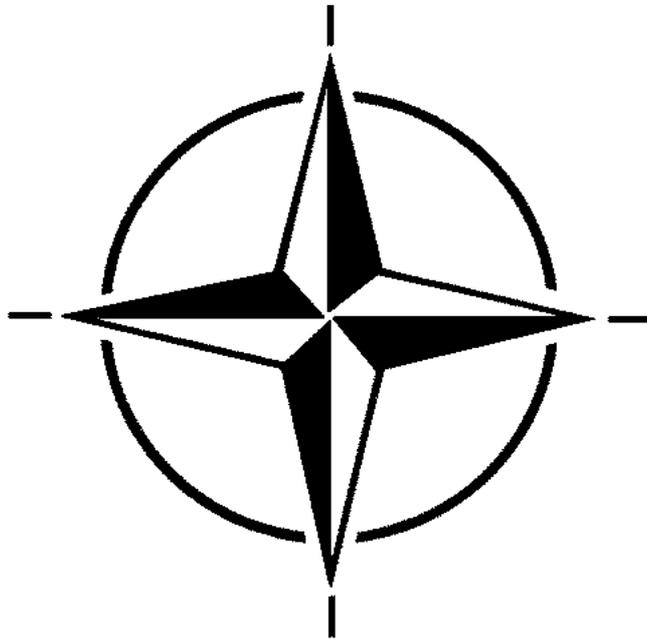


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**RECONNAISSANCE AND
SURVEILLANCE SUPPORT TO
JOINT OPERATIONS**

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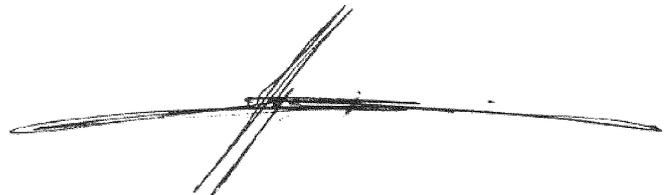
RECONNAISSANCE AND SURVEILLANCE SUPPORT TO ALLIED JOINT OPERATIONS

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**NORTH ATLANTIC TREATY ORGANIZATION
MILITARY AGENCY FOR STANDARDIZATION (MAS)
NATO LETTER OF PROMULGATION**

November 1998

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A. GRØNHEIM
Major General, NOAF
Chairman, MAS

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ANNEX A	

Nation	Reservation

RECORD OF CHANGES

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CHAPTER 1

INTRODUCTION

101. Purpose. The purpose of this publication is to provide a reference document covering doctrine for reconnaissance and surveillance support to Allied joint operations.

102. Scope. Reconnaissance and surveillance doctrine is intended to assist commanders in accomplishing assigned missions by supporting their ability to obtain information necessary for developing plans and conducting operations. This publication's focus will be on operational level doctrine but may be used as a reference at any level. This doctrine should serve as the foundation for other subordinate reconnaissance and surveillance publications to include tactics, techniques, and procedures. Tactics, techniques and procedures will not be described in this document except where necessary for understanding or continuity. The publication will:

- a. Provide guidance for NATO and national commanders, their staffs, and their components in order to effectively employ assigned, attached, or supporting reconnaissance and surveillance forces;
- b. Lead to a better understanding of reconnaissance and surveillance operations within NATO's nations and armed forces.

103. Applicability. The principles, guidelines, and conceptual framework described in this document are provided for NATO Nations, higher NATO commands, joint task forces, subordinate units of these organisations, tactical commanders and their staffs. They are written for those who:

- a. Provide strategic direction for reconnaissance and surveillance operations;
- b. Employ and prepare Allied joint forces for reconnaissance and surveillance operations;
- c. Support or are supported by reconnaissance and surveillance operations.

104. Authority. It is not the intent of this publication to restrict the authority of commanders. Commanders will exercise judgement in applying the doctrine herein to accomplish their missions.

105. Abbreviations, Terms, and Definitions. Abbreviations, terms, and definitions are located in Chapter 2 and Annex A.

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CHAPTER 2

RECONNAISSANCE AND SURVEILLANCE MISSION AREAS

“What enables the wise sovereign and the general to...achieve things beyond the reach of ordinary man is foreknowledge.”

Sun Tzu

201. Definitions.

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. (AAP-6)

Surveillance. The systematic observation of aerospace, surface and subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means. (AAP-6)

Air Reconnaissance. The collection of information of intelligence interest either by visual observation from the air or through the use of airborne sensors. (AAP-6)

Air Surveillance. The systematic observation of air space by electronic, visual, or other means, primarily for the purpose of identifying and determining the movements of aircraft and missiles, friendly and enemy, in the air space under observation. (AAP-6)

Battlefield Surveillance. Systematic observation of the battle area for the purpose of providing timely information and combat intelligence. (AAP-6)

Sea Surveillance. The systematic observation of surface and sub-surface areas by all available and practical means primarily for the purpose of locating, identifying and determining the movement of ships, submarines, and other vehicles, friendly and enemy, proceeding on or under the surface of the world's seas and oceans. (AAP-6)

Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR). ISTAR is the process that links surveillance, reconnaissance, and target acquisition systems and sensors to cue manoeuvre and offensive strike assets. It encompasses collection and management of information and intelligence to provide situational awareness for commanders and staff to direct operations and support the targeting process.

202. General. The primary objective of reconnaissance and surveillance operations is to provide timely collection support and satisfy information/intelligence requirements, including Alliance, national, and theatre requirements. Reconnaissance and surveillance operations:

Provide assessment support to all levels of command before, during and after the conduct of operations;

Assist in determining where and when to employ limited resources and concentrate the efforts of these resources;

Provide important means for assessing efforts of deception and concealment;

Affect the formulation of policy and strategy as well as the development of a joint campaign;

Are performed by forces with a primary reconnaissance and surveillance mission and other forces with either a collateral mission or the capability to perform such a mission; and

Can be categorised as either strategic, operational, or tactical though the missions accomplished are essentially the same for each level of operations or interests. The variables are depth of operations, operational tempo, level of detail, timelines, reporting, and level of acceptable risk.

203. Strategic Reconnaissance and Surveillance. Operations conducted to collect information that when processed, analysed, and integrated with other information, supports political leaders and senior military commanders in the formulation of policy and military plans at the national or Alliance level.

204. Operational Reconnaissance and Surveillance. Operations conducted to collect information that supports commanders in the development and execution of campaigns and major operations.

205. Tactical Reconnaissance and Surveillance. Operations conducted to collect information that supports commanders in the planning and execution of battles and engagements.

