may frequently be called upon for escort assistance through the hostile area. **Protection of shipping includes coastal sea control, harbor defense, port security, countermine operations, and environmental defense in addition to operations on the high seas.** It requires the coordinated employment of surface, air, space, and subsurface units, sensors, and weapons as well as a command structure both ashore and afloat and a logistics base. Numerous JIPB products could be applicable to supporting this MOOTW. For example, line of sight or avenues of approach overlays

could be beneficial to assessing the most likely areas from which adversaries might launch raids on US or allied convoys.

m. **Recovery Operations.** Military-related accidents in the continental United States (CONUS) and other types of accidents and disasters outside CONUS are frequently only accessible for rescue and recovery by the unique equipment available from US forces. Transport aircraft, heavy-lift helicopters, submersibles, floating dry-docks, and decontamination equipment are but a few of the unique recovery-related equipment available from US forces which can be sent to all parts of the world in support of US national interests. These operations are generally sophisticated activities requiring detailed planning, especially when conducted in denied areas. JIPB support might include, as appropriate, analysis of ocean depth and bottom composition, tides and currents, available local infrastructure, the location and possible reaction of the local population, and the capabilities and intentions of potential adversary forces to either interfere with, or preempt, recovery operations.

n. **Show of Force Operations**

- A show of force is a mission carried out to demonstrate US resolve in which US forces deploy to defuse a situation that may be detrimental to US interests or national objectives. Shows of force lend credibility to the nation's commitments, increase regional influence, and demonstrate resolve. They can take the form of combined training exercises, rehearsals, forward deployment of military forces, or introduction and buildup of military forces in a region. **Show of force operations may transition into combat operations.**

- Possible JIPB products developed for a show of force operation might include **shallow water and coastal beach overlays**. Naval exercises highlighted with Marine amphibious landing operations are common for a show of force. Shallow water and coastal beach overlays can be beneficial to beach selection in maximizing the effect of the operation.

o. **Strikes and Raids**

- The US military conducts strikes and raids to create situations that permit seizure and maintenance of political and military initiative. Normally, the United States executes strikes and raids to achieve specific objectives other than gaining or holding terrain. Strikes by conventional forces damage or destroy HVTs or demonstrate US capability and resolve to do so. Raids are usually small-scale operations involving swift penetration of hostile territory to secure information, temporarily seize an objective, or destroy a target. Raids end with a rapid, pre-planned withdrawal.

- Possible JIPB products developed for strikes and raids may include urban infrastructure overlays that depict important assets such as telecommunications networks, oil and gas pipelines, and electric power grids (see Figure V-16). Strikes and raids are most successful when they take the adversary by surprise. An initial strike on the electric power infrastructure may reduce the effectiveness of early warning radars and C2 systems, thereby increasing the "fog of war" to the adversary.

p. **Support to Insurgency**

- As stated in JP 3-0, *Doctrine for Joint Operations*, insurgencies attempt to exploit actual or perceived governmental

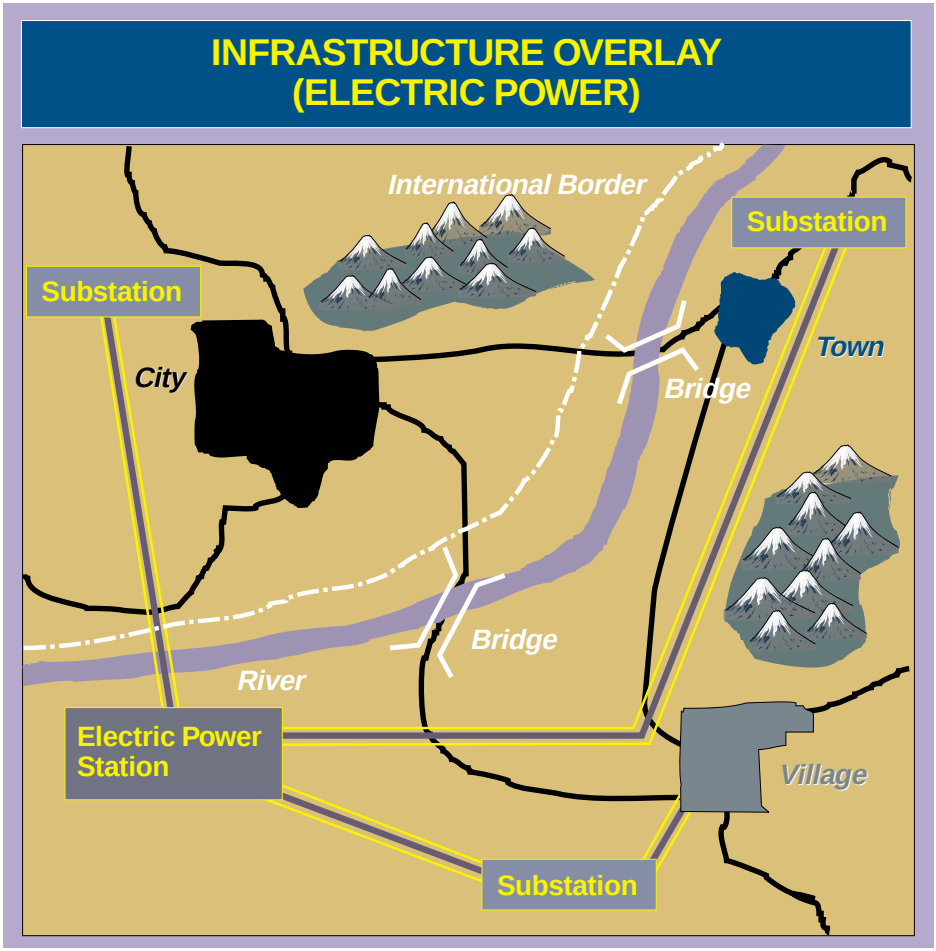


Figure V-16. Infrastructure Overlay (Electric Power)

weaknesses, such as failure to maintain law and order, inability to respond adequately to disasters, overreaction to civil disturbances, or failure to meet economic, political, ethnic, or social expectations.

- The US government may support an insurgency against a regime threatening US interests. US forces may provide logistic and training support to an insurgency, but normally do not themselves conduct combat operations.

- Many of the JIPB products already discussed under the counterinsurgency MOOTW can be adapted to support insurgency planning. For example, the activities matrix format (Figure V-17) may be used to depict the activities of personnel of interest to insurgency planners.

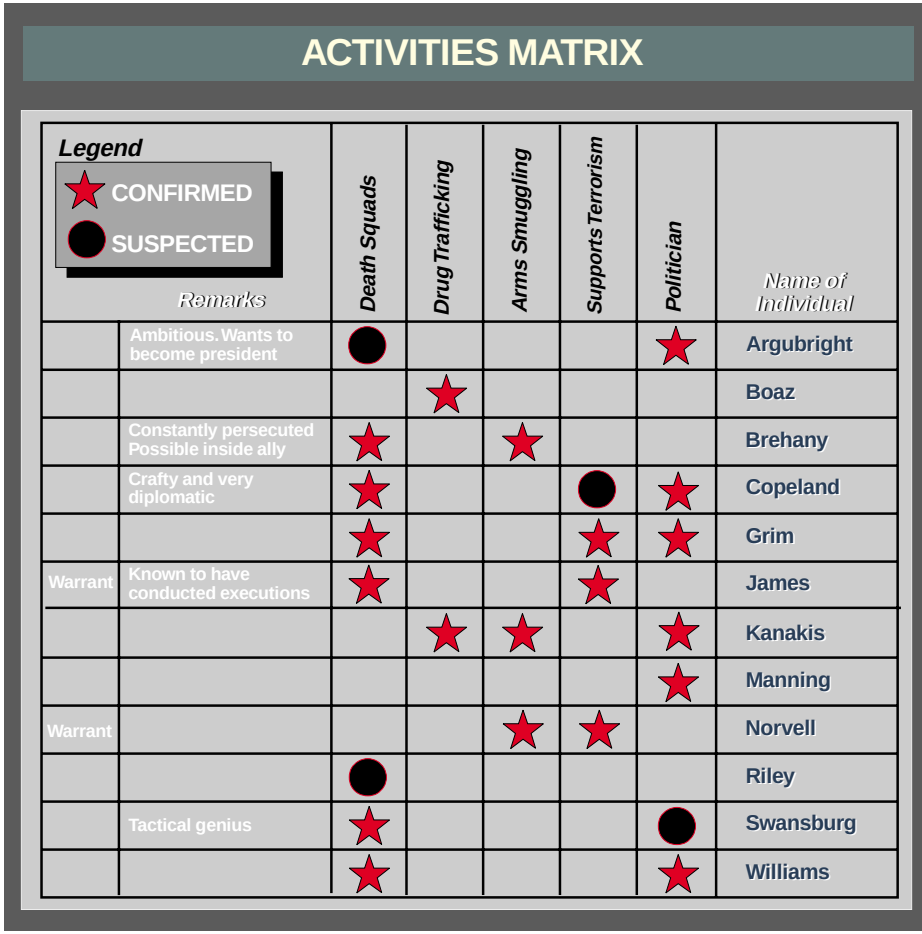


Figure V-17. Activities Matrix

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APPENDIX A
THE LEYTE CAMPAIGN — A JIPB HISTORICAL CASE STUDY

"In considering the enemy's possible lines of action, the commander must guard against the unwarranted belief that he has discovered the enemy's intentions, and against ignoring other lines of action open to the enemy."

1941 edition of Army Field Manual 100-5, *Operations*

1. Operational Background

a. **By the summer of 1944, the Allied offensive against Japan had reached a crucial decision point** (see Figure A-1). The Allies had conducted a two prong strategic offensive in the Pacific during the previous year. As part of his island hopping campaign in the central Pacific, Admiral Nimitz, Commander in Chief, Pacific (CINCPAC), conducted landings in the Gilberts, Marshalls, Carolines, and Marianas, with landings in the Palaus scheduled for September 1944. Meanwhile, General MacArthur, Commander in Chief, Southwest Pacific (CINCSOWESPAC) drove west along the New Guinea coast with landings at Morotai and Mindanao scheduled for mid-

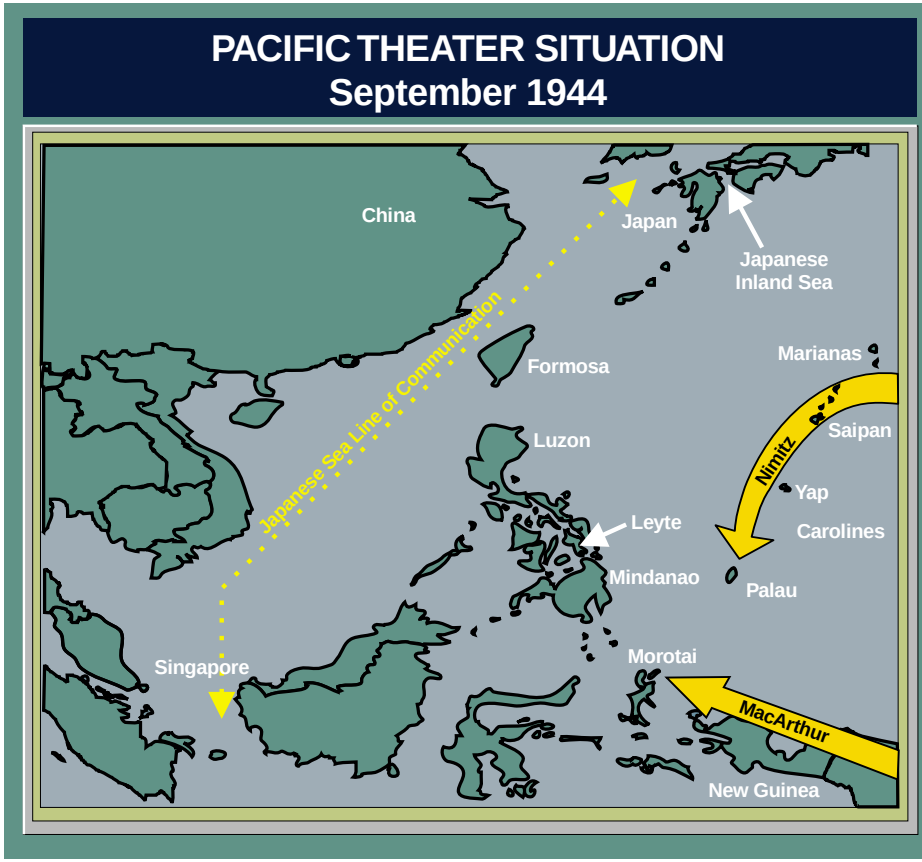

Figure A-1. Pacific Theater Situation September 1944

September and mid-November 1944, respectively.

b. **The next objective would merge the two drives as the Allied offensive completed its goal of isolating Japan from its source of oil and seizing advanced bases in preparation for the eventual invasion of the Japanese home islands.** The question was whether Formosa (followed by a landing on the Chinese coast) or the northern Philippines should be the objective of the coming offensive. Nimitz favored the Formosa strategy, while MacArthur favored the recapture of all of the Philippines. The debate centered on a number of points, to include: the potential for higher casualties in the Philippines; a friendly and supportive native population in the Philippines vice Formosa; the recent loss, due to the summer Japanese offensive, of Allied air bases in mainland China (for attacking Japan); and the political imperatives for recapturing the Philippines, an American possession. The debate was essentially decided in favor of the Philippine strategy during a meeting in Hawaii between President Roosevelt, General MacArthur and Admiral Nimitz on 26-27 July. **By early September, a target date for a landing on Leyte had been set for 20 December 1944 to be followed by landings on heavily defended Luzon in February.**

c. In early September, Admiral Halsey, Commander Third Fleet, conducted a series of carrier air strikes in the Philippines in preparation for the upcoming landings in the Palaus. The limited Japanese response to his attacks resulted in Halsey sending a message to Admiral Nimitz on 13 September recommending that the intermediate landings on Mindanao, the Palaus, Morotai, and Yap be canceled as unnecessary and the timetable for the landing at Leyte be accelerated to mid-October. Within 48 hours, after a flurry of message traffic between Nimitz, MacArthur's Headquarters, and the Joint Chiefs of Staff, the landings on Mindanao and Yap were canceled. The landings in the Palaus and Morotai were retained to obtain forward naval and air bases. The date for the landing on Leyte was advanced to 20 October 1944. The forces of the two combatant commands (CINCPAC and CINCSOWESPAC) would be combined to conduct the operation.

