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THE CURRENT TENDENCY WITHIN THE NATO POLICY IN THE AREA OF MILITARY ENGINEERING, ENGINEER INTELLIGENCE AND FORCE PROTECTION IMPLICATIONS

SUMMARY: The paper deals with continuous process of amending of NATO Military Engineering basic documents and its implications. The NATO Military Committee Policy for Military Engineering which was represented by the document of MC 0560 (2008) has been changed. The relatively new approach which is visible from the context of the new document of MC 0560/1 (2012) is focused mainly on those Military Engineering capabilities which are essential for operational success. MC 0560/1 applies to preparation, execution and recovery across the continuum of potential NATO-led joint operations. The spirit and approach of this document has many different implications, and some of them are concerning complex domains, like amending key Military Engineering documents, as well as domains of Engineer Intelligence and Force protection.

Keywords: Military Engineering, capabilities, Engineer Intelligence, Force Protection.

The NATO policy is changing, according to the situation within NATO and new World Challenges become. At this time we can, from the text of current and previous NATO documents, derive some shifts/changes in the area of Military Engineering (MILENG), which have occured and which are relevant mainly to these areas:

- the MILENG essence and functions;
- Engineer Intelligence (EI);
- Force Protection (FP).

A COMPARISON BETWEEN SOME VERSIONS OF BASIC NATO MILENG DOCUMENTS

The development process and amending of basic NATO MILENG documets continues. I have learnt about this matter that there is following situation:

- Military commitee policy for Military Engineering (MC 0560 (2008)) was superseded by the document of MC 0560/1 (2012));
- STANAG 2238 – “Allied Doctrine for Military Engineer Support to Joint Operations” – AJP-3.12(A) (2010): it is under considerations to supersede this doctrine by the document of AJP-3.12(B) “Allied Doctrine for Military Engineering”. Last draft of this document has been issued for expert discusions like “Study draft 3” (2012);
- STANAG 2394 – “Land Force Combat Engineer Doctrine” – ATP-52(B) (2008): it is under considerations to supersede this doctrine by the document of ATP-3.12.1 “Allied Tactical Doctrine for Military Engineering”. Last draft of this document has been issued like “Study draft 2” (March 2012);

It is difficult to predict how long the development process will last and what will be its final results. But if the MILENG community is informed about this process continuously, we can derive from the achieved level of knowledge useful information which would be important for our special research programmes as well as for the process of teaching students.

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Military commitee policy for military engineering (superseded MC 0560 (2008) & new version of MC 0560/1 (2012))

If we compare the text of these two documents, step by step (as we can see it in the Table 1), we can find/derive some differences and issues between the previous MC 0560 (2008) and the current MC 0560/1 (2012) documents:

Shortened text of MC 0560/1_2012	**Shortened text of MC 0560_(2008)**
AIM	**AIM**
1. To state the policy for military engineering. It also gives direction and guidance for its implementation, In order to enable NATO, individual member Nations and partners **to plan and conduct Alliance operations** and to develop appropriate joint military **capabilities**, driven by the NATO Defence Planning Process (NDPP).	1. To establish a policy for all Military Engineering to optimise Engineer support to NATO.
SCOPE	**SCOPE**
2. This Policy describes the concept for the delivery of an effective MILENG capability which is essential for operational success. It applies to preparation, execution and recovery across the continuum of potential NATO-led joint operations....	2. To articulate the principles for Military Engineering planning and employment to ensure unity of effort, prioritisation and economies of engineer resources assigned by NATO and NATO nations. This policy highlights...
SUPPORTING CONCEPTS	**BACKGROUND**
3. The Strategic Concept. .... NATO focus has shifted from largely static collective territorial defence to expeditionary operations..... **4. Guidance for Transformation and NATO's Level of Ambition**... Command and Control (C2) arrangements must be sufficient for **up to eight concurrent operations (two Major Joint Operations and six Smaller Joint Operations)** on NATO territory, its periphery or at strategic distance.	...... 5. The focus of NATO operations has changed from static operations to more expeditionary operations. .... Command and control arrangements must be able to support up to eight concurrent operations **(2 Major Joint Operations and 6 Smaller Joint Operations)** on NATO territory, on its periphery and at strategic distance. ...
PART 1— ROLES	**PART 1 – DEFINITIONS**
5. Definition. MILENG Is the Engineer activity, undertaken regardless of component or service, to shape the physical operating environment...	8. **Military Engineering** is that engineer activity undertaken regardless of component or service, to shape the physical operating environment. ...
PART II — MILENG IN ALLIED OPERATIONS	**PART II - COMPREHENSIVE JOINT APPROACH**
7. Comprehensive Approach. Current operations continue to highlight the importance of MILENG throughout all stages of an operation in supporting, enabling and sustaining the force. .... **8. Centralised Control, Decentralised Execution.** .... The most effective use of scarce resources will be achieved by a senior military engineer and staff, properly established at each level, able to task-organise multinational assets in accordance with the overall commander's priorities, throughout an operation; responsibility for executing tasks should be delegated to the lowest appropriate level of MILENG command.... **9. Engineer Advisor**. **The senior military engineer at each level** is the principal advisor to the commander In all aspects of MILENG. ...	7. As NATO transforms, so has the requirement to redefine the engineer capabilities and expertise at all levels; to develop and establish military engineering policy; and update doctrine, concepts and roles. While NATO's engineer staff representation at senior level is minimal, current operations and planning considerations for expeditionary operations demand increased engineering representation and advice. 12. To enable NATO military commanders to maximise Military Engineering capabilities and forces to their best effect, senior engineer expertise is needed at all levels and headquarters must have visibility and must be robust enough to handle all likely requirements...
PART IV - MILENG SUPPORT TO THE STRATEGIC LEVEL	**PART III - ENGINEER SUPPORT TO STRATEGIC LEVELS**
13 At the strategic level, military engineers contribute to defence and operations planning by providing the necessary subject matter expert (SME) advice to en-	13. At the Strategic level, engineer activity mainly addresses the Military Engineering input into operational planning and execution, force planning, policy and