206. Tasks. In order to satisfy information/intelligence requirements, reconnaissance and surveillance resources conduct operations in support of the following intelligence functional areas:

a. Provide Indications and Warning (I&W). Reconnaissance and surveillance operations provide time-sensitive information necessary to assess forces and installations that threaten NATO. This mission area may require continuous surveillance or as-required reconnaissance to provide timely I&W of a threat or impending attack. I&W information is necessary to assess an enemy's offensive and defensive force capabilities and other factors that may affect Allied plans and operations.

b. Intelligence Preparation of the Battlespace (IPB). Intelligence Preparation of the Battlespace (IPB) is a command and staff function to allow the systematic, continuous analysis of the enemy and the battlespace environment. Reconnaissance and surveillance support the systematic IPB process that begins in peacetime and continues throughout an operation. They provide information needed to identify and analyse enemy centres of gravity, strengths, weaknesses, capabilities, intentions, and critical vulnerabilities.

c. Identify Enemy Orders of Battle/Force Disposition. Reconnaissance and surveillance operations provide information to intelligence staffs, who will integrate it with other information/intelligence to develop enemy orders of battle and other intelligence related data

bases. These will be used to prepare an Intelligence Estimate, detailing the enemy's capabilities, limitations, vulnerabilities and intentions, as well as assessments of terrain and weather effects in the operational area. This allows commanders to plan and conduct campaigns and major operations. At the unit level, such information allows commanders to plan and execute their assigned missions.

d. Situation Development. Reconnaissance and surveillance support the dynamic process of situation development by collecting critical information needed to assess the current situation and confirm or deny enemy courses of action predicted by IPB. Situation development helps the commander refine his understanding of the battlespace, identify enemy orders of battle, force dispositions and monitor enemy activity, thereby reducing uncertainty and risk.

e. Monitor Enemy Activity. During peacetime, reconnaissance and surveillance assets monitor potential enemies to identify emerging threats to Allied interests in order that an appropriate response can be prepared. They can also assist in monitoring, or verifying compliance with international agreements, e.g., arms control accords. During times of crisis, reconnaissance and surveillance assets monitor potential conflict areas, providing information to assist commanders in planning their deployments. During war, reconnaissance and surveillance assets continuously monitor the enemy in order to determine his situation, force posture and dispositions relative to friendly forces and to measure reactions to friendly combat operations.

f. Support to Force Protection. Force protection is the set of comprehensive security measures, collection activities, and defensive operations taken to guard the force against the effects of enemy action. Reconnaissance and surveillance operations support the broader intelligence force protection mission by aiding in identifying, locating, and countering enemy intelligence, collection, sabotage, subversion, and terrorism capabilities; by enhancing detailed and accurate assessment of threat force capabilities and intentions; and by helping facilitate friendly command and control warfare (C2W) efforts to deny the enemy the opportunity to take offensive action against friendly forces.

g. Support Targeting Objectives. Targeting plays a prominent role in the commander's decision to employ forces. Reconnaissance and surveillance operations contribute to the targeting process by detecting, locating, identifying, and analysing targets and later providing input for after-action assessments.

1. Detection involves the use of reconnaissance and surveillance assets to identify new potential targets or significant changes to existing targets. Detection is an ongoing process; it is conducted before, during, and after military operations. During peacetime, requirements must be established for target reconnaissance and surveillance, crisis monitoring, and combat support. During military operations other than war and war, priorities may need to be adjusted as the situation or objective changes.

2. Once detected, a potential target's location must be accurately defined within a designated reference system. Mobile targets pose significant problems because their positional data is so perishable; current data is essential for target analysis and later for target acquisition.
3. Identification is the discrimination between objects within a particular type or class. In order to identify a target, multiple reconnaissance and surveillance operations using differing information collectors, such as human observation and technical sensors may be necessary. Frequently, the information from one collector can be used to cue other collectors to the target. The amount of information required and the collector used will vary depending on the target characteristics, location, and circumstances of its detection.
4. Once the target is identified, detailed information may be required to analyse the target, evaluate its vulnerabilities, and indicate the appropriate method and/or weapon system(s) to attack the target.
5. After-action assessments monitor the impact of operations on enemy targets and provide information for follow-on actions.

h. Assessment. Reconnaissance and surveillance operations provide assessment support to all levels of command before, during, and after the conduct of military operations. Assessments such as Battle Damage Assessment (BDA) can provide information on the success of military operations and the need for follow up or new operations. Reconnaissance and surveillance operations can assist in determining where and when to employ limited resources and concentrate their efforts. They also provide an important means for assessing deception efforts. Such assessments will affect the formulation of policy and strategy, as well as the development of campaigns, operations, battles, and engagements.

CHAPTER 3

RECONNAISSANCE AND SURVEILLANCE CAPABILITIES, CHARACTERISTICS AND LIMITATIONS

Section A-- REQUIRED CAPABILITIES

301. General. This chapter will address those capabilities which reconnaissance and surveillance systems should possess in order to provide users required information. No single system can cover all the information requirements of the requesters, therefore, requesters must articulate their needs in a manner that is clear to the collection managers. Reconnaissance and surveillance assets are force multipliers. Effective use of these forces enables commanders to increase preparedness, and maximise the effects of combat forces by optimising strengths, exploiting enemy weaknesses, and countering enemy strengths. Whether planning for aerial reconnaissance, sea surveillance, ground reconnaissance or space surveillance, the availability of these forces and their capabilities are critical to mission success. All reconnaissance and surveillance forces have unique characteristics for their own special mission. Commanders must be aware of these capabilities and limitations and thoroughly weigh each against the mission objectives. They must consider the survivability of the forces and determine the risk at which they are willing to place them to obtain the intelligence information. A comprehensive ISTAR capability enables commanders to 'stay ahead' of the enemy to conduct operations successfully and protect forces.

302. Required Capabilities. Lessons learned from recent military conflicts demonstrate that the speed of modern warfare dictates that commanders receive timely, accurate and relevant information to support them in their decision making process. That same information is necessary at the unit level in order to properly plan and execute their missions. In addition to being able to provide timely and accurate information, reconnaissance and surveillance assets must be available in a timely manner, survivable, reliable, suitable, standardized, capable of continuous coverage (if required), and protected from enemy exploitation. To achieve these capabilities, they must be exercised during peacetime to maintain their operational efficiency .

a. Timeliness. Reconnaissance and surveillance assets must be responsive to the needs of the requester. These assets should be made available to collect information when and where it is required. Timeliness should be looked at in the aggregate and is driven by the purpose of the mission, level of need, and customer requirements. Commander Allied Joint Forces (COMAJF) should ensure available collection assets are ready to meet anticipated requests. As required, he will exploit information from collection assets not allocated to the joint force. The period of time between the arrival of a request and the requested time over target may limit the time available for planning, preparation, choice of asset or sensor, and execution of the mission.

b. Accuracy. Accuracy is a crucial requirement for all aspects of the reconnaissance and surveillance cycle (see Chapter 4). Reconnaissance and surveillance assets should provide unambiguous, undistorted and complete information, and be resistant to deception.