2. JIPB Analysis

a. **The Battlespace Defined**

- **Mission Analysis.** The landing at Leyte was to be the first step to retaking the Philippines. Leyte would be seized in order to establish a centrally located air and logistic base from which the recapture of the rest of the Philippines, to include the heavily defended northern island of Luzon, could be accomplished. **Control of the Philippines, especially Luzon, would enable the Allies to cut Japanese SLOCs, which ran through the South China Sea, and deny Japan access to its primary source of crude oil in the East Indies.** US aircraft based in the Philippines would reinforce ongoing submarine operations and completely sever this vital supply link. Finally, the Philippines would provide an advanced base to support the eventual invasion of Japan. Japanese forces deployed outside the Philippines that were capable of interfering with the mission included: aircraft based in China, Japan, Okinawa, and Formosa; the surface fleet based at Singapore; and the carrier fleet based in Japan.

- **Battlespace Boundaries.** Given these considerations, the joint battlespace extended in an approximate 1,500-mile radius, centered on Leyte, from southern Japan to the north, the Asian mainland (Japanese held) to the west, New Guinea (Allied held) to the south, and the Marianas (Allied held) to the east. The battlespace cut across two US theaters of operation, MacArthur's Southwest Pacific Area (the supported command) and Nimitz's Central Pacific Area (the supporting command).

MacArthur's operational area for the Leyte landing was the Philippine Archipelago, centered on the objective (the island of Leyte), its surrounding waters, and accompanying air space.

b. **The Joint Battlespace's Effects**

- **Maritime Environment.** The Philippine Archipelago, which extends for over 1,000 miles from north to south, restricted naval operations in the otherwise open ocean environment of the Western Pacific. It separated the Philippine Sea to the east from the South China Sea to the west. The Philippine Archipelago, Formosa, and the Ryukyu Islands formed a physical barrier that protected SLOCs linking the East Indies (present day Indonesia) and China with the Japanese home islands via the South China and East China Seas. **There were only four maritime avenues of approach for naval formations transiting the Philippine Archipelago from the South China Sea to the Philippine Sea: (1) north of Luzon; (2) the San Bernardino Strait; (3) the Surigao Strait; and (4) south of Mindanao** (see Figure A-2). Additionally, within the South China Sea there were areas of water along the Philippine Archipelago that were unnavigable due to uncharted

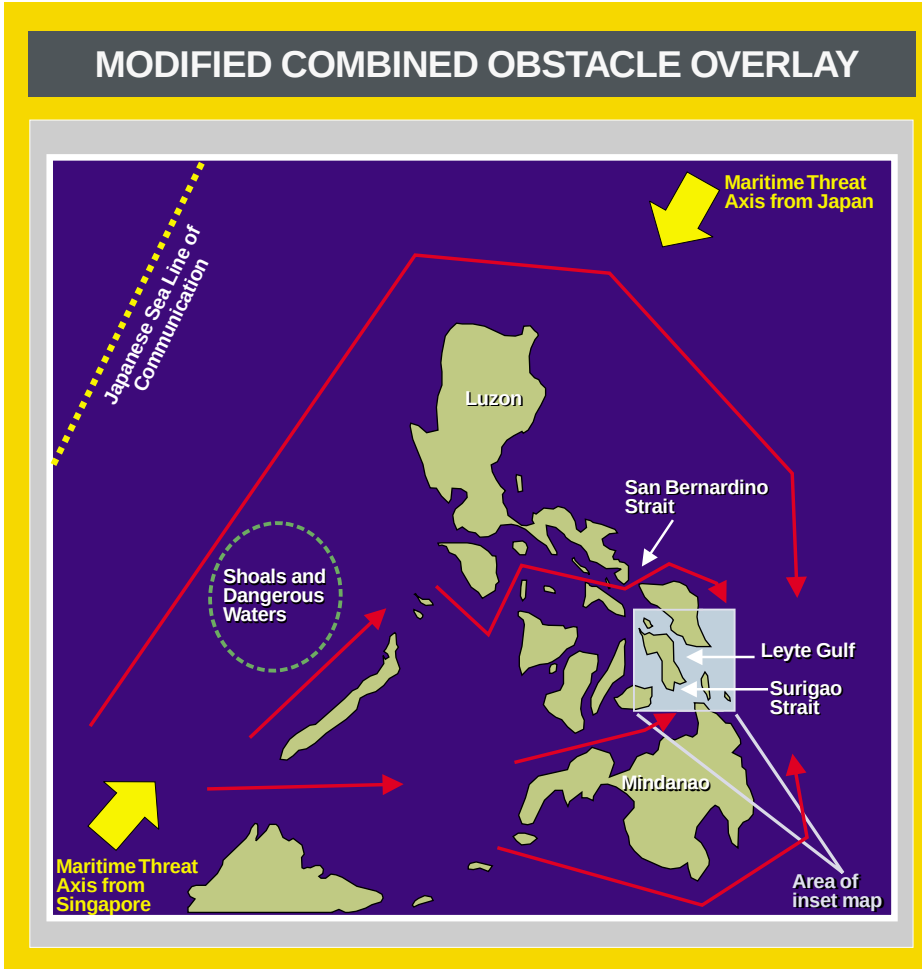

Figure A-2. Modified Combined Obstacle Overlay

rocks and shoals, further constraining maritime operations. While the Philippines would serve to channelize naval operations, they could also provide concealment from enemy observation for smaller ships (amphibious shipping, coastal freighters, patrol boats, etc.) hugging the extensive coastline. The large number of widely dispersed potential amphibious landing sites along the Philippine coast severely complicated the viability of ground defenses. Finally, the Philippines had a number of fine natural harbors that supported a thriving network of inter-island trade and commerce. Due to limited road networks on some islands, inter-island shipping was the primary means of moving bulk cargoes. Leyte Gulf provided sheltered waters large enough to accommodate an extremely large amphibious task force, and was capable of protecting shipping from the effects of bad weather (see Figure A-2 inset). Its deep water approaches to the east made it easily accessible from the Philippine Sea, while the adjacent land mass restricted maritime avenues of approach from the north, south, and west. The eastern approach to Leyte Gulf was protected by Japanese naval minefields and was dominated by two small islands south of the gulf's mouth.

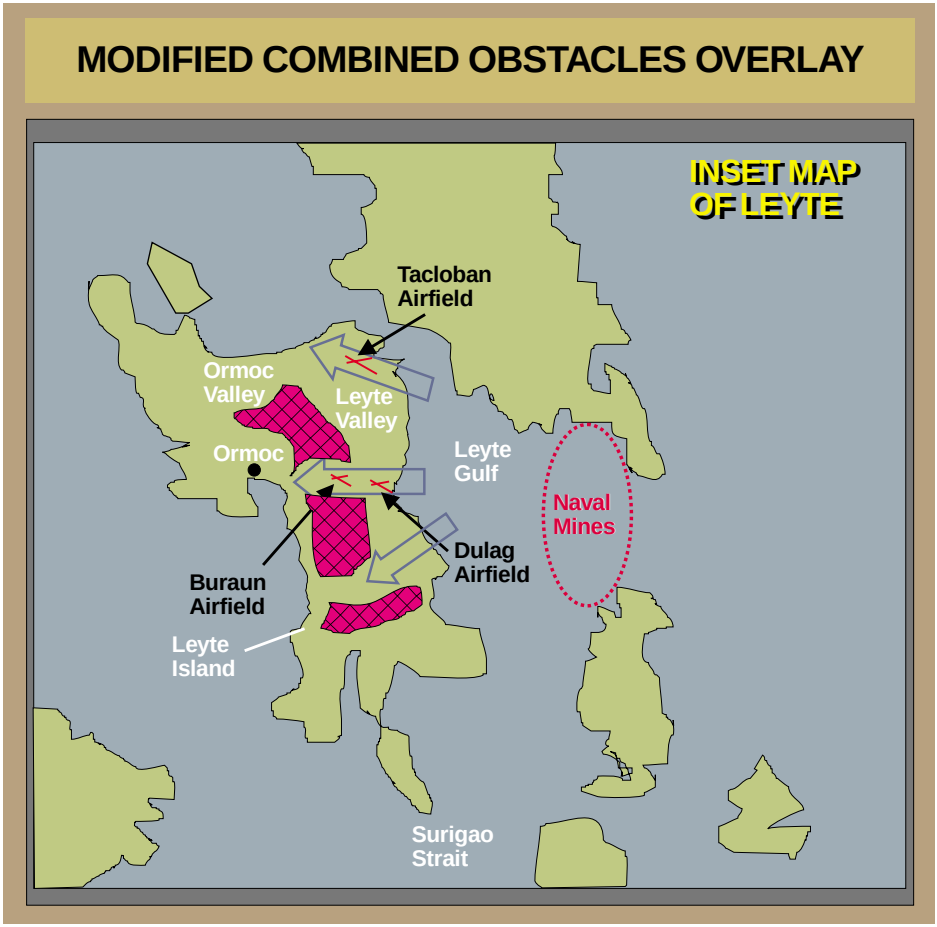

Figure A-2 (Inset). Modified Combined Obstacles Overlay

- **Air Environment.** In 1944, the Philippines contained an extensive network of over 100 operational airfields (ranging from grass strips to fully developed air bases). Thus, the network of airfields could be used to supplement maritime inter-island transport as well as disperse combat aircraft to multiple bases within range of Leyte. **Additionally, the Philippines served as an island "ladder" linking New Guinea with Formosa, the Ryukyus, and the Japanese home islands.** Thus, the network of airfields could be used to deploy aircraft and transport supplies south and east from Japanese-controlled territory (Formosa, the Ryukyus, Japan, and the Asian mainland), or north and west from Allied-controlled territory (Morotai, New Guinea, the Marianas, and Palau). **Three airfields (Dulag, Buraun, and Tacloban) were within several miles of the Leyte amphibious landing site. If captured, these airfields could be used to support US land-based aircraft.**

- **Land Environment.** The island of Leyte dominated the central portion of the main Japanese LOC connecting the strategic islands of Luzon and Mindanao. Leyte's exposed eastern coastline offered excellent beaches to support an amphibious landing and the subsequent offloading of supplies. The adjacent coastal plain, the Leyte Valley, held the majority of the island's 900,000 native population, along with most of the towns and roads. **The terrain within the Leyte Valley favored offensive operations.** Additionally, it would provide the space necessary to establish the base infrastructure needed to support follow-on operations in the Philippines. The island, which was only 50 miles wide at it greatest width, was dominated by a heavily forested north-south central mountain range of up to 4,400 feet in height. **Consequently, Japanese forces based in the mountains could threaten any build-up in the Leyte Valley.** The west side of the island contained the Ormoc Valley and the port of Ormoc City. However, the remainder of the western side of the island was mountainous, sparsely populated, and had poor land LOCs. **The terrain in the west favored defense, while the port of Ormoc City offered a resupply point for Japanese reinforcements arriving by sea from nearby islands. Thus, to secure control of the vital Leyte Valley, the entire island would have to be captured.**

- **Weather Effects.** The tropical weather found year-round in the Philippines, with its autumn monsoon rains, would significantly impact military operations. It could seriously hamper land mobility and the rapid construction of bases and supporting logistic infrastructure. **This could be critical as carrier-based air power would be forced to remain close offshore supporting the landing force and protecting it from air attack, until land-based air power could be established in strength on Leyte.** This would rob US aircraft carriers of one of their primary strengths — mobility — by fixing them in place, making them more vulnerable to attack.