Accuracy requirements may be driven by the purpose of the mission, level of need and customer requirements. These requirements may in turn, determine the selection of the collection system(s).

c. Survivability. Survivability must be examined in the context of the entire reconnaissance and surveillance system--collection platforms, sensors, communications and data links, ground stations, processing facilities, and personnel. Not all systems, or components of the system, require the same degree of survivability. For those systems that can not transmit information during a mission, the safe return of these assets is especially important. Survivability must be matched to the threat these systems will be exposed to during the operation and their importance to the entire reconnaissance and surveillance system. Reconnaissance and surveillance systems are vulnerable and also scarce resources; therefore, commanders should consider how they would compensate for the loss of reconnaissance and surveillance capability should it be destroyed or otherwise become unavailable. Careful mission planning, effective employment tactics, and redundancy or overlap of reconnaissance and surveillance capabilities are the best ways of ensuring that information is collected and delivered.

d. Reliability. Reconnaissance and surveillance systems must be able to provide reliable information despite enemy deception measures such as camouflage and decoys. This may require the employment of other reconnaissance and surveillance systems to verify the information acquired by previous systems. The development and evaluation of these systems should be initiated as soon as potential enemy concealment and deception capabilities are known.

e. Suitability. Suitability is an important consideration in planning for the employment of collective reconnaissance and surveillance capabilities. Tasking must be based on an asset's capability and its suitability within the context of the overall collection plan. Suitability also applies to the transmission, exploitation and dissemination of the collected information or processed intelligence. Both the information and the format must be useful to the user and easy to interpret.

f. Standardization. Standardization is a critical aspect of any reconnaissance and surveillance system. Interoperability, commonality, and compatibility of sensors, data link, and supporting Communication and Information Systems (CIS) are crucial to the responsiveness, survivability, and overall effectiveness of a reconnaissance and surveillance system. Commanders will be deprived of information if the components of the system are dissimilar, or if connectivity among sensors, supporting systems, and supported systems is too fragile to withstand the stress of combat. The collection and dissemination systems must be able to transmit accurate information to those who need it in a timely manner. Interoperable systems unify collection efforts resulting in enhanced application of armed force. Connectivity also improves the overall reconnaissance and surveillance capability to accurately portray the battlespace through cross-cueing, information enhancement, and analytical exchange. This multi-source approach reduces the possibilities of being deceived by the enemy.

g. Continuous Coverage. If required, reconnaissance and surveillance assets must be able to provide comprehensive 24 hour a day coverage in poor visibility conditions, over varying terrain and in all electromagnetic environments. The capability to loiter and observe targets over a prolonged timescale ensures support is available when needed. Extensive knowledge of enemy strategy, tactics, capabilities, and culture requires extensive data collection over a prolonged period in order to provide the most complete and accurate picture of the enemy possible. Having a complete and exact picture enables personnel to anticipate enemy actions and to choose appropriate responses. However, keeping sensors, equipment, and systems in place for extended periods adds an extra burden to support systems.

Section B--CHARACTERISTICS AND LIMITATIONS

303. General. Commanders must be aware of the capabilities, limitations, and numbers of their assigned and supporting reconnaissance and surveillance systems. This is required to ensure systems are not placed at unnecessary risk or the wrong asset tasked to satisfy a collection need. COMAJF should ensure assets, sensors and support systems are ready to meet anticipated requests. If the required capability does not exist within the commander's assigned force, other external collection capabilities can be requested to support the commander's collection requirements. External collection capabilities of a classified nature may be made available to COMAJF. Reconnaissance and surveillance systems possess a wide variety of characteristics, specifications, and limitations. They can operate below the surface, on the surface, in the air and throughout space. They can be manned as well as unmanned. They can image visible or non-visible objects, penetrate surfaces, and detect and collect different wavelengths of the electromagnetic and acoustic spectra. All systems include one or more sensors to collect information. Some systems can change their sensors for specific operations. Reconnaissance and surveillance systems have two common limitations; they are scarce resources and are generally high-value assets. These two factors require commanders to employ assets judiciously. Different reconnaissance and surveillance assets and systems can complement each other and eliminate specific limitations when used in mixed or combined applications.

304. Aerial Systems. Among the primary sources of reconnaissance and surveillance capability available to support the joint force's information requirements are aerial systems. These systems can be equipped with imaging and signal collecting sensors.

a. Unmanned aerial vehicles (UAVs) offer significant advantages and limitations. The greatest advantage of these systems is that they normally do not put friendly personnel at risk. Moreover, they possess relatively low radar cross-sections and minimized visual and acoustic signatures which reduce the chance of detection. UAVs can be configured with a broad range of collection capabilities. In the past, UAVs were only considered tactical in nature, characterized by specific mission capabilities and relatively small area coverage. New systems, mainly under development will provide broad area coverage, greater sensor payload, higher operating altitudes, longer endurance and better retasking capabilities. The

range and endurance of UAVs vary considerably depending on the situations for which they are designed to be employed. Weather can impede or preclude UAV operations in many cases where large, manned aircraft would not be affected. Payload constraints often permit less than the full complement of sensors desired for a given tasking. Increased payload and loiter time are available for increased size, complexity, and cost. Also, UAV flight paths must either be preprogrammed, or remotely controlled with line of sight limitations (a control station may be airborne to increase UAV range). Employment of UAVs often requires the implementation of special airspace control means and joint co-ordination between in-theatre forces to enable safe passage.

b. Manned aerial platforms generally are among the most flexible, mobile and responsive assets available and capable of carrying out critical missions. Some platforms are able to collect vital information in near real time (NRT). Manned platforms can respond to changing conditions and may be able to modify missions while they are in progress. They can cover a relatively large area and carry a wide range and mix of sensors. Many of these assets have common data links between aircraft or with ground stations allowing them to send large volumes of information often in NRT. Manned air surveillance and reconnaissance capabilities can be divided into two groups, penetrating and standoff. During peace time, virtually all air reconnaissance and surveillance is accomplished using standoff techniques. The standoff mode may be used during military operations other than war and war when the enemy threat is too great to allow high value assets to penetrate enemy territory. The primary advantage of using a standoff mode is reduced vulnerability to enemy surface-to-air and air-to-air attacks. The primary disadvantage is standoff requirements limit the amount of enemy territory that can be observed. Reconnaissance and surveillance platforms will penetrate when information is required beyond standoff range, where other systems may not be available to provide the coverage required, or when weather conditions are such that standoff systems are degraded. The main disadvantage of manned systems is the exposure or potential exposure of personnel and scarce reconnaissance assets to enemy military operations. Manned assets are considerably more expensive than unmanned systems. All assets are susceptible to adverse environmental conditions (e.g., weather, smoke, chemicals, etc.); however, in some cases, unmanned assets may fly in adverse environmental conditions when risk to humans is considered too great.

305. Surface Systems. Surface platforms also vary greatly in size and complexity, with great differences between land-based and sea-based assets.

a. Land-based reconnaissance assets provide a diverse mix of capabilities that can range from a small force conducting a reconnaissance patrol, to dedicated SIGINT units, to highly sophisticated surveillance radars. Such assets can be employed to support operations across the full range of military activities and can obtain extremely diverse types of information. For example, a reconnaissance patrol can determine the extent and location of obstacles and defensive positions while also performing counterreconnaissance operations to deceive the enemy and deny friendly force dispositions. They can also cue, and be cued by other high

resolution assets. As with aerial platforms, there are advantages and disadvantages to land-based reconnaissance systems. The primary advantage is that as they are generally organic to the land component, they are usually forward deployed and responsive to its needs; they are not easily prone to deception, can be interrogated, and they have the ability to interpret information. Manned reconnaissance assets, e.g., patrols, have additional advantages: they can carry out other actions whilst on a primarily reconnaissance mission; and can use their initiative to investigate sightings further, e.g., suspected deception measures. They can also be debriefed on other matters not included in their original mission. However, their range is usually limited by physical constraints, personnel safety, the military situation and the ability of combat support systems to sustain assets over extended ranges and timescales.

b. Sea-based surface platforms have varying degrees of reconnaissance and surveillance capability, including organic manned and unmanned aerial systems. Part of this capability for example, radar, sonar and underwater acoustic surveillance, is required for defence of maritime forces. These facilities monitor enemy submarines, surface ships, aircraft, and surface targets. Other capabilities, such as SIGINT-gathering assets, can support a broad range of military activities ranging from monitoring arms control treaty compliance to establishing enemy orders of battle and preparation of combat strike plans. Deployment aboard ships also provides sea-based reconnaissance and surveillance assets with several advantages. Ships have greater power and load-carrying capabilities than do some other reconnaissance and surveillance platforms, enabling them to carry heavier and bulkier equipment that may have greater information gathering and processing capabilities. Ships also possess the advantages of mobility and sustainability, enabling them to position and reposition reconnaissance and surveillance assets. Access is relatively unrestricted because maritime areas of interest to reconnaissance and surveillance are often close to international waters. Many classes of ships have organic air assets that can extend shipboard sensor horizons and provide valuable on-site reconnaissance. These qualities at times provide advantages over other reconnaissance and surveillance assets.

c. Air, land, and maritime forces employ surface-based surveillance systems to control the movement of aircraft through a given sector of airspace. The purpose of surface-based surveillance systems used to control the movement of aircraft is to provide a degree of warning and control over air resources within a designated airspace control area. Examples of these systems are early warning (EW), ground controlled intercept (GCI), and air traffic control radars. The advantage of these systems is that they provide an additional layer of control and observation that may not be available with other surveillance systems. Their primary disadvantage is that they are susceptible to enemy attack and jamming. Also, some of the ground-based warning sensors have sensor limitations and are susceptible to adverse weather conditions. In addition, air defence sensors are limited to line-of-sight surveillance, and many systems are affected by ground clutter.

d. Special operations forces (SOF) are valuable assets and should be considered for employment in joint reconnaissance and surveillance operations. Although most SOF activities

are surface-based, SOF aircraft may also support reconnaissance and surveillance operations. Special reconnaissance (SR) operations can be conducted when there is a need to obtain or verify information about enemy capabilities, intentions, and activities, or to gather data about meteorological, hydrographic, or geographic characteristics of an area inaccessible by technical means. SOF patrols have the capability to sustain long-range 24 hour operations for extended periods of time. They also have secure communications for near-instantaneous transmission of their reports. SR operations complement national and theatre reconnaissance and surveillance assets across the range of military operations to obtain specific, time-sensitive information of strategic and operational significance. SOF offer the availability of technically knowledgeable observers to verify critical information about targets or target complexes. These observers will use their judgement to defeat enemy deception attempts and may transmit a more complete picture of what is happening on the target. As with other manned reconnaissance, SOF can be tasked or retasked with secondary missions, and can designate targets, e.g., with laser designators, for attack missions. These highly specialised personnel are often able to achieve results out of proportion to their numbers; but they need to be inserted, require time to prepare positions or redeploy, and are vulnerable to compromise if used in an overt role.

306. Subsurface Systems. Subsurface systems vary greatly in size, complexity, and capability. These include sensors generally best suited for long-term surveillance of a specific and limited geographic region. Seismic detectors, for example, can indicate that enemy forces might be moving in an area, making further reconnaissance of the area useful. Submarines, on the other hand, are invaluable platforms for clandestine reconnaissance operations within waters peripheral to enemy territory. Submarines are dispatched on independent patrols to collect a range of data from hydrographic features to enemy activities. These patrols also assist in filling in gaps from other collection systems, such as long-range aircraft.

307. Space Systems. While not all NATO nations possess space assets capable of reconnaissance and surveillance, those nations that do can be expected to provide some degree of reconnaissance and surveillance support using these systems. Space systems provide information allowing commanders to assess the situation, develop concepts of operations, and distribute changes to their forces quickly. Commanders should be familiar with the capabilities and limitations of space systems available for use. The primary advantage of these systems is the ability to provide worldwide coverage of areas of interest, especially those remote or hostile areas where little or no information can be obtained by conventional resources. Other advantages include their longevity and relative immunity to enemy actions and the ability to place satellites into orbits that maximise their effectiveness. Limitations include atmospheric and weather disturbances that affect most imagery systems. Also, space systems schedules can be predicted and are therefore vulnerable to deception practices and signature control activities. While able to provide worldwide coverage, tasking demands on space systems and orbit requirements may limit their responsiveness. The support provided by space systems are divided into military and non-military systems, as outlined below.

- a. Military space reconnaissance and surveillance systems employ a variety of specialised sensors providing a broad and increased range of capabilities. During peacetime, space

systems routinely support activities such as indications and warning, peacekeeping operations, disaster and humanitarian relief and training exercises. Space reconnaissance and surveillance information helps commanders to determine the enemy's strength, location, and intentions. Detection and warning sensors provide early detection of ballistic missile attack and down-link this information to the appropriate ground stations, allowing commanders to take the appropriate actions. Environmental monitoring systems are crucial in understanding and reacting to weather that may affect friendly and enemy military operations. Ignorance of environmental conditions can jeopardise the success of an operation or mission. Space reconnaissance and surveillance systems provide military forces with terrain information that enhances mission planning capabilities. Additionally, these systems can often cue or be cued by other reconnaissance and surveillance systems to watch a specific area of interest, enhancing accuracy and reaction times to the users of that information.

b. Non-military space systems include civil, commercial, and Allied capabilities, and normally complement military space systems. These systems possess a variety of capabilities; however, in some cases, their availability may be limited due to the priority of their civil or commercial tasks. Examples of these systems are weather, navigation and multispectral imagery satellites. COMAJFs may have some of their requirements satisfied by these systems, depending on how share-use agreements are negotiated with the owners.

308. Other Collection Capabilities. Most NATO nations operate reconnaissance and surveillance systems controlled at the national level and provide direct support to the national authorities. The information provided by these systems is used by senior government leaders to make strategic political and military decisions; it is also very useful to theatre commanders. Depending on the specific collection capability, timeliness can be good--within seconds of collection. Other capabilities are inherently slow--hours to days from the time of the request. Accuracy is system dependent. Additionally, the security of these systems and their sources may require sanitation of the information before it can be made available to the requester. National reconnaissance and surveillance systems provide invaluable information, especially when local access by conventional reconnaissance and surveillance systems is denied by range limitations, lack of air superiority, or political reasons. COMAJF must develop specific requirements well in advance so that use of these systems will be reliable and timely. These systems should be considered when the theatre commander's organic reconnaissance and surveillance assets cannot satisfy the intelligence requirements or to verify information from another collection source. COMAJF can request specific information from these systems and should exercise the process during peacetime exercises. Nevertheless, the employment of national reconnaissance assets remains under the responsibility of the designated national authority/commander.

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CHAPTER 4

RECONNAISSANCE AND SURVEILLANCE SUPPORT AND THE INTELLIGENCE PROCESS

401. General. This chapter explains how reconnaissance and surveillance fits into the overall intelligence process. To provide a basis for understanding how the two work together, the chapter discusses the various intelligence collection disciplines, the intelligence cycle, the reconnaissance and surveillance cycle, and how the two cycles are interrelated.