- **Other Characteristics of the Battlespace**

•• Politically, the recapture of the Philippines was important in that it would demonstrate that the United States was willing to sacrifice to meet its obligations to an Asian people. It would be physical proof that, while the Philippines had been lost at the beginning of the war, the United States had not abandoned the Philippine

people. This would be an effective counter to Japanese propaganda of "Asia for the Asians" and help to encourage opposition to the Japanese in other occupied Asian nations. It would also be a crucial aspect to establishing the US position in post-war Asia. **With respect to the upcoming battle, it would mean that the sixteen million people of the Philippines would be friendly to US forces and actively support the landings through resistance activity.**

•• The Japanese leadership was desperate to achieve a tactical victory against the United States, or at least to inflict unacceptably heavy losses on US forces. **It was hoped, perhaps unrealistically, that a limited victory could be used as leverage to open the door to peace negotiations.**

•• The importance to Japan of the continued flow of crude oil from the East Indies cannot be overstated. It was access to oil that was the casus belli for Japan and directly led to the attack on Pearl Harbor. **Japan was already suffering a shortage of fuel due to aggressive submarine attacks on its SLOCs to the East Indian oilfields.**

c. **Evaluation of the Japanese Threat.** The Japanese 14th Area Army was responsible for defending the Philippine operational area with a total of 432,000 troops (with between 180,000-200,000 on Luzon) and over 800 aircraft (from the 4th Air Army and 1st Air Fleet) (see Figure A-3). The 35th

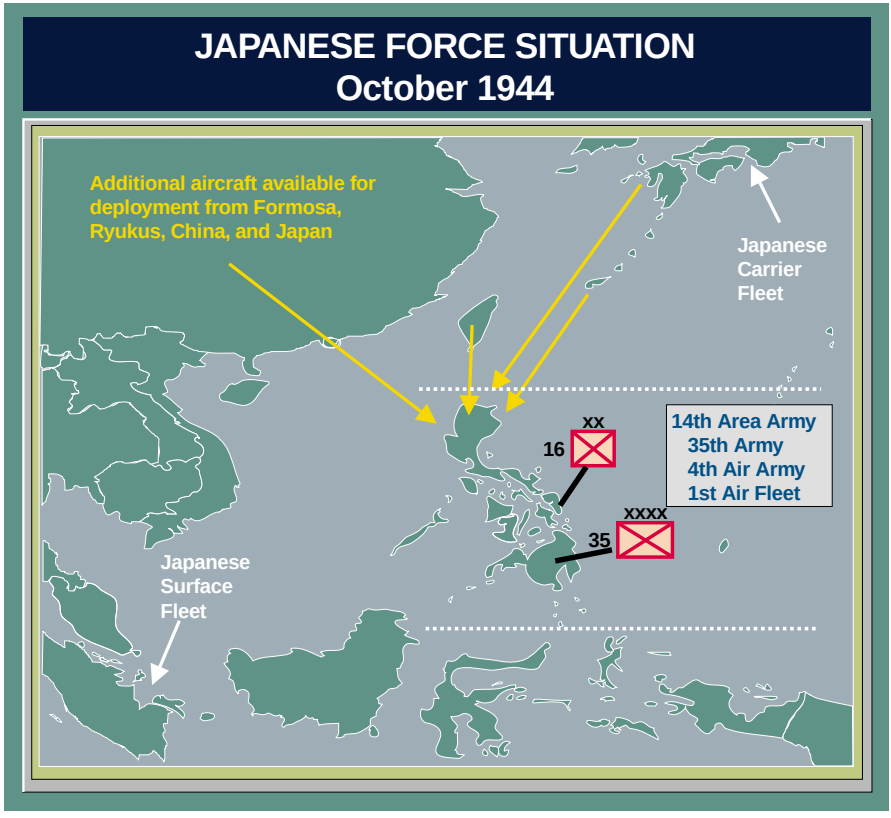

Figure A-3. Japanese Force Situation October 1944

Army was assigned to defend the Visayas (including Leyte) and Mindanao. This included the 16th Division (controlling approximately 20,000 troops), which was responsible for defending Leyte, and the 30th Division, located nearby on Mindanao. As early as April 1944, Japanese forces began constructing additional defenses on Leyte as one of several anticipated US landing sites. Additional Japanese aircraft (Army and Navy) were located on Okinawa, Formosa, and Japan. The Japanese aircraft carriers were also located in Japan in order to train replacements for their badly attrited air crews. The remainder of the Japanese surface fleet was anchored off Singapore at Lingga Roads due to the shortage of fuel in Japan.

d. **Determination of Japanese Courses of Action. The Japanese end state was to retain control of their SLOCs between Japan and the East Indies as well as to inflict unacceptable damage and casualties upon US forces in the hopes of opening peace negotiations.** Operational Japanese objectives were to retain control of the Philippines, destroy or severely damage US forces, and defeat the amphibious operation.

- Based upon Japanese objectives and the disposition of Japanese forces immediately following the landing, broad Japanese COAs included the following.

  •• **COA 1. (Defend Leyte with the forces on hand)** (see Figure A-4). Past Japanese practice, as well as their military doctrine, made this COA likely. However, given the immense superiority

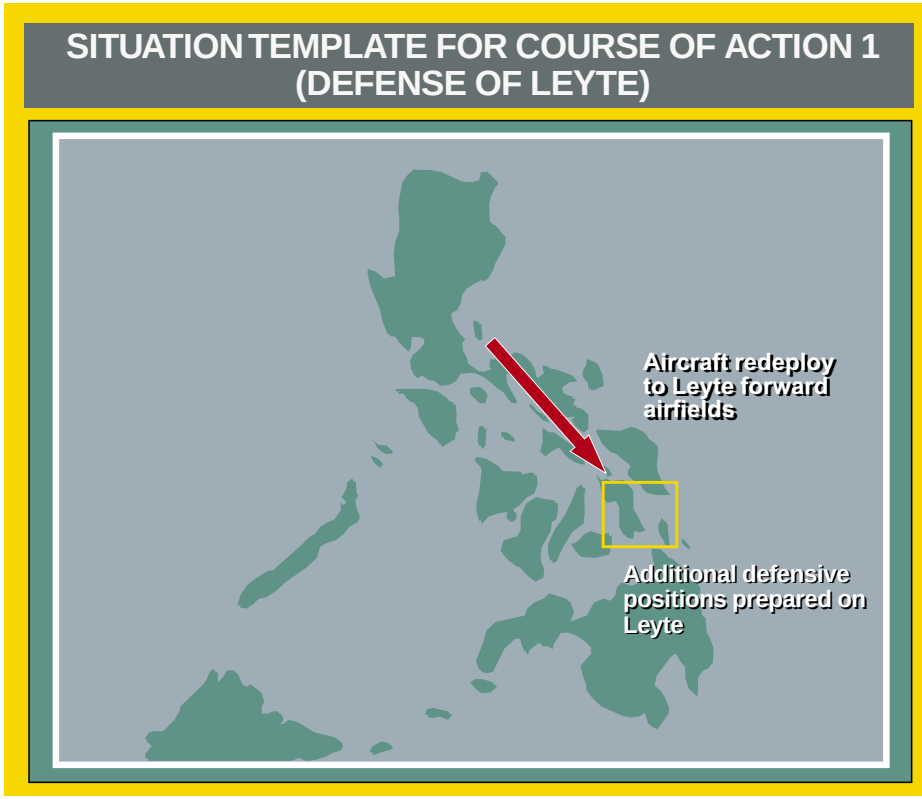

Figure A-4. Situation Template for Course of Action 1 (Defense of Leyte)

of US military power in the area of operations, this COA would only delay an inevitable Japanese defeat, albeit at a cost to the United States in the form of casualties.

•• **COA 2. (Reinforce land forces on Leyte and committed air units in the Philippines)** (see Figure A-5). This COA would enable the Japanese to prolong the battle, increase US casualties, and/or prepare for a future attack. However, given US air and naval superiority, Japanese forces would suffer severe attrition as they moved en route to Leyte, thus increasing Japanese losses, while at the same time enabling the US build-up on Leyte to continue.

•• **COA 3. (Attack in order to disrupt the landing and isolate the landing force)** (see Figure A-6). While Japanese land forces on Leyte were too weak to conduct a full-scale ground offensive without reinforcement, Japanese air and naval units could conduct offensive operations to destroy US naval forces off Leyte. This would isolate the landing force and facilitate its subsequent destruction by a (reinforced) ground offensive. Japanese naval doctrine of the decisive battle argued for this COA. However, Japanese naval forces had been severely attrited (especially their carrier air crews) and had not recovered from their defeat at the Battle of the Philippine

Figure A-5. Situation Template for Course of Action 2 (Reinforcement of Leyte)

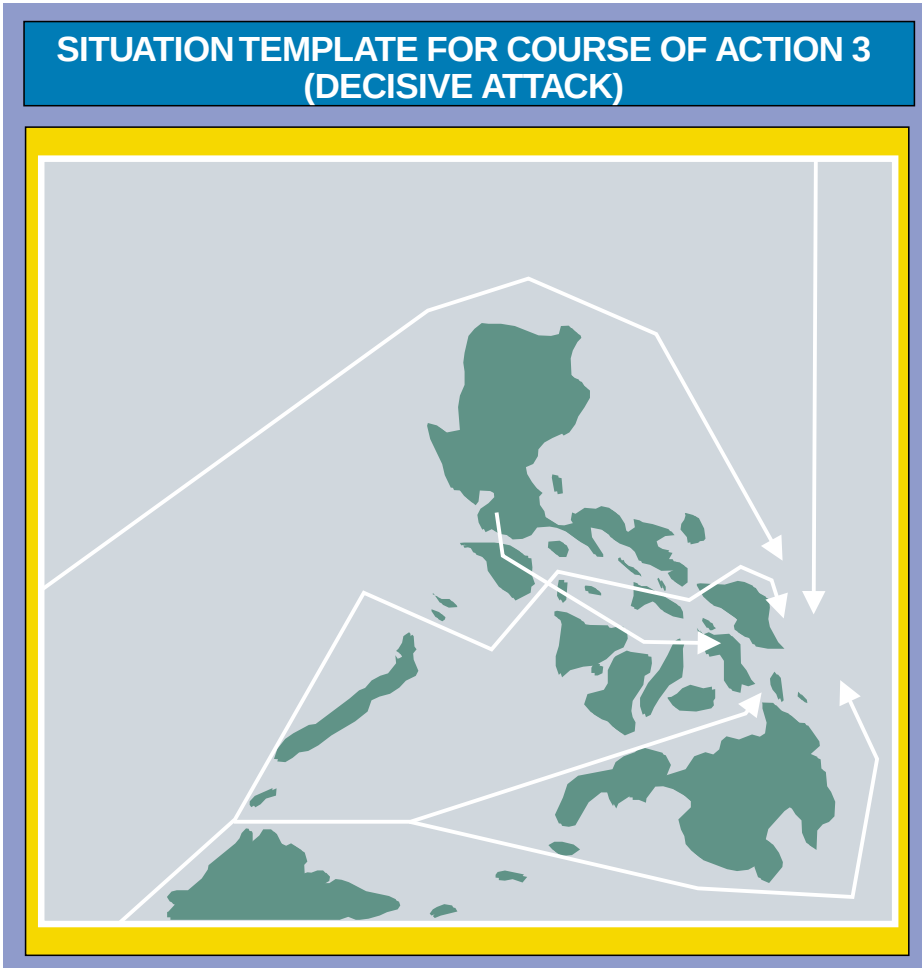

Figure A-6. Situation Template for Course of Action 3 (Decisive Attack)

Sea. As a result, this COA risked the permanent destruction of Japanese naval power. **Neither MacArthur nor Nimitz considered this COA likely, due to the weakened state of the Japanese Navy.**

•• **COA 4. (Withdraw from Leyte to consolidate on Luzon)** (see Figure A-7). This COA would enable the Japanese to conserve combat power in order to defend Luzon, the most important island in the Philippines. However, this COA would also enable the United States to establish a significant base on Leyte, thus endangering Japanese control of the Philippines and the SLOCs between Japan and the East Indies.