402. Intelligence Disciplines. Reconnaissance and surveillance assets collect information that becomes intelligence when processed, analysed, evaluated, and interpreted. The following is a list of intelligence collection disciplines relevant to reconnaissance and surveillance operations.

a. Imagery intelligence (IMINT) is derived from imagery acquired by photographic, radar, electro-optical and thermal sensors which can be ground based, sea-borne or carried by air and space platforms. IMINT uses imagery to locate and identify enemy activity, facilities, infrastructure, and equipment. It can also provide commanders environmental information which may have an impact on their military operations.

b. Signals intelligence (SIGINT) is the generic term used to describe communications intelligence (COMINT) and electronic intelligence (ELINT) when there is no requirement to differentiate between the types of intelligence, or to represent fusion of the two. SIGINT uses intercepted electromagnetic emissions to provide information on the capabilities, intentions, formations, and locations of enemy forces.

(1). COMINT consists of information derived from intercepting, monitoring, and locating the enemy's communications systems. COMINT exploits the enemy's communications transmissions.

(2). ELINT consists of information derived from intercepting, monitoring, and locating the enemy's non-communication emitters. ELINT exploits the enemy's radar, beacons, and other non-communication emitters.

c. Human intelligence (HUMINT) is a category intelligence derived from information collected and provided by human sources. HUMINT sources can also provide technical intelligence and imagery, and may be vital in the preparation for operations. Examples of HUMINT activities are surface reconnaissance units and long range patrols, observation and listening posts, or aircrew or submarine crew debriefings. Trained linguists are often an essential requirement for these activities.

d. Acoustic Intelligence (ACOUSTINT) is derived from the collection and processing of acoustic phenomena.

e. Measurement and Signature Intelligence (MASINT) is scientific and technical intelligence obtained from quantitative and qualitative analysis of data derived from sensing instruments for the purpose of identifying any distinctive feature associated with the source, emitter or sender; and to facilitate further identification and/or measurement of the same.

403. Intelligence Cycle. The intelligence cycle is the process by which information is collected, converted into intelligence, and made available to the user. The four steps in the cycle include direction and planning, collection, processing/exploitation, dissemination and evaluation. These steps define a recurring, sequential, and interdependent process for the development of intelligence. Intelligence operations are conducted within the framework of the intelligence cycle, the entire cycle, or a specific step within the cycle. Moreover, all intelligence, regardless of the scope of the requirement or level of command, is developed by following these steps. No one step of the cycle is more important than the others; consequently, proper direction is required to ensure the process flows smoothly and remains focused on the correct objectives.

a. Direction and Planning. In addition to supporting the policy/strategy development processes at all levels, the intelligence cycle is geared to support COMAJF in the formulation of the concept of operations, development of the campaign plan, and execution of the campaign. Therefore, COMAJF must clearly articulate the mission and objectives, outline the plan of action, and state the intelligence requirements necessary to support the mission, objectives and plan. The process of planning reconnaissance and surveillance operations should include identifying and validating the need for the operations, and if a need is determined, prioritising the operations.

(1). Intelligence Requirements. COMAJF may be given intelligence requirements (IRs) by higher headquarters. COMAJF, in his mission analysis, may also identify IRs which can be general or highly specific, and with time constraints. Based on these IRs, COMAJF's intelligence staff will also develop IRs to be included in the J2 Collection Plan. This plan forms the basis of the reconnaissance and surveillance efforts. The designation of IRs helps to ensure reconnaissance and surveillance efforts are focused on the most critical information needs to support the operational effort. Once hostilities begin and as they continue, new direction and guidance evolves, creating new requirements or modifying existing requirements.

(2). Validation. The information requirement must then be validated. Does the requirement meet the commander's concept of operation? Has the information been acquired but not distributed to the requester? Are there other ongoing operations that might satisfy the requirement? If any of these conditions are met, the requested reconnaissance and surveillance mission may not be necessary.

(3). Priorities. Once a requirement has been established and validated, it must be prioritised among the other requests for information. As the intelligence requirements are aligned with the collection capabilities available, factors such as the

enemy threat to reconnaissance and surveillance assets, timeliness of the reconnaissance and surveillance response, availability of reconnaissance and surveillance assets, and the impacts of platform and sensor capabilities will affect how reconnaissance and surveillance are tasked and employed.

(4). Collection Plan. Based upon the commander's direction, a collection plan is formulated which co-ordinates organic sensors, and if necessary, requests national tasking to support collection efforts. The Collection Plan contains specific tasking of the selected sources and agencies.

b. Collection. This step includes not only the actual physical collection of information but in some cases, the transfer or transmission of that information to processing facilities. This requires close co-ordination between the operations planners, collection managers, and intelligence analysts. The collection managers establish collection requirements to satisfy their intelligence requirements, while the operations planners determine how to employ assigned reconnaissance and surveillance assets to satisfy the collection requirements. If the assigned assets cannot meet the commander's objectives, then external reconnaissance and surveillance support, such as specific national capabilities, will be required. This external collection support may be on going but may require specific tasking or parameters to satisfy the intelligence requirement. Also, different types of collection capabilities may be required to validate information acquired from another source. Furthermore, collection capabilities need redundancy so the loss or failure of one system can be compensated by another one. Ideally, they should be interoperable so that the information collected can be integrated and correlated into an all-source analysis. The collection architecture must be aware of and responsive to the intelligence requirements of the theatre forces. The system must be in place and exercised during peacetime in order to implement a collection plan at the beginning of hostilities.

c. Processing/Exploitation. Processing involves five stages: collation, where the incoming information is recorded and grouped together; it is then evaluated to determine its reliability and credibility. Evaluation is followed by analysis; the identification of significant items of information and comparing them with existing knowledge or intelligence and drawing relevant conclusions. Integration involves assembling analysed information and intelligence to facilitate the recognition of significant patterns of knowledge; finally, interpretation involves judging the significance of analysed information and other intelligence in relation to the current body of knowledge. Processing allows commanders to take full advantage of or exploit information that has come to hand. The need to task additional reconnaissance and surveillance assets may become apparent at any stage of processing, for instance to confirm information received from one particular source, or to investigate enemy developments revealed by analysis or interpretation. Advances in technology have changed the way information is processed into intelligence. Some reconnaissance and surveillance assets possess an onboard data processing capability. This allows the data to be converted into usable information, though further processing may be necessary to produce a finished

intelligence product. For example, Joint STARS can process the data it obtains onboard and send it to specific ground processing stations or by data link directly to the requester.

d. Dissemination and Evaluation. This final step in the intelligence cycle is also being affected by advances in technology. Some reconnaissance and surveillance systems are capable of disseminating collected data/information to requesters on a real or NRT basis, vastly increasing their responsiveness. This is especially important for those reconnaissance and surveillance operations supporting ongoing military operations in which the situation may be evolving rapidly and perishable information may lose its usefulness within a matter of minutes or even seconds. Both the collection and dissemination processes require continuous management. Without effective management, communications paths can become saturated by single source information retranslated by many intermediate collection agencies. This well-intentioned information flow can quickly exceed the reconnaissance and surveillance information processing capability. On the other hand, intelligence agencies should evaluate the potential value of unconfirmed information. These agencies should be aware of operational requirements and provide all pertinent intelligence information (i.e., threat information).

404. Reconnaissance and Surveillance Cycle. The reconnaissance and surveillance cycle is the process by which reconnaissance and surveillance assets are requested, integrated into the overall operations plan, and tasked to satisfy information or intelligence requirements. The steps in the Reconnaissance and Surveillance Cycle are: tasking, planning, execution, processing/exploitation and dissemination; these are described in more detail below and depicted at Figure 4-1. The request to conduct a reconnaissance and surveillance operation is the principal link between the Intelligence and the Reconnaissance and Surveillance cycles. The request defines the basic intelligence needs, requirements and prevailing conditions for the support by reconnaissance and surveillance assets. The request should provide sufficient information on the area or object of interest. Additionally, requests should include: information detailing the reason for or intended use of the data, priority, timelines, product types and means of transmission.

a. Tasking. Reconnaissance and surveillance assets are tasked in essentially the same manner during peacetime, crisis, and war, except for tailoring the approval and execution process for the scope of operations. Reconnaissance and surveillance assets are tasked once information or intelligence requirements have been established. This may be accomplished through request messages. In cases where real or NRT information is required, it may be necessary to establish ad hoc procedures in theatre to satisfy the immediate requirements. Most important to the requesters of information is to clearly articulate their requirements and allow the collection managers and operations planners to decide the best way to meet their requirements. Within the commander's staff, the intelligence collection managers will coordinate with the operations planners to determine what available reconnaissance and surveillance asset(s) should be tasked to satisfy the given intelligence requirements. If organic assets are available, then the appropriate unit will be tasked. If organic assets are not available to satisfy the request and the request is still considered valid, then the request is forwarded to the next higher level for consideration. Assets may also be tasked or retasked

while the mission is ongoing. Changing situations may dictate that reconnaissance and surveillance assets be reassigned from their planned mission to support a new requirement. Reassigning assets that are executing their planned mission must be considered carefully.

b. Planning. This step of the reconnaissance and surveillance cycle involves both the broad planning done at the headquarters level, which is incorporated into the campaign plan, and the detailed planning accomplished at the unit level.

(1). Reconnaissance and surveillance planning begins at the Major NATO Command (MNC) level by providing direction and guidance and establishing strategic and operational level intelligence requirements. This direction and guidance is passed to lower echelons and refined. At this level, collection managers establish theatre level collection requirements and co-ordinate their efforts with the operations planners. The components of these commands are normally tasked to accomplish the reconnaissance or surveillance operation. Therefore, they normally determine the best way to employ their reconnaissance and surveillance assets in such a way so as to allow maximum effectiveness while minimising risk. At this level, reconnaissance and surveillance planners must consider the trade-offs of survivability and information acquisition. Commanders should establish priorities for reconnaissance and surveillance operations knowing that these priorities may change as the situation develops. These priorities should be established to generally conform to command objectives, concept of operation, and unanticipated requirements. Combining objectives, guidance, threats, force capabilities, and system availability requires thorough analysis and effective co-ordination among all elements which plan reconnaissance and surveillance operations. The end results of the planners' efforts are included in the tasking order.

(2). The detailed mission planning at the unit level is accomplished based on information contained in the tasking order and other sources such as the airspace control order. Planning should take into account the existing and forecasted threat, weather, geographical features, tactics necessary to accomplish the mission and defeat the threat, and specific information the requester may require (i.e., scale, run-in heading, oblique versus vertical photography).

c. Execution. This step involves the actual execution of the assigned mission. To complete the mission successfully, commanders must consider the risks (e.g., threat, tactics, weather, safety, and logistics) involved.

d. Processing/Exploitation. The collected or transmitted information may not always be in a form suitable for direct use by the requester. Information may need to be processed and exploited by specialist agencies before dissemination to the requester. Reconnaissance and surveillance mission taskers should always ensure that the appropriate agency is tasked in parallel with the collection mission. Processing is the transfer of collected/transmitted and recorded raw data of the sensor (primary imagery or data) into useable/visible information

(secondary imagery or data). This includes the chemical process of exposed wet film in the negative or positive state, the processing of radar data into radar imagery, the decompression of compressed data and also the enhancement of the data or imagery. Imagery is interpreted, and generally, the results are included in a report.

e. Dissemination. This step involves the transmission of the collected processed and exploited information to the requester. It may take on various forms: real time or NRT data links directly from collection platform to requesters, broadcast transmissions from collection platform to multiple agencies, or standard reporting procedures.

405. Intelligence and Reconnaissance/Surveillance Interrelationship. Traditionally, a reconnaissance and surveillance mission entailed completion of the reconnaissance/ surveillance cycle and dissemination of the collected information back into the intelligence cycle where the information was further processed, analysed and became intelligence. However, technology has changed that traditional process. Due to the highly perishable nature of some information/intelligence or criticality of a situation, the requester may not be able to wait for the normal intelligence process to satisfy intelligence requirements. In some cases, data that has been minimally evaluated may be transferred directly from the collection platform to the requester; however, it is important that this data is also transferred to the All Source Cell (ASC) where it will be processed and used in the production of intelligence. Since this data has not been processed and analysed or integrated with other data, the product is not finished intelligence; rather it is considered as combat information or raw data. Figure 4-1 depicts the relationship between the reconnaissance/surveillance cycle and the intelligence cycle.