- **Analysis of COAs.** Based upon doctrine, relative force ratios, past practice, and the Japanese cultural mindset, COA 1 (to defend Leyte with the forces on hand) was considered the most likely. However, such a defense would only delay defeat and was unlikely to achieve Japanese objectives unless it was augmented by elements of the other COAs. COA 2 (to reinforce Leyte with additional land and air units) was a medium risk and medium gain means

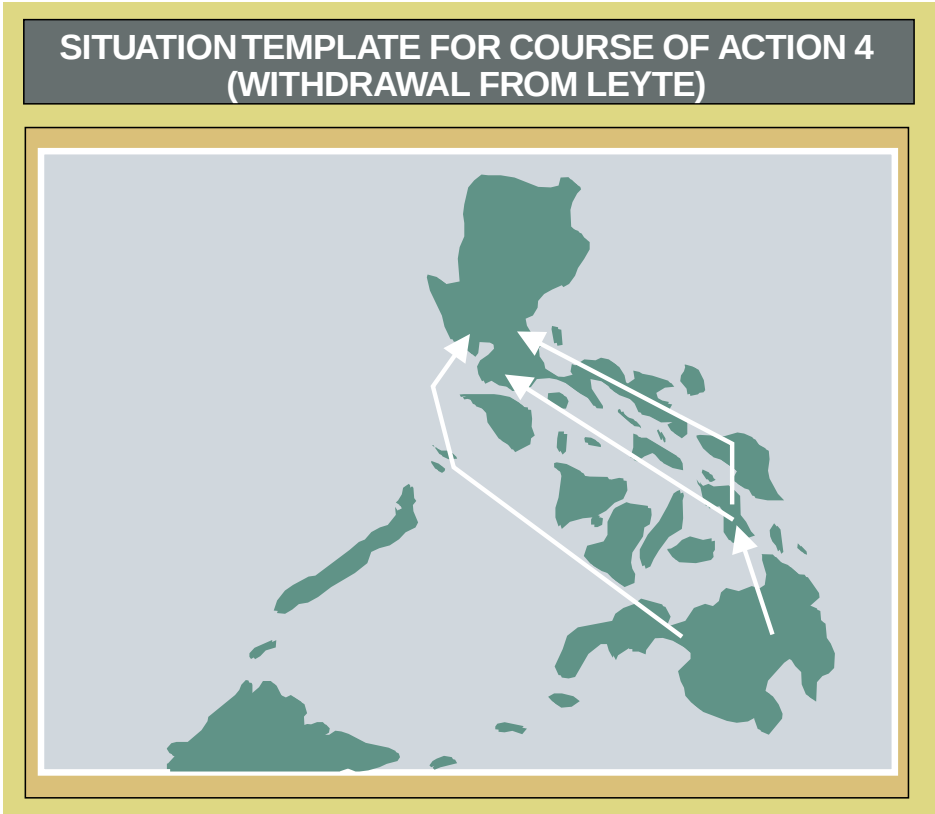

FIgure A-7. SItuation Template for Course of Action 4 (Withdrawal from Leyte)

of augmenting the defensive COA. COA 3 (a counteroffensive), although a high risk and high gain option, was the only COA capable of fully meeting the desired Japanese end state and objectives. **A counteroffensive was also the most dangerous Japanese COA for US forces, but was not considered likely by the United States due to the risks involved and the weakened state of the Japanese Navy.** COA 4 (a withdrawal from Leyte) was the least likely option based upon past Japanese practice and the strategic significance of Leyte. Figure A-8 summarizes these COAs in the order of their projected probability of adoption.

- **Event Template and Matrix.** The following event template (Figure A-9) combines the hypothetical NAI portrayed on the situation templates associated with each of the COAs identified above. The event matrix (Figure A-10) lists the indicators for each NAI that would confirm Japanese intentions to adopt a specific COA.

3. The Battle of Leyte Gulf

a. The United States gained air and naval superiority in the immediate vicinity of Leyte following a series of devastating carrier and land-based air strikes on targets in the Philippines, Okinawa, and Formosa. On 20

JAPANESE COURSE OF ACTION MATRIX

JAPANESE COURSES OF ACTION (COAs)

	COA 1	COA 2	COA 3	COA 4
MISSION	Defend	Reinforce	Attack	Delay and Withdraw
OBJECTIVE	Attrition	Prolong Attrition Future Operations	Decisive Battle	Conserve Power
GROUND FORCES	Defend Leyte with forces on hand in a defensive battle of attrition.	Same as COA 1 and reinforce Leyte with troops based in Philippines and China. Goal of prolonging battle of attrition.	Same as COA 2 but with goal of conserving and/or building up combat power for future Offensive operations.	Withdraw from Leyte. Consolidate on Luzon.
AIR FORCES	Engage with aircraft already assigned to Philippines. Conserve air strength for future battles.	Same as COA 1 and reinforce committed air units with aircraft from Formosa, China, Okinawa, and Japan.	Reinforce as in COA 2 and conduct all-out attacks. Goal of supporting naval attack and Isolating beachhead.	Same as COA 1 but with goal of supporting withdrawal of ground forces from Leyte.
NAVAL FORCES	Avoid combat with surface fleet. Use land-based naval air to support air attacks.	Same as COA 1 plus transport ground forces to Leyte and provide land-based naval air to support air attacks.	Engage US naval forces with all available naval and naval air forces in accordance with decisive battle doctrine.	Support withdrawal of ground forces from Leyte.

Figure A-8. Japanese Course of Action Matrix

October 1944, the US Seventh Fleet began landing the US Sixth Army at Leyte Gulf, while the US Third Fleet (including the fast carrier striking force) provided the covering force protecting the amphibious operation (see Figure A-11). The US Fifth Air Force provided long-range air support for the operation from bases in Morotai and New Guinea and was preparing to deploy to airfields on Leyte as soon as they were secured.

b. The Japanese, despite significant aircraft losses, believed that they had inflicted severe damage upon the US Third Fleet during its preparatory carrier air strikes on Japanese airfields in Formosa, Okinawa, and Luzon in the month prior to the landing. In response to the US invasion of the Philippines, **the Japanese chose to adopt COA 3** and executed a previously prepared counterattack plan known as SHO-1, designed to destroy the US fleet in a single

decisive action. **The Japanese aircraft carriers (nearly combat ineffective due to inexperienced aircrews) would sortie from Japan and be used as a decoy to lure the US Third Fleet away from Leyte Gulf.** The Japanese surface fleet would then attack and destroy the amphibious task force (US Seventh Fleet) off Leyte, thus isolating the landing force (US Sixth Army). The attack would be supported by the remaining Japanese aircraft (army and navy) based in the Philippines, Formosa, and Okinawa using both conventional and kamikaze tactics. Meanwhile, Japanese ground forces would reinforce Leyte and prepare to counterattack the US landing force as soon as the amphibious task force had been destroyed.

c. The Japanese carrier task force (northern force) under Admiral Ozawa was not limited by military geography, and approached on an axis moving south southwest from Japan into the Philippine Sea. **This northern force was to act as a decoy by threatening the US carrier striking force and drawing it away from Leyte.**

d. In order to attack the amphibious task force, which was located to the east of Leyte, the Japanese surface fleet had to transit

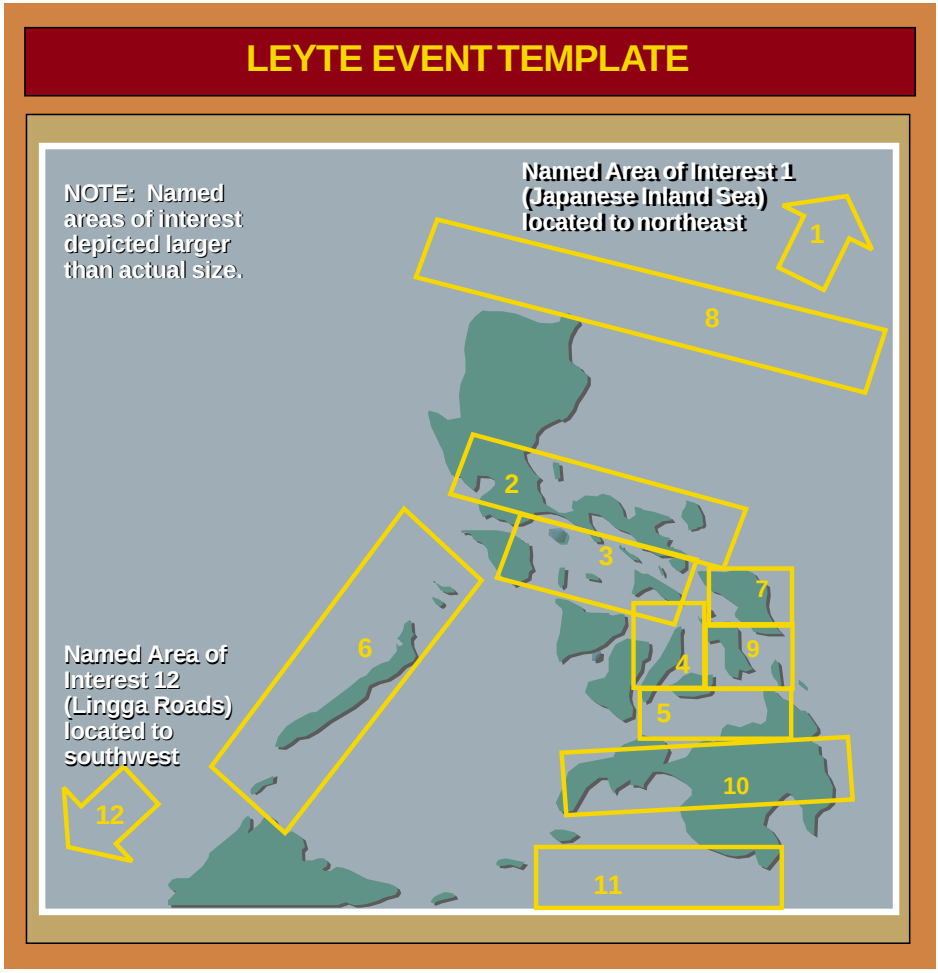

FIgure A-9. Leyte Event Template

through the Philippine Archipelago (see Figure A-11). The surface fleet was organized into two task forces that would constitute the center and southern forces of the overall Japanese strategy. **The center task force, under the command of Admiral Kurita, would use San Bernardino Strait to the north of Leyte. The southern task force, under the command of Admiral Nishimura, would use Surigao Strait south of Leyte.** A smaller third task force of surface ships (Admiral Shima's 2nd striking force), which had sailed prior to the battle from Japan, was to follow the southern task force through Surigao Strait.

e. **Kurita's center force was detected and heavily damaged by submarine**

LEYTE EVENT MATRIX

NAMED AREA OF INTEREST	EVENT	TIME EARLIEST	TIME LATEST	INDICATES COA
1	Carriers depart Japanese Inland Sea.	D+1	D+8	3
2,9	Additional aircraft redeploy to Leyte.	D+1	D+5	1
2	Troop transports depart Luzon.	D+2	D+7	2
3,4,5	Troop transports move to Leyte.	D+1	D+7	2
3,4,5	Presence of major surface combatants.	D+4	D+8	3
6	Eastward transit of major surface combatants.	D+3	D+7	3
7	Ground force movement from Leyte.	D+2	D+7	4
8	Southward movement of aircraft carriers.	D+4	D+8	3
9	Preparation of additional defensive positions.	D+0	D+4	1
9	Departure of ground troops from Ormoc.	D+2	D+7	4
10	Ground force movement to Leyte.	D+1	D+4	2
10	Evacuation of ground forces to Luzon.	D+1	D+8	4
11	Eastward transit of major surface combatants.	D+5	D+8	3
12	Surface combatants depart Lingga Roads.	D+1	D+5	3