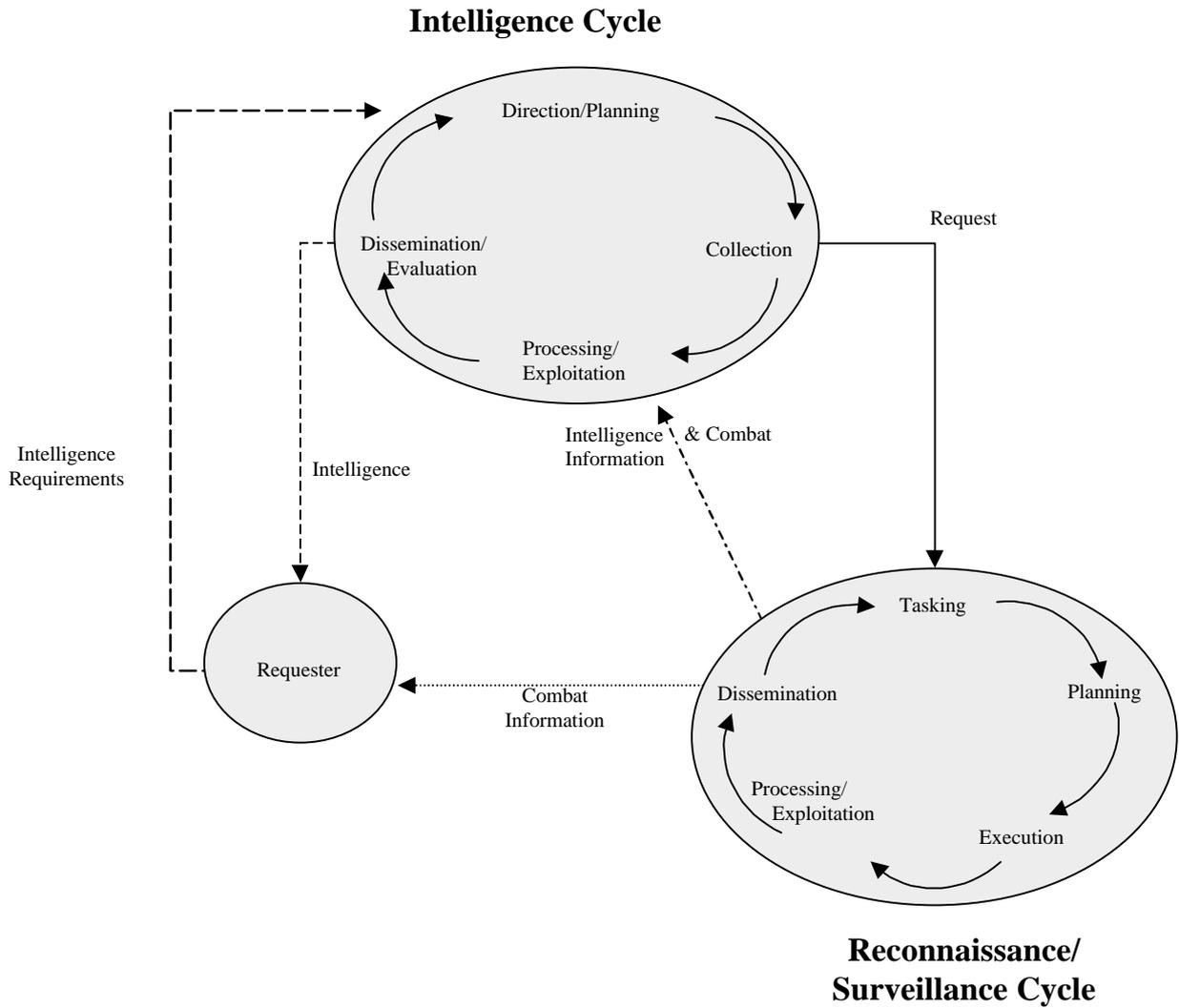


Figure 4-1 Intelligence-Reconnaissance/Surveillance Relationship

406. Collection Co-ordination and Intelligence Requirements Management (CCIRM) Concept. The need for unified and coherent collection of information and intelligence so as to ensure that the IRs of the operational commanders are better met by the intelligence community has led to the development of the CCIRM Concept. The concept develops logically from the constituent elements of the Intelligence Cycle. CCIRM is a management function to enable the timely flow

of intelligence. Its principal objective is the efficient exploitation of the full spectrum of collection assets, sources and databases in order to satisfy IRs from all operational levels. CCIRM consists of two major components: the co-ordination of the collection effort and the management of the IRs arising from particular operations, missions or deployments.

- a. Collection co-ordination is the development and control of a collection plan, which sets out how information and intelligence needed to meet IRs is to be collected. This results in either the direct tasking of assets over which a collection manager has authority, or the generation of tasking requests to tasking authorities at higher, lower or lateral levels. The collection plan is constantly revised and updated.
- b. Intelligence requirements management is the overall management of processing, exploiting, and disseminating intelligence to satisfy tactical, operational and strategic IRs in support of military operations.
- c. CCIRM Organisation. Allied Joint Force Headquarters (AJFHQ) J2 staffs will be responsible for CCIRM policy and implementation. The J2 staff will receive COMAJF's priority intelligence requirements as well as requests for information from subordinate formations. It will satisfy those it can from within the force's joint resources or seek national assistance for those it can not. At lower command levels, CCIRM organisations may form the focal points for tactical intelligence requirements management. They will satisfy IRs from within its formation resources where practicable, and co-ordinate access to other resources as necessary.

CHAPTER 5

RECONNAISSANCE AND SURVEILLANCE COLLECTORS, PRODUCTS and TARGETS

501. Sensors. There are two general means of collecting information: human observation and technical sensors. They are described in detail below.

a. Human Observation. Reconnaissance and surveillance by human observation is the oldest method of gathering military information and remains a valued source of information. Human observation is done by visual and acoustic detection, recognition and even identification. The human eye has a far greater "field of view" than most sensors and can be adjusted to changing points of interest instantly. Human sources can rapidly evaluate and assess observed information, draw conclusions and direct actions. Gathered information can be transferred expeditiously to the requester or other users. Technical devices can assist the human eye or ear in extending their range, minimizing disturbances and increasing their sensitivity or resolution. Human sources can complement the results of other sensors by providing additional data not covered by the sensors and also replace them if they malfunction. The value and the reliability of human sources are highly dependent upon the degree of training and experience they have, as information gleaned from human sources may possess a certain degree of subjectivity. The performance of human sources generally decreases with the growing duration of the operation and can be adversely affected by stress factors. These factors also increase the tendency of human beings to 'see what they expect or wish to see' and the susceptibility to measures of camouflage, concealment, deception and masking.

b. Technical Sensors. Technical sensors can generally be divided into two categories: imaging and non imaging. Both operate in the electromagnetic and acoustic spectrum and cover frequencies not perceptible by the human eye or ear. Technical sensors not only collect, but they also record data for repeatable recalling, transmission, copying and even enhancement for specific purposes. Additionally they are able to provide auxiliary data which may include information such as the parameters of the carrying platform (speed, height, bank, time) or the specifications of the sensor itself. Different sensors can be used at the same time in various configurations and suites. Sensors can be pre-programmed or operator directed. Generally, technical sensors are highly reliable and may be less susceptible to efforts of concealment or deception than human sources. Technical sensors may be degraded by malfunction and operator error, and their products may be impacted by atmospheric and other natural factors.

1. Imaging Sensors. Operating within a certain frequency spectrum, imaging sensors are able to produce an image of targets or objects of interest. Optical and non-optical images are permanently recorded on a medium such as film or tape and may be transmitted from a platform to the requester, thus significantly improving the timeliness of the information. Imaging sensors for reconnaissance and surveillance operate traditionally in the frequency

of visible light, infrared or radar, providing pictures or photos and videos highly similar to which is seen with the human eye.

(a). Optical sensors are passive and receive light from artificial and natural sources reflected by the target or object of interest. They use electronic scanning devices or conventional lenses with a broad range of focal length, in single or multiple configurations. They can take imagery from the vertical or oblique view including side, forward or even rear oblique perspectives. Some sensors have the capability to collect imagery across the horizon or along a specific track.

(b). Infrared (IR) imaging sensors are also passive and scan IR radiation, emission or reflection which basically accompanies heat or thermal radiation. IR sensors are able to detect and recognize information which is hidden from visual sensors, e.g., energy flows. If thermal traces still exist, IR sensors may be able to indicate activities already past. Although they can penetrate darkness and even artificial smoke, their performance may be degraded by moisture in the atmosphere and some natural substances as chlorophyll. IR sensors are an ideal supplement to and therefore often used with optical sensors. IR sensors can "look" vertical and side or forward oblique.

(c). Imaging radar sensors for reconnaissance and surveillance are mainly air- or space-based, and are capable of covering considerably more targets or area than other sensors. They illuminate the target, area or object with HF-wavelengths, receive reflected returns and convert phase and amplitudes into a "visible" image. Some microwave systems only look sideways, e.g., Sideways Looking Aperture Radar (SLAR). State-of-the-art systems use a synthetic aperture radar vice the older ones utilising a real aperture radar. SLAR or Synthetic Aperture Radar (SAR) systems have long range all-weather capability. They are able to detect and differentiate moving targets (Moving Target Indicator – MTI) to determine heading and speed. Inverse SAR, interferometric SAR and forward looking systems are highly specialized variants. The latter is also used as a terrain-following radar and has target tracking capabilities.

(d). Passive microwave (radiometric) systems are mainly used for civil applications of remote sensing. They also produce an image by scanning and recording the natural microwave radiation of the earth's surface.

2. Non Imaging Sensors. Non imaging sensors search for, intercept, record, identify and often analyse natural and artificially radiated electromagnetic energy. They can be sensitive to radio waves, microwaves, IR-radiation, X-rays and gamma rays. Sensors for specific military use operate in the frequency range of radio waves and microwaves. Passive sensors intercept communications or other transmitters such as radars or navigation aids. Communications Intelligence (COMINT) systems can identify adversaries by analysing voice patterns or the particular use of a communications code. Electronic Intelligence (ELINT) systems provide electronic fingerprints such as signal

strength or bandwidth of the intercepted type of radar, and may also identify a specific piece of such equipment. Active sensors, such as radar facilitate the continuous, systematic collection of information on position, movement, origin and to some extent, the identity of objects (e.g. aircraft, ships) within a given area.

502. Products. The results of reconnaissance and surveillance operations can be provided in the form of reports, imagery, data-linked or networked real or NRT data, tables, drawings, overlays, diagrams, data bases, and maps. The choice of the final product and the source of origin (man or machine) depends on the specific objective of the operation as well as the specific sensor or system applied. All results can be transmitted on- or off-line.

a. Reports. Reports can be submitted verbally or as written text or electronic data (soft copy).

1. Verbal reports are given by personnel such as aircrews or analysts explaining what they have seen through visual observation or by screening imagery. The inflight report (INFLIGHTREP) is a formatted report given by the crew of an airborne asset and can be based on or supported by the data of a sensor. The narrative overlay is a verbal report given by the observer or screener of running video imagery. It can be transmitted in NRT to the user separately or together with the recorded video.

2. Written reports are normally structured or formatted in a standardized NATO form, e.g., the Reconnaissance Exploitation Report or Radar Exploitation Report. The content of these reports depends on the mission objective, the target category and the purpose code. Such reports enable the user to extract only the information requested or required.

b. Imagery. Imagery is collectively the representation of objects of interest, areas or targets reproduced electronically or by optical means and processed. Imagery is a product used to extract particular information by image interpretation and reporting. Generally, imagery provides considerably more detail than actually needed and may possess peculiarities, ambiguities and distinctive features which would have to be considered during interpretation. Radar imagery in particular requires experienced and well trained interpreters and analysts. The collected (raw) image is called primary imagery and has to be processed and exploited to gain the interpretable form of secondary imagery. Modern image interpretation is enhanced with the support of computer-based systems possessing enlargement and enhancement devices, and software tools for interpretation, reporting, annotation, change detection and merging with auxiliary data, other imagery and (digital) maps.

c. Data Linked or Networked Real or NRT Data. Surveillance sensors can continuously distribute data via data-links or networks that may be merged with information from other sources. An example of such a product is the Recognized Air Picture.

d. Tables/Drawings/Overlays/Diagrams/Data Bases/Maps. These results may be produced by the sensor itself automatically (e.g. fingerprints data), by supporting computer systems or by human analysts. They include extractions of specific details of imagery, vectors, headings, and digital figures. They also can be transmitted together with textual reports,

503. Targets. The target or object of interest will influence the way in which a reconnaissance and surveillance operation is planned and conducted.

a. Target Categories. In STANAG 3596, *Air Reconnaissance Requesting and Target Reporting Guide*, NATO has defined 17 target categories ranging from airfields to power supply facilities, and included the specific structure of textual reports for each category. National categories or those for other specific purposes may differ,

b. Target Designations. With regard to the execution of a reconnaissance operation, NATO distinguishes between the following target designations: Pin Point or single target, Lines Searches, Strip Searches and Area Searches. These are described below.

1. Pin Point. A Pin Point is a target or object whose location is already known precisely and can be expressed with an accurate geographical reference. Examples are permanent targets such as airfields, barracks, bridges or railway stations.

2. Line Searches. Line searches are defined by a start and end point and are part of lines of communication, roads, railroads or waterways. Such lines should not exceed 25 NM in length. Start and endpoints must be confirmed by image. Detected targets can be confirmed by visual observation and/or imagery. Imagery confirmation can be obtained by pre-planned sensor coverage of the suspected location or by an aircrew.

3. Strip Searches. Strip searches are straight lines between a defined start and end point and should not exceed 10 NM. Target confirmation is obtained in same manner for line searches.

4. Area Searches. Area searches are conducted in areas defined by exact border point locations or at a given radius from a centre point. Target confirmation procedures are the same as those for line and strip searches.

ANNEX A

GLOSSARY

ABBREVIATIONS/ACRONYMS

ACOUSTINT. Acoustic Intelligence

AJFHQ. Joint Force Headquarters

ASC. All Source Cell

BDA. Battle Damage Assessment

C2W. Command and Control warfare

CCIRM. Collection, Co-ordination and Intelligence Requirements Management

CIS. Communication and Information Systems

COMAJF. Commander, Allied Joint Force

COMINT. Communications Intelligence

ELINT. Electronic Intelligence

EW. Electronic Warfare

GCI. Ground Controlled Intercept

HUMINT. Human Intelligence

I&W. Indications and Warnings

INFLIGHTREP. Inflight Report.

IMINT. Imagery Intelligence

IPB. Intelligence Preparation of the Battlespace

IR. Infrared

IRs. Intelligence Requirements

ISTAR. Intelligence, Surveillance, Target Acquisition and Reconnaissance

LOS. Line Of Sight

MAS. Military Agency for Standardization

MASINT. Measurement and Signature Intelligence

MNC. Major NATO Command

MTI. Moving Target Indicator

NAEW. NATO Airborne Early Warning

NRT. Near Real Time

SAR. Synthetic Aperture Radar

SIGINT. Signals Intelligence

SLAR. Sideways Looking Aperture Radar

SOF. Special Operations Forces

SR. Special Reconnaissance

UAV. Unmanned Aerial Vehicle

TERMS AND DEFINITIONS

Air Reconnaissance. The collection of information of intelligence interest either by visual observation from the air or through the use of airborne sensors. (AAP-6)

Air Surveillance. The systematic observation of air space by electronic, visual, or other means, primarily for the purpose of identifying and determining the movements of aircraft and missiles, friendly and enemy, in the air space under observation. (AAP-6)

Battlefield Surveillance. Systematic observation of the battle area for the purpose of providing timely information and combat intelligence. (AAP-6)

Collection Co-ordination and Intelligence Requirements Management Concept. Encompasses those activities that result in the effective and efficient employment of intelligence collection, processing, exploitation and reporting to satisfy intelligence requirements in support of military operations. Consists of two major components: the co-ordination of the collection effort and the management of intelligence requirements arising from particular operations, missions or deployments.

Intelligence. The product resulting from the processing of information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations. The term is also applied to the activity which results in the product and to the organisations engaged in such activity. (AAP-6)

Intelligence, Surveillance, Target Acquisition, and Reconnaissance. ISTAR is the process that links surveillance, reconnaissance, and target acquisition systems and sensors to cue manoeuvre and offensive strike assets. It encompasses collection and management of information and intelligence to provide situational awareness for commanders and staff to direct operations and support the targeting process.

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 or a particular area. (AAP-6)

Sea Surveillance. The systematic observation of surface and sub-surface areas by all available and practical means primarily for the purpose of locating, identifying and determining the movement of ships, submarines, and other vehicles, friendly and enemy, proceeding on or under the surface of the world's seas and oceans. (AAP-6)

Surveillance. The systematic observation of aerospace, surface and subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means. (AAP-6)

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