Figure A-10. Leyte Event Matrix

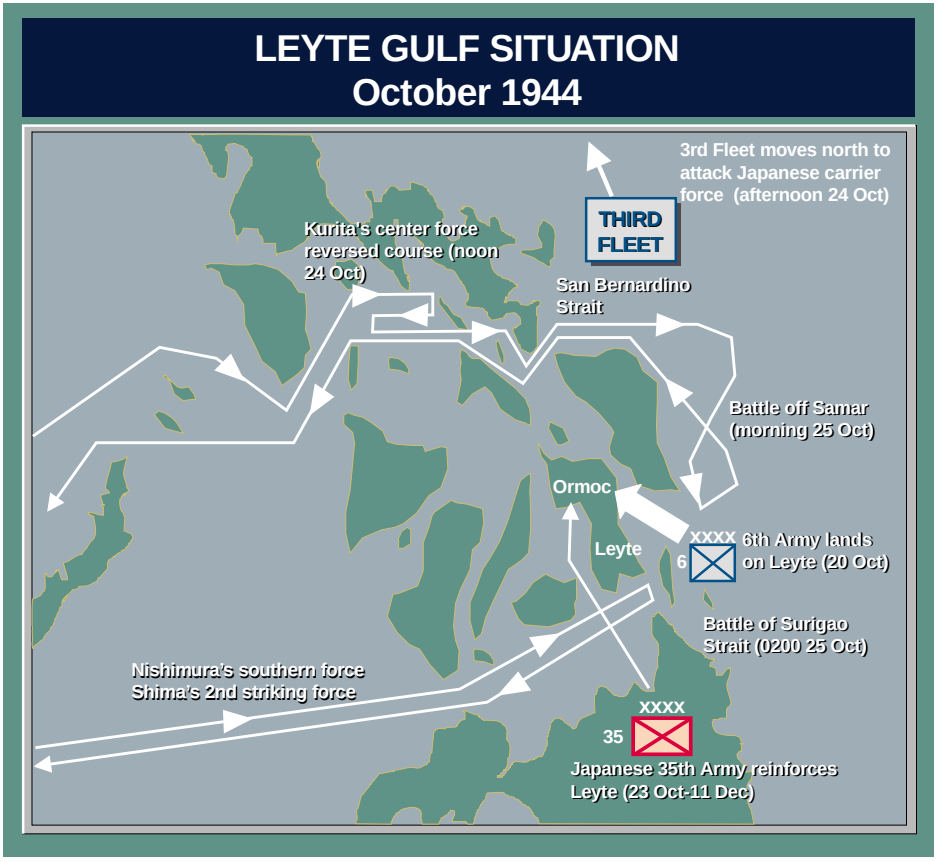

Figure A-11. Leyte Gulf Situation, October 1944

attacks and Third Fleet carrier air strikes on 23 and 24 October. This force was observed to reverse its course as a result of these attacks. At the same time, the Seventh Fleet positioned its battleships and cruisers to defend Surigao Strait from the approach of the two southern task forces. Meanwhile, Ozawa's northern force, with its decoy carriers, was detected in the Philippine Sea. **Admiral Halsey, believing reports that the Japanese center force had turned back, responded to what he perceived to be the most dangerous threat by moving Third Fleet northwards to attack the Japanese carriers. This left the San Bernardino approach uncovered, the 6th Army beachhead on Leyte vulnerable, and the amphibious task force in Leyte Gulf virtually unprotected.**

f. During the night of 24-25 October, the Seventh Fleet destroyed both Nishimura's southern force and Shima's 2nd striking force in a surface action known as the Battle of Surigao Strait. **Meanwhile, to the north of Leyte, Kurita's center force reversed course a second time, transited San Bernardino Strait during the night, and was approaching Leyte Gulf unopposed.** On the morning of 25 October, Kurita's force encountered Seventh Fleet escort carriers and destroyers off Samar. The thin skins, lack of armament, and slow speed of the escort carriers (converted merchant ship and tanker

hulls), made them sitting ducks for Kurita's rapidly approaching force. Nevertheless, following two and a half hours of desperate surface combat the Japanese center force (which became disorganized and confused during the engagement) turned back, believing it had sunk a number of fleet carriers and cruisers vice escort carriers and destroyers. **Kurita's confusion proved to be the salvation of the defenseless US amphibious task force.** Meanwhile, Third Fleet, which was out of range and unable to support the escort carriers off Samar, launched a series of air strikes throughout the day and sank Ozawa's northern force carriers in the Battle of Cape Engano, thus permanently destroying Japanese carrier aviation for the remainder of the war.

g. **Despite their heavy losses, the Japanese believed that they had achieved a major naval victory.** Wildly exaggerated reports of damage from their air attacks and "victory" at the Battle off Samar led them to conclude that the US Sixth Army had now been isolated on Leyte. **Using nine convoys between 23 October and 11 December, they reinforced their forces on Leyte by committing elements of five divisions and one independent brigade to the battle.** MacArthur's headquarters believed (correctly) that the Japanese had suffered a defeat, and initially thought the purpose of the Japanese convoys was to evacuate vice reinforce Leyte. Once their true purpose was discerned, these convoys were severely attrited by US air attacks. However, the Japanese managed to land over 45,000 troops and prolong organized resistance on Leyte until the end of December.

h. Throughout this period, the US Seventh and Third Fleets had to remain off Leyte to protect the beachhead and the Sixth Army until sufficient airfields could be constructed to enable land-based aircraft to take over the mission. Meanwhile, the Japanese Naval Air Force continued to attack US vessels off Leyte using the suicide or "kamikaze" tactics for the first time. While these attacks added to US Navy losses, the battle had already been decided.

> *"Of this plan [SHO-1] it can only be said that it was contrary to every principle of naval tactics. When we could not possess adequate control of the air, to send the main strength of our surface decisive battle force against the enemy landing point, was a flagrant departure from military common sense. However, under the existing circumstances there was no alternative unless, seeking safety in retreat, we were to supinely sit by and watch the enemy carry out his invasion."*
>
> **Admiral Soemu Toyoda, Commander in Chief, Japanese Combined Fleet, in *The End of the Imperial Japanese Navy*, 1956**

4. JIPB Lessons Learned

The Battle of Leyte Gulf sealed the fate of the Japanese Empire. The Japanese Navy was decisively defeated and was incapable of conducting further operations that would endanger US naval superiority. However, the Japanese almost won a major victory with Kurita's center force snatching defeat from the jaws of victory due to its untimely withdrawal. **By using this historical example, several important points about JIPB can be made.**

a. Prior to the battle, neither MacArthur nor Nimitz expected a significant offensive reaction from the Japanese Navy. They focused upon what they expected the Japanese to do (COA 1) vice what the Japanese were capable of doing (COA 3). Additionally, US planners failed to understand the perception of the Japanese leadership (albeit incorrect) that their forces had the advantage due to "heavy" US losses. **The JIPB process, when**

correctly applied, is designed to focus attention both upon what the enemy is expected to do and is capable of doing, by identifying both the most likely enemy COA and the most dangerous COA.

b. Halsey was vulnerable to deception based upon his belief (backed up by his previous 3 years of war in the Pacific) that the Japanese carriers were the primary threat. In reality, the Japanese carrier-based air threat was negligible due to the heavy losses incurred by Japanese naval aircrews and the lack of sufficient replacements. In JIPB terms, Halsey failed to anticipate how "wildcard" factors, such as desperation, can modify an adversary's past practices, such as the use of aircraft carriers as decoys. Caution should always be exercised to avoid over-reliance on doctrinal templating without rigorous all-source analysis to test if the threat remains valid. **JIPB is not a panacea, and can lead to pitfalls when applied without careful analysis.**

c. The US Navy's defensive problem was made easier because of restrictions imposed by the littoral environment of the Philippine Islands upon Japanese maneuver. **The JIPB process is designed to identify this type of advantage prior to the battle so that it can be exploited.** On the other hand, the JIPB process cannot be expected to identify unknown threats such as the use of new tactics (kamikazes); however, once identified, previously produced JIPB products can be quickly adapted to address new threats.

5. Further Reading

For further reading on the Leyte campaign see the following.

a. Anderson, Charles R. *Leyte*, US Army Center of Military History. Washington: US Government Printing Office, 1994.

b. Morison, Samuel Eliot. *Leyte, June 1944 — January 1945*. Boston: Little, Brown, & Co., 1958.

c. Cutler, Thomas J. *The Battle of Leyte Gulf: 23-26 October 1944*. New York: Harper Collins, 1994.

d. Prados, John. *The Combined Fleet Decoded, the Secret History of American Intelligence and the Japanese Navy in World War II.* New York: Random House, 1995.

e. Solberg, Carl. *Decision and Dissent, with Halsey at Leyte Gulf.* Annapolis: Naval Institute Press, 1995.

APPENDIX B
ENVIRONMENTAL FACTORS AFFECTING THE MILITARY USE OF SPACE

1. Overview

In order to effectively integrate space-related intelligence assessments into the overall JIPB analysis, and to formulate appropriate RFIs, the JIPB analyst should be familiar with the following environmental factors affecting the military use of space. These factors should be considered during step two of the JIPB process, "Describe the Battlespace's Effects."

- **Inclination and Launch Location**. The initial minimum inclination of an earth satellite, without costly fuel maneuvering, is physically limited by the latitude of its launch site. For example, depending on its launch azimuth, the possible inclinations of a satellite launched from Cape Canaveral (located at 30 degrees north latitude) may theoretically range from polar orbit down to a minimum of 30 degrees (see Figure B-1).

- **Orbit Type and Altitude**. Military satellites utilize a wide variety of orbits, each of which presents a unique set of constraints dictated by orbital mechanics. For example, a

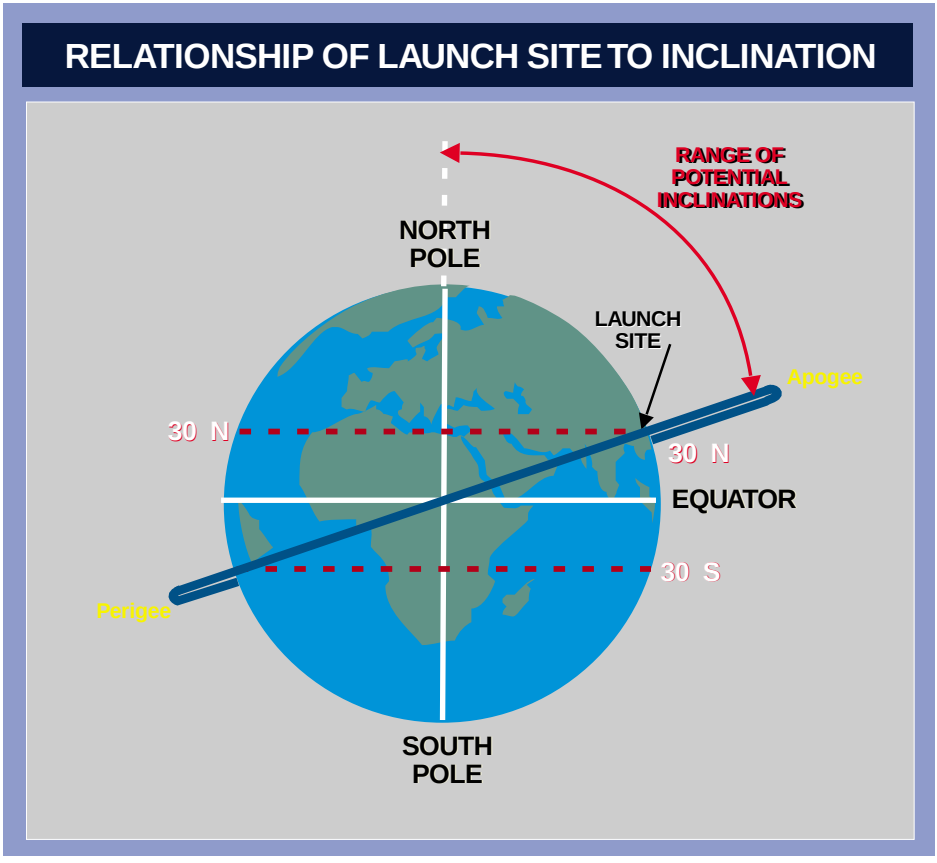

Figure B-1. Relationship of Launch Site to Inclination

geosynchronous satellite completes its orbit every 24 hours and matches the earth's rotation at the equator. The velocity required for a geosynchronous earth satellite to both maintain its orbit and to match the earth's rotation limits such satellites to circular orbits over the equator at an altitude not less than 22,300 miles. Since the inclination of a geosynchronous satellite essentially coincides with the earth's equator, the best launch sites for such satellites are located as close to the equator as possible. Conversely, a satellite in elliptical orbit varies in both altitude and speed, traveling faster during perigee (the point in the orbit closest to the earth) and slowing at apogee (the furthest point from earth) (see Figure B-2).

- **Orbital Plane and Launch Window.** The orbital plane of a satellite remains stationary relative to the center of the earth. The time when a satellite is directly over a specific point of the earth's surface is therefore dependent on the rotation of the earth beneath the satellite's orbital plane, and the location of the satellite within its orbital plane. This limits the times when it is possible

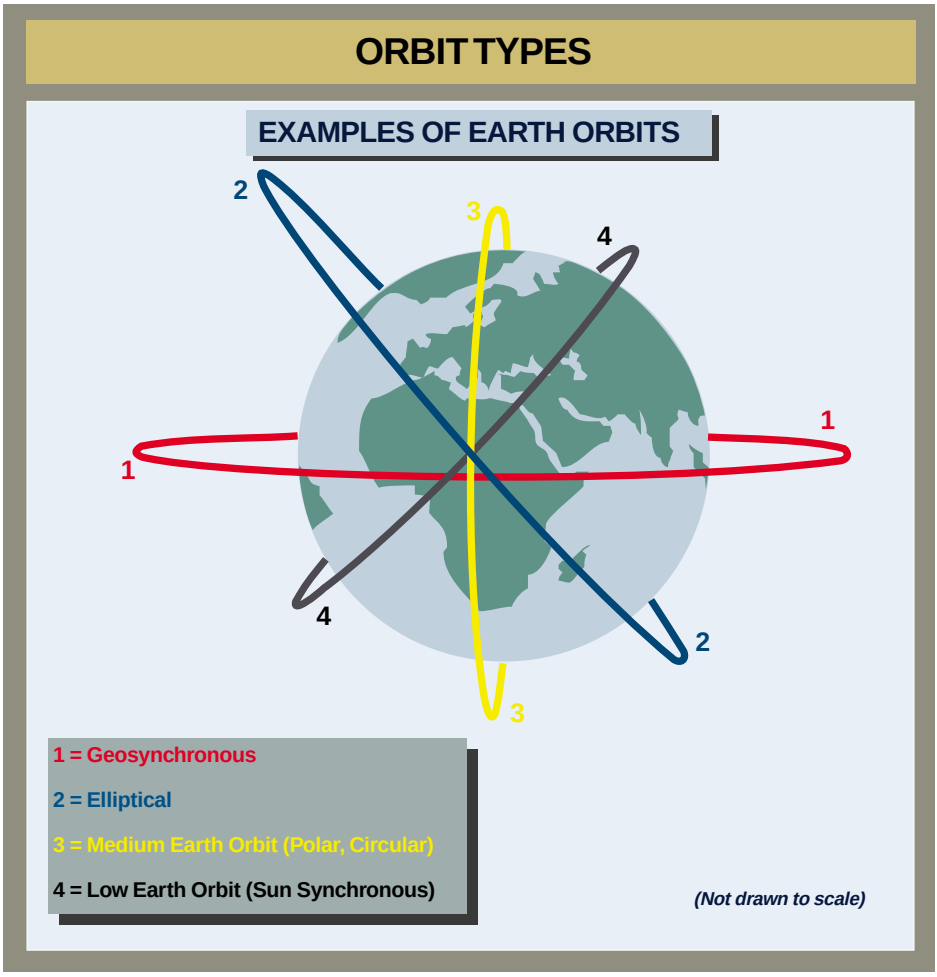

Figure B-2. Orbit Types

to launch replacement satellites in specific orbital planes or to attempt a co-orbital anti-satellite launch.

- **Orbits and Ground Tracks**. The path a satellite makes as it passes directly over portions of the earth can be depicted on a map as a satellite ground track. The JIPB analyst can use ground tracks to graphically depict when various geographic areas may be subject to satellite reconnaissance. For example, ground tracks of circular orbits appear as a series of sinusoidal traces, successively displaced to the west. The track will bisect the equator at an angle equal to the satellite's inclination. The amount of westward displacement between tracks is equal to the period of the satellite (time to complete one full orbit) multiplied by the rotational speed of the earth (15 degrees per hour). An exception to this rule includes circular orbits with periods equal to 24 hours. If a 24-hour circular orbit corresponds to the equatorial plane, then the ground trace will appear as a single point on the equator and the satellite is geosynchronous. If the orbit is inclined between the equatorial and polar planes, then the ground trace will appear as a figure "eight" with the intersection of the two loops of the figure "eight" forming a single point on the equator. Elliptical orbits result in a series of irregular traces and therefore add a greater degree of flexibility in designing ground tracks for specific purposes (see Figure B-3).

- **Orbit Density and Debris**. Depending on their relative utility for civil and military applications, some orbits contain greater numbers of satellites than others. Geosynchronous, semi-synchronous, and sun synchronous orbits are all key locations for earth observation and space system placement.

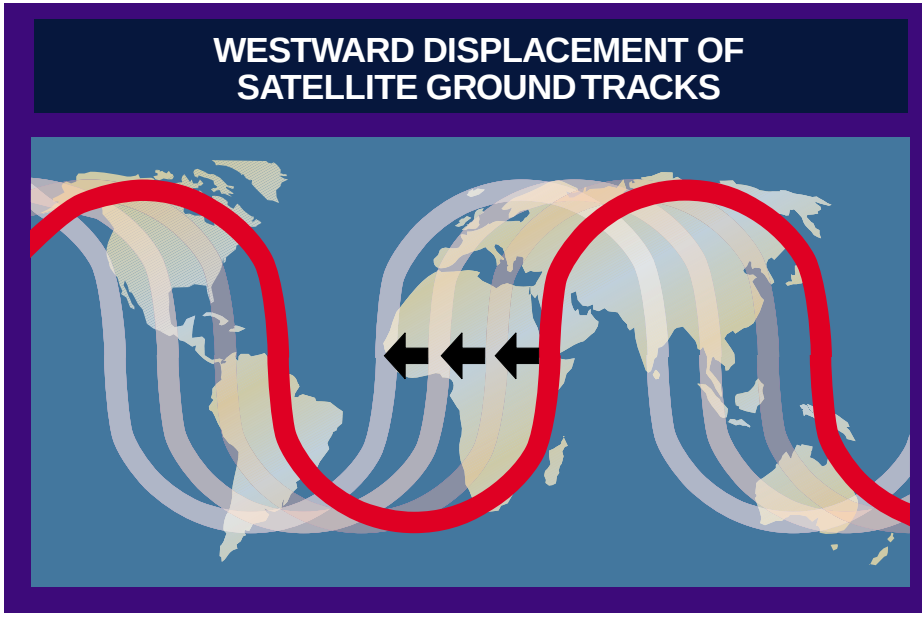

Figure B-3. Westeward Displacement of Satellite Ground Tracks

Consequently, clusters of space systems, both friendly and adversary, appear in relatively localized areas of space. This "clustering tendency" presents a wide range of problems for space operations planners related to launch window planning, satellite positioning, and space control. A related problem to orbital density is the increasing amount of space debris in orbit. Because of the orbital velocities involved, a collision with even a tiny object may result in catastrophic damage to a space vehicle. Most of these objects can be cataloged and their orbits tracked, but the potential damage that debris may cause remains an important consideration in the planning of satellite orbits.

- **Solar and Geomagnetic Activity**. The sun directly affects the space environment by radiating electromagnetic energy and atomic particles. The amount of solar activity varies according to an 11-year cycle that measure sunspots and solar flares (see Figure B-4). The earth's magnetic field traps some of this radiation in specific orbital locations, influencing where space systems can operate effectively. Solar activity also results in geomagnetic disturbances that can result in variations in the atmospheric drag experienced by satellites. This atmospheric drag can change the orbital parameters of a satellite significantly, thereby complicating the ability to predict satellite locations.

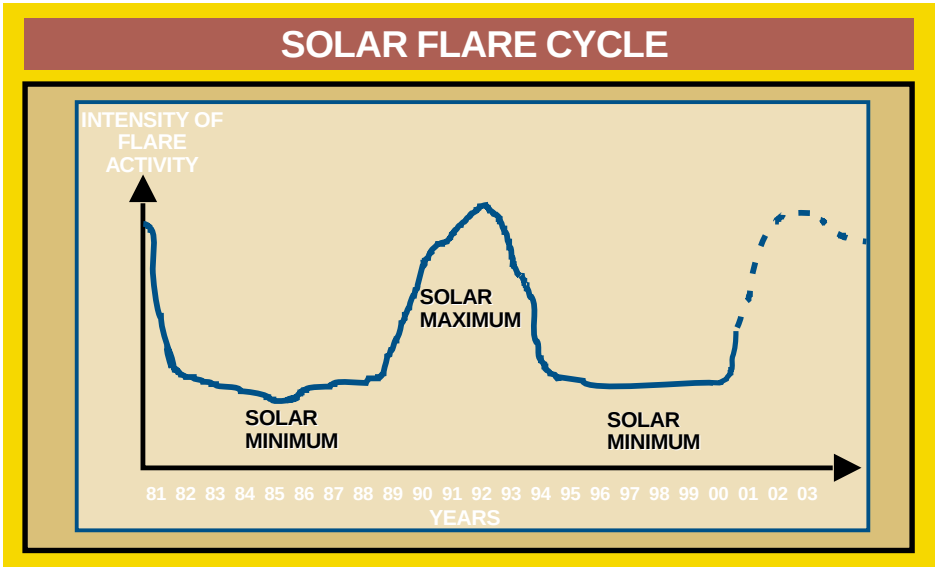

Figure B-4. Solar Flare Cycle

APPENDIX C
REFERENCES

The development of JP 2-01.3 is based upon the following primary references.

1. JP 1, *Joint Warfare of the Armed Forces of the United States.*

2. JP 1-01, *Joint Doctrine Development System.*

3. JP 1-02, *Department of Defense Dictionary of Military and Associated Terms.*

4. JP 2-0, *Doctrine for Intelligence Support to Joint Operations.*

5. JP 2-01, *Joint Intelligence Support to Military Operations.*

6. JP 2-01.1, *Joint Tactics, Techniques, and Procedures for Intelligence Support to Targeting.*

7. JP 2-01.2, *Joint Doctrine and Tactics, Techniques, and Procedures for Counterintelligence Support to Operations.*

8. JP 2-02, *National Intelligence Support to Joint Operations.*

9. JP 2-03, *Joint Tactics, Techniques, and Procedures for Geospatial Information and Services Support to Joint Operations.*

10. JP 3-0, *Doctrine for Joint Operations.*

11. JP 3-01, *Joint Doctrine for Countering Air and Missile Threats.*

12. JP 3-01.5, *Doctrine for Joint Theater Missile Defense.*

13. JP 3-05, *Doctrine for Joint Special Operations.*

14. JP 3-05.5, *Joint Special Operations Targeting and Mission Planning Procedures.*

15. JP 3-07, *Joint Doctrine for Military Operations Other Than War.*

16. JP 3-07.1, *Joint Tactics, Techniques, and Procedures for Foreign Internal Defense (FID).*

17. JP 3-07.2, *Joint Tactics, Techniques, and Procedures for Antiterrorism.*

18. JP 3-07.3, *Joint Tactics, Techniques, and Procedures for Peace Operations.*

19. JP 3-07.4, *Joint Counterdrug Operations.*

20. JP 3-07.5, *Joint Tactics, Techniques, and Procedures for Noncombatant Evacuation Operations.*

21. JP 3-08, *Interagency Coordination During Joint Operations.*

22. JP 3-10, *Doctrine for Joint Rear Area Operations.*

23. JP 3-13, *Joint Doctrine for Information Operations.*

24. JP 3-13.1, *Joint Doctrine for Command and Control Warfare (C2W).*

25. JP 3-53, *Doctrine for Joint Psychological Operations.*

26. JP 3-55, *Doctrine for Reconnaissance, Surveillance, and Target Acquisition (RSTA) Support for Joint Operations.*

27. JP 3-57, *Doctrine for Joint Civil-Military Operations.*

28. JP 3-59, *Joint Doctrine, Tactics, Techniques, and Procedures for Meteorological and Oceanographic Operations.*

29. JP 3-60, *Joint Doctrine for Targeting.*

30. JP 3-61, *Doctrine for Public Affairs in Joint Operations.*

31. JP 4-0, *Doctrine for Logistic Support of Joint Operations.*

32. JP 5-0, *Doctrine for Planning Joint Operations.*

33. JP 5-00.1, *Joint Tactics, Techniques, and Procedures for Joint Campaign Planning.*

34. JP 6-0, *Doctrine for Command, Control, Communications, and Computer (C4) Systems Support to Joint Operations.*

35. CJCSI 3900.01, *Position Reference Procedures.*

36. CJCSM 3320.01, *Joint Operations in the Electromagnetic Battlespace.*

37. CJCSM 3500.04, *Universal Joint Task List (UJTL).*

38. Army Field Manual 34-130, *Intelligence Preparation of the Battlefield.*

39. Marine Corps Warfighting Publication (MCWP) 2-1, *Intelligence Operations.*

40. MCWP 2-12, *Marine Air-Ground Task Force (MAGTF) Intelligence Analysis and Production.*

41. Naval Doctrine Publication 2, *Naval Intelligence.*

42. Air Force Doctrine Document 2-5.2, *Intelligence, Surveillance, and Reconnaissance Operations.*

43. Joint Universal Lessons Learned System (JULLS)

44. MIL-STD-2525B, *Common Warfighting Symbology.*

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APPENDIX D
ADMINISTRATIVE INSTRUCTIONS

1. User Comments

Users in the field are highly encouraged to submit comments on this publication to: Commander, United States Joint Forces Command, Joint Warfighting Center Code JW100, 116 Lake View Parkway, Suffolk, VA 23435-2697. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

The lead agent and Joint Staff doctrine sponsor for this publication is the Director for Intelligence (J-2).

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Routine changes should be submitted to the Director for Operational Plans and Interoperability (J-7), JDD, 7000 Joint Staff Pentagon, Washington, DC 20318-7000.

b. When a Joint Staff directorate submits a proposal to the Chairman of the Joint Chiefs of Staff that would change source document information reflected in this publication, that directorate will include a proposed change to this publication as an enclosure to its proposal. The Military Services and other organizations are requested to notify the Director, J-7, Joint Staff, when changes to source documents reflected in this publication are initiated.

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a. Additional copies of this publication can be obtained through Service publication centers.

b. Only approved pubs and test pubs are releasable outside the combatant commands, Services, and Joint Staff. Release of any classified joint publication to foreign governments or foreign nationals must be requested through the local embassy (Defense Attaché Office) to DIA Foreign Liaison Office, PSS, Room 1A674, Pentagon, Washington, DC 20301-7400.

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GLOSSARY

PART I — ABBREVIATIONS AND ACRONYMS

AOI	area of interest
ASDIA	All-Source Document Index
C2	command and control
C4	command, control, communications, and computers
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CCD	camouflage, concealment, and deception
CI	counterintelligence
CINCPAC	Commander in Chief, Pacific *This acronym is obsolete and is used for historical reference only*
CINCSOWESPAC	Commander in Chief, Southwest Pacific *This acronym is obsolete and is used for historical reference only*
CMO	civil-military operations
CNA	computer network attack
COA	course of action
COG	center of gravity
CONUS	continental United States
DIA	Defense Intelligence Agency
DODIPP	Department of Defense Intelligence Production Program
EW	electronic warfare
FHA	foreign humanitarian assistance
FID	foreign internal defense
GI&S	geospatial information and services
HPT	high-payoff target
HSI	hyperspectral imaging
HUMINT	human intelligence
HVT	high-value target
ICR	Intelligence Collection Requirements
IMINT	imagery intelligence
IO	information operations
IPB	intelligence preparation of the battlespace
IRISA	Intelligence Report Index Summary File
J-2	Intelligence Directorate of a joint staff
J-3	Operations Directorate of a joint staff

J-4	Logistics Directorate of a joint staff
J-5	Plans Directorate of a joint staff
J-6	Command, Control, Communications, and Computer Systems Directorate of a joint staff
JFC	joint force commander
JFSOCC	joint force special operations component commander
JIC	joint intelligence center
JIPB	joint intelligence preparation of the battlespace
JISE	joint intelligence support element
JP	joint publication
JRA	joint rear area
JSOA	joint special operations area
JWICS	Joint Worldwide Intelligence Communications System
LOC	line of communications
MASINT	measurement and signature intelligence
MCOO	modified combined obstacle overlay
MDITDS	Modernized Defense Intelligence Threat Data System
METOC	meteorological and oceanographic
MIDB	Modernized Integrated Data Base
MOOTW	military operations other than war
MSI	multispectral imaging
NAI	named area of interest
NBC	nuclear, biological, and chemical
NEO	noncombatant evacuation operation
NES	National Exploitation System
NGO	nongovernmental organization
NIMA	National Imagery and Mapping Agency
OB	order of battle
OPLAN	operation plan
OPSEC	operations security
PIR	priority intelligence requirement
PSYOP	psychological operations
PVO	private voluntary organization
RFI	request for information
ROE	rules of engagement
RSTA	reconnaissance, surveillance, and target acquisition
SAFE	secure analyst file environment
SIGINT	signals intelligence
SLCM	sea-launched cruise missile

SLOC	sea line of communication
SOF	special operations forces
SOLIS	signals intelligence (SIGINT) On-line Information System
TAI	target area of interest
TTP	tactics, techniques, and procedures
WMD	weapons of mass destruction

all-source intelligence. 1. Intelligence products and/or organizations and activities that incorporate all sources of information, including, most frequently, human resources intelligence, imagery intelligence, measurement and signature intelligence, signals intelligence, and open source data, in the production of finished intelligence. 2. In intelligence collection, a phrase that indicates that in the satisfaction of intelligence requirements, all collection, processing, exploitation, and reporting systems and resources are identified for possible use and those most capable are tasked. (JP 1-02)

area of influence. A geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems normally under the commander's command or control. (JP 1-02)

area of interest. That area of concern to the commander, including the area of influence, areas adjacent thereto, and extending into enemy territory to the objectives of current or planned operations. This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission. Also called **AOI**. (JP 1-02)

avenue of approach. An air or ground route of an attacking force of a given size leading to its objective or to key terrain in its path. (JP 1-02)

battlespace. The environment, factors, and conditions which must be understood to successfully apply combat power, protect the force, or complete the mission. This includes the air, land, sea, space and the included enemy and friendly forces, facilities, weather, terrain, the electromagnetic spectrum, and information environment within the operational areas and areas of interest. (JP 1-02)

centers of gravity. Those characteristics, capabilities, or localities from which a military force derives its freedom of action, physical strength, or will to fight. Also called **COGs**. (JP 1-02)

collection plan. A plan for collecting information from all available sources to meet intelligence requirements and for transforming those requirements into orders and requests to appropriate agencies. (JP 1-02)

course of action. 1. A plan that would accomplish, or is related to, the accomplishment of a mission. 2. The scheme adopted to accomplish a task or mission. It is a product of the Joint Operation Planning and Execution System concept development phase. The supported commander will include a recommended course of action in the commander's estimate. The recommended course of action will include the concept of operations, evaluation of supportability estimates of supporting organizations, and an integrated time-phased data base of combat, combat support, and combat service support forces and sustainment. Refinement of this data base will be contingent on the time available for course of action development. When approved, the course of action becomes the basis for the development of an operation plan or operation order. Also called **COA**. (JP 1-02)

cyberspace. The notional environment in which digitized information is communicated over computer networks. (This term and its definition are approved

for inclusion in the next edition of JP 1-02.)

data base. Information that is normally structured and indexed for user access and review. Data bases may exist in the form of physical files (folders, documents, etc.) or formatted automated data processing system data files. (JP 1-02)

deception. Those measures designed to mislead the enemy by manipulation, distortion, or falsification of evidence to induce him to react in a manner prejudicial to his interests. (JP 1-02)

decision point. The point in space and time where the commander or staff anticipates making a decision concerning a specific friendly course of action. A decision point is usually associated with a specific target area of interest, and is located in time and space to permit the commander sufficient lead time to engage the adversary in the target area of interest. Decision points may also be associated with the friendly force and the status of ongoing operations. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

decision support template. A graphic record of wargaming. The decision support template depicts decision points, timelines associated with movement of forces and the flow of the operation, and other key items of information required to execute a specific friendly course of action. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

doctrinal template. A model based on known or postulated adversary doctrine. Doctrinal templates illustrate the disposition and activity of adversary forces and assets conducting a particular operation unconstrained by the effects of the battlespace. They represent the application of adversary doctrine under ideal conditions. Ideally, doctrinal templates depict the threat's normal organization for combat, frontages, depths, boundaries and other control measures, assets available from other commands, objective depths, engagement areas, battle positions, and so forth. Doctrinal templates are usually scaled to allow ready use with geospatial products. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

end of evening nautical twilight. Occurs when the sun has dropped 12 degrees below the western horizon, and is the instant of last available daylight for the visual control of limited ground operations. At end of evening nautical twilight there is no further sunlight available. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

enemy capabilities. Those courses of action of which the enemy is physically capable and that, if adopted, will affect accomplishment of the friendly mission. The term "capabilities" includes not only the general courses of action open to the enemy, such as attack, defense, reinforcement, or withdrawal, but also all the particular courses of action possible under each general course of action. "Enemy capabilities" are considered in the light of all known factors affecting military operations, including time, space, weather, terrain, and the strength and disposition of enemy forces. In strategic thinking, the capabilities of a nation represent the courses of action within the power of the nation for accomplishing its national objectives throughout the range of military operations. (JP 1-02.)

event matrix. A description of the indicators and activity expected to occur in each named area of interest. It normally cross-references each named area of interest and indicator with the times they are expected

to occur and the courses of action they will confirm or deny. There is no prescribed format. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

event template. A guide for collection planning. The event template depicts the named areas of interest where activity, or its lack of activity, will indicate which course of action the adversary has adopted. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

first light. The beginning of morning nautical twilight; i.e. when the center of the morning sun is 12 degrees below the horizon. (JP 1-02)

foreign internal defense. Participation by civilian and military agencies of a government in any of the action programs taken by another government to free and protect its society from subversion, lawlessness, and insurgency. Also called **FID**. (JP 1-02)

functional plans. Plans involving the conduct of military operations in a peacetime or permissive environment developed by combatant commanders to address requirements such as disaster relief, nation assistance, logistics, communications, surveillance, protection of US citizens, nuclear weapon recovery and evacuation, and continuity of operations, or similar discrete tasks. They may be developed in response to the requirements of the Joint Strategic Capabilities Plan, at the initiative of the CINC, or as tasked by the supported combatant commander, Joint Staff, Service, or Defense agency. Chairman of the Joint Chiefs of Staff review of CINC-initiated plans is not normally required. (JP 1-02)

geospatial information and services. The concept for collection, information extraction, storage, dissemination, and exploitation of geodetic, geomagnetic, imagery (both commercial and national source), gravimetric, aeronautical, topographic, hydrographic, littoral, cultural, and toponymic data accurately referenced to a precise location on the earth's surface. These data are used for military planning, training, and operations including navigation, mission planning, mission rehearsal, modeling, simulation and precise targeting. Geospatial information provides the basic framework for battlespace visualization. It is information produced by multiple sources to common interoperable data standards. It may be presented in the form of printed maps, charts and publications; in digital simulation and modeling data bases; in photographic form; or in the form of digitized maps and charts or attributed centerline data. Geospatial services include tools that enable users to access and manipulate data, and also includes instruction, training, laboratory support, and guidance for the use of geospatial data. Also called **GI&S**. (JP 1-02)

high-payoff target. 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 identified through wargaming that must be acquired and successfully attacked for the success of the friendly commander's mission. Also called **HPT**. (JP 1-02.)

high-value target. A target that 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 throughout the friendly commander's area of interest. Also called **HVT**. (JP 1-02.)

human intelligence. A category of intelligence derived from information

collected and provided by human sources. Also called **HUMINT**. (JP 1-02)

imagery intelligence. Intelligence derived from the exploitation of collection by visual photography, infrared sensors, lasers, electro-optics, and radar sensors such as synthetic aperture radar wherein images of objects are reproduced optically or electronically on film, electronic display devices, or other media. Also called **IMINT**. (JP 1-02)

indicator. In intelligence usage, an item of information which reflects the intention or capability of a potential enemy to adopt or reject a course of action. (JP 1-02)

information operations. Actions taken to affect adversary information and information systems while defending one's own information and information systems. Also called **IO**. (JP 1-02)

information requirements. Those items of information regarding the enemy and his environment which need to be collected and processed in order to meet the intelligence requirements of a commander. (JP 1-02)

information superiority. That degree of dominance in the information domain which permits the conduct of operations without effective opposition. (JP 1-02)

information warfare. Information operations conducted during time of crisis or conflict to achieve or promote specific objectives over a specific adversary or adversaries. Also called **IW**. (JP 1-02)

infrastructure. A term generally applicable to all fixed and permanent installations, fabrications, or facilities for the support and control of military forces. (JP 1-02)

intelligence cycle. The process by which information is converted into intelligence and made available to users. There are six phases in the cycle: a. planning and direction – Determination of intelligence requirements, development of appropriate intelligence architecture, preparation of a collection plan, and issuance of orders and requests to information collection agencies. b. collection – Acquisition of information and the provision of this information to processing elements. c. processing and exploitation – Conversion of collected information into forms suitable to the production of intelligence. d. analysis and production – Conversion of processed information into intelligence through the integration, analysis, evaluation, and interpretation of all source data and the preparation of intelligence products in support of known or anticipated user requirements. e. dissemination and integration – Delivery of intelligence to users in a suitable form and the application of the intelligence to appropriate missions, tasks, and functions. f. evaluation and feedback – Continuous assessment of intelligence operations during each phase of the intelligence cycle to ensure that the commander's intelligence requirements are being met. (JP 1-02)

intelligence estimate. The appraisal, expressed in writing or orally, of available intelligence relating to a specific situation or condition with a view to determining the courses of action open to the enemy or potential enemy and the order of probability of their adoption. (JP 1-02)

intelligence preparation of the battlespace. An analytical methodology employed to reduce uncertainties concerning the enemy, environment, and terrain for all types of operations. Intelligence preparation of the battlespace builds an extensive data base for each potential area in which a unit may be required to operate. The data base is then analyzed in detail to determine the impact of the enemy, environment, and

terrain on operations and presents it in graphic form. Intelligence preparation of the battlespace is a continuing process. Also called **IPB**. (JP 1-02)

intelligence requirement. Any subject, general or specific, upon which there is a need for the collection of information, or the production of intelligence. (JP 1-02)

joint force commander. A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called **JFC**. (JP 1-02)

joint intelligence preparation of the battlespace. The analytical process used by joint intelligence organizations to produce intelligence assessments, estimates, and other intelligence products in support of the joint force commander's decision making process. It is a continuous process that includes defining the total battlespace environment; describing the battlespace's effects; evaluating the adversary; and determining and describing adversary potential courses of action. The process is used to analyze the air, land, sea, space, electromagnetic, cyberspace, and human dimensions of the environment and to determine an opponent's capabilities to operate in each. Joint intelligence preparation of the battlespace products are used by the joint force and component command staffs in preparing their estimates and are also applied during the analysis and election of friendly courses of action. Also called **JIPB**. (JP 1-02)

key terrain. Any locality, or area, the seizure or retention of which affords a marked advantage to either combatant. (JP 1-02)

line of communications. A route, either land, water, and/or air, which connects an operating military force with a base of operations and along which supplies and military forces move. Also called **LOC**. (JP 1-02)

measurement and signature intelligence. Scientific and technical intelligence obtained by quantitative and qualitative analysis of data (metric, angle, spatial, wavelength, time dependence, modulation, plasma, and hydromagnetic) derived from specific technical sensors for the purpose of identifying any distinctive features associated with the target, source, emitter, or sender measurement of the same. The detected feature may be either reflected or emitted. Also called **MASINT**. (JP 1-02)

military operations other than war. Operations that encompass the use of military capabilities across the range of military operations short of war. These military actions can be applied to complement any combination of the other instruments of national power and occur before, during, and after war. Also called **MOOTW**. (JP 1-02)

mobility corridor. Areas where a force will be canalized due to terrain restrictions. They allow military forces to capitalize on the principles of mass and speed and are therefore relatively free of obstacles. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

modified combined obstacle overlay. A joint intelligence preparation of the battlespace product used to portray the effects of each battlespace dimension on military operations. It normally depicts militarily significant aspects of the battlespace environment, such as obstacles restricting military movement, key geography, and military objectives. Also

called **MCOO**. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

named area of interest. The geographical area where information that will satisfy a specific information requirement can be collected. Named areas of interest are usually selected to capture indications of adversary courses of action, but also may be related to conditions of the battlespace. Also called **NAI**. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

open-source intelligence. Information of potential intelligence value that is available to the general public. Also called **OSINT**. (JP 1-02)

operation order. A directive issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation. Also called **OPORD**. (JP 1-02)

operation plan. Any plan, except for the Single Integrated Operation Plan, for the conduct of military operations. Plans are prepared by combatant commanders in response to requirements established by the Chairman of the Joint Chiefs of Staff and by commanders of subordinate commands in response to requirements tasked by the establishing unified commander. Operation plans are prepared in either a complete format (OPLAN), or as a concept plan (CONPLAN). The CONPLAN can be published with or without a time-phased force and deployment data (TPFDD) file. a. OPLAN — An operation plan for the conduct of joint operations that can be used as a basis for development of an operation order (OPORD). An OPLAN identifies the forces and supplies required to execute the CINC's Strategic Concept and a movement schedule of these resources to the theater of operations. The forces and supplies are identified in TPFDD files. OPLANs will include all phases of the tasked operation. The plan is prepared with the appropriate annexes, appendixes, and TPFDD files as described in the Joint Operation Planning and Execution System manuals containing planning policies, procedures, and formats. Also called **OPLAN**. b. CONPLAN — An operation plan in an abbreviated format that would require considerable expansion or alteration to convert it into an OPLAN or OPORD. A CONPLAN contains the CINC's Strategic Concept and those annexes and appendixes deemed necessary by the combatant commander to complete planning. Generally, detailed support requirements are not calculated and TPFDD files are not prepared. Also called **CONPLAN**. c. CONPLAN with TPFDD — A CONPLAN with TPFDD is the same as a CONPLAN except that it requires more detailed planning for phased deployment of forces. (JP 1-02)

order of battle. The identification, strength, command structure, and disposition of the personnel, units, and equipment of any military force. Also called **OB**. (This term and its definition modify the existing term and definition and are approved for inclusion in the next edition of JP 1-02)

priority intelligence requirements. Those intelligence requirements for which a commander has an anticipated and stated priority in his task of planning and decisionmaking. Also called **PIRs**. (This term and its definition modify the existing term and definition and are approved for inclusion in the next edition of JP 1-02)

psychological operations. Planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective

reasoning, and ultimately the behavior of foreign governments, organizations, groups, and individuals. The purpose of psychological operations is to induce or reinforce foreign attitudes and behavior favorable to the originator's objectives. Also called **PSYOP**. (JP 1-02)

reconnaissance. A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. (JP 1-02)

request for information. 1. Any specific time-sensitive ad hoc requirement for intelligence information or products to support an ongoing crisis or operation not necessarily related to standing requirements or scheduled intelligence production. A request for information can be initiated to respond to operational requirements and will be validated in accordance with the theater command's procedures. 2. The National Security Agency/Central Security Service uses this term to state ad hoc signals intelligence requirements. Also called **RFI**. (JP 1-02)

rules of engagement. Directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. Also called **ROE**. (JP 1-02)

signals intelligence. 1. A category of intelligence comprising either individually or in combination all communications intelligence, electronics intelligence, and foreign instrumentation signals intelligence, however transmitted. 2. Intelligence derived from communications, electronics, and foreign instrumentation signals. Also called **SIGINT**. (JP 1-02)

situation template. A depiction of assumed adversary dispositions, based on adversary doctrine and the effects of the battlespace if the adversary should adopt a particular course of action. In effect, situation templates are the doctrinal templates depicting a particular operation modified to account for the effects of the battlespace environment and the adversary's current situation (training and experience levels, logistic status, losses, dispositions). Normally, the situation template depicts adversary units two levels of command below the friendly force, as well as the expected locations of high-value targets. Situation templates use time-phase lines to indicate movement of forces and the expected flow of the operation. Usually, the situation template depicts a critical point in the course of action. Situation templates are one part of a adversary course of action model. Models may contain more than one situation template. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

software. A set of computer programs, procedures, and associated documentation concerned with the operation of a data processing system, e.g., compilers, library routines, manuals, and circuit diagrams. (JP 1-02)

surveillance. The systematic observation of aerospace, surface or subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means. (JP 1-02)

target area of interest. The geographical area where high-value targets can be acquired and engaged by friendly forces. Not all target areas of interest will form part of the friendly course of action; only target areas of interest associated with high

priority targets are of interest to the staff. These are identified during staff planning and wargaming. Target areas of interest differ from engagement areas in degree. Engagement areas plan for the use of all available weapons; target areas of interest might be engaged by a single weapon. Also called **TAI**. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

targeting. 1. The process of selecting targets and matching the appropriate response to them, taking account of operational requirements and capabilities. 2. The analysis of enemy situations relative to the commander's mission, objectives, and capabilities at the commander's disposal, to identify and nominate specific vulnerabilities that, if exploited, will accomplish the commander's purpose through delaying, disrupting, disabling or destroying enemy forces or resources critical to the enemy. (JP 1-02)

technical intelligence. Intelligence derived from exploitation of foreign material, produced for strategic, operational, and tactical level commanders. Technical intelligence begins when an individual service member finds something new on the battlefield and takes the proper steps to report it. The item is then exploited at succeedingly higher levels until a countermeasure is produced to neutralize the adversary's technological advantage. Also called **TECHINT**. (JP 1-02)

war game. A simulation, by whatever means, of a military operation involving two or more opposing forces, using rules, data, and procedures designed to depict an actual or assumed real life situation. (JP 1-02)

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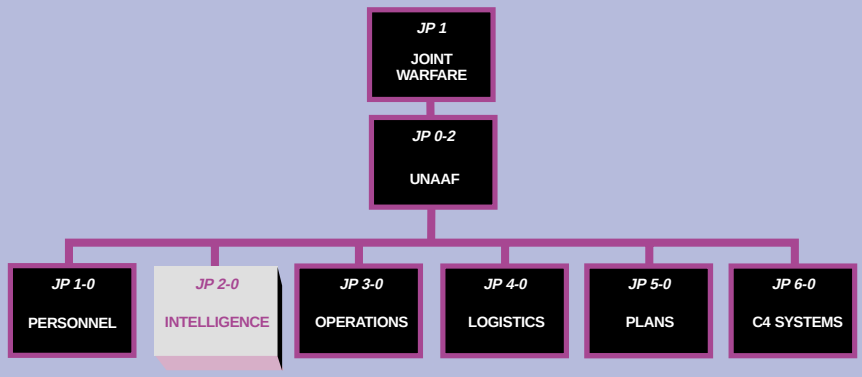
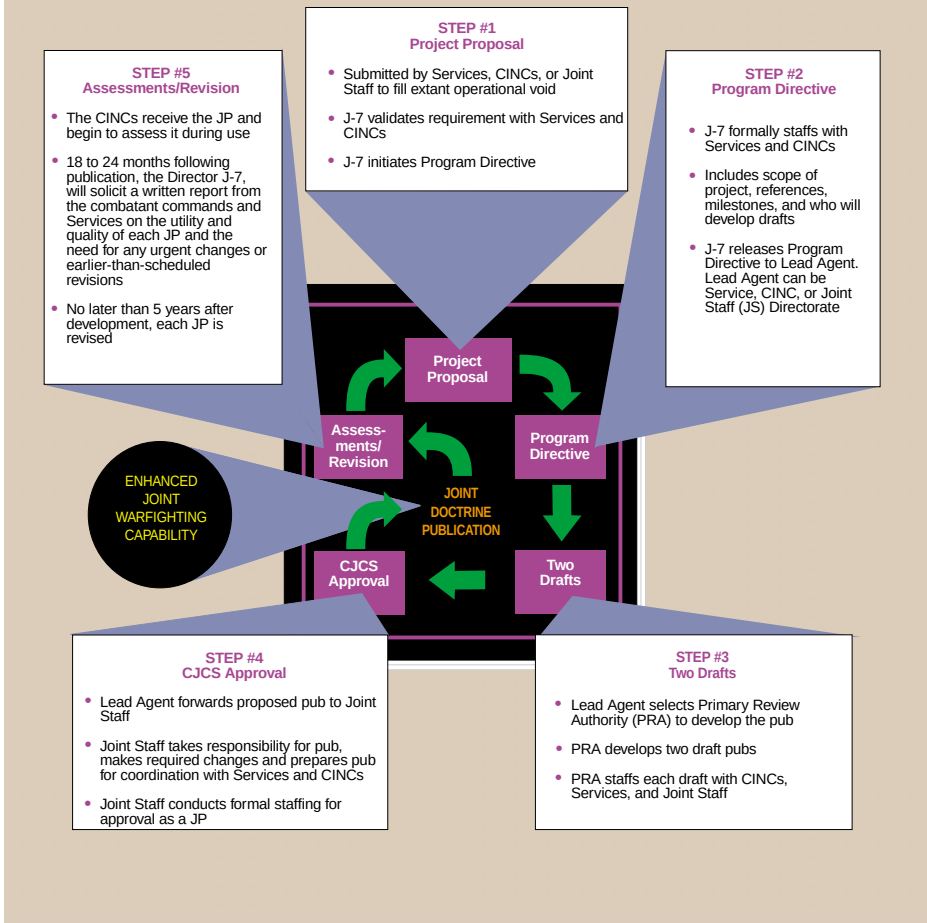


All joint doctrine and tactics, techniques, and procedures are organized into a comprehensive hierarchy as shown in the chart above. **Joint Publication (JP) 2-01.3** is in the **Intelligence** series of joint doctrine publications. The diagram below illustrates an overview of the development process:

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