Shortened text of MC 0560/1_2012	Shortened text of MC 0560_(2008)
sure that appropriate MILENG capabilities will be generated in a timely manner to meet NATO short, medium and long term requirements....	doctrine, and NATO Infrastructure and associated NATO common funded projects...
PART V - MILENG SUPPORT AT THE OPERATIONAL LEVEL AND BELOW	**PART IV - ENGINEER SUPPORT AT THE OPERATIONAL LEVEL AND BELOW**
18. Operational Level. The JFENGR at the Joint Force HQ will be responsible, throughout the Joint Operational Area, for identifying the requirements for engineering support as well as balancing and coordinating the allocation of MILENG and Host Nation Support, both directly for the force as well as to meet wider campaign objectives...	22. Effective operational level engineer planning requires a Joint Force Engineer and staff to support the Joint Force Commander, providing advice on all engineer aspects of the operation. The Joint Force Engineer will have co-ordinating and technical authority, on behalf of the Joint Force Commander, over the allocation of engineer resources to Components....
19. Tactical Level. The most likely MILENG focus at the tactical level for all components, depending on the operation, its phases and the operational environment, will be mobility support balanced with provision of life support and development of infrastructure.	24. **At the tactical level**, although there may be a greater focus on combat support engineering, force support engineering will also be necessary within all components.

Table 1: The demonstration of coincidences and differences between MC 0560/1 and MC 0560

Subchapter Summary: The new MC 0560/1 (2012) differs from former MC 0560 (2008) in some aspects. For instance it:

- reflects the progress in the current situation in NATO;
- states the policy for MILENG and it is usable as the authority for those measures required to achieve its full implementation across the Alliance;
- redefines some terms and definitions - (terms like "Combat support Engineering", "Force support Engineering", Engineer Intelligence" were omitted/not mentioned);
- formulates the relevant set of Joint Functions (Manoeuvre and Fires; Command and Control; Intelligence; Information, Operations; Sustainability; Force Protection and Civil-Military Co-operation, Logistics' infrastructure);
- adopts the necessary capability for providing "subject matter expert (SME) advice" to ensure that appropriate MILENG capabilities will be generated in a timely manner;
- accentuates more strongly the need to establish within military formations a position like Engineer Advisor/senior military engineer at each level, who is also the principal advisor to the commander in all aspects of MILENG and who is responsible for all MILENG matters.

AJP.3.12(A) (2010) Allied Doctrine for Military Engineer Support to Joint Operations & the study draft 3 of AJP.3.12(B) (2012) ALLIED JOINT DOCTRINE FOR MILITARY ENGINEERING

In the Table 2 we can see some differences in the concept and the content between documents "the study draft 3 of AJP.3.12(B) ALLIED JOINT DOCTRINE FOR MILITARY ENGINEERING" and AJP.3.12(A) "ALLIED DOCTRINE FOR MILITARY ENGINEER SUPPORT TO JOINT OPERATIONS":

The study draft 3 of AJP.3.12(B) ALLIED JOINT DOCTRINE FOR MILITARY ENGINEERING (49 pages)	AJP.3.12(A) ALLIED DOCTRINE FOR MILITARY ENGINEER SUPPORT TO JOINT OPERATIONS (50 pages)
Chapter 1 – Principles Comprehensive approach Implications for military engineering Scope of military engineering Military engineering at the different levels Military engineering forces and resources	**Chapter 1 The Alliance Concept of Military Engineer Support to Joint Operations** Fundamentals of Joint Operations: Implications for Military Engineering 1-1 Scope of Military Engineer Functions 1-2 Levels of Military Engineering 1-3

Chapter 2 – Military Engineering Command and Control Military engineering command and control principles Military engineering command and control principles in joint headquarters JFENGR staff organization **Chapter 3 – Military Engineering Planning** Planning at the strategic level Planning at the operational level Military engineering planning relations to other functional areas and the HN 3-6 Special considerations for military engineer planning **Chapter 4 – Military Engineering Support to the Conduct of Allied Joint Operations** Military engineering support to the different stages of an operation Military engineering support to air operations Military engineering support to maritime operations Military engineering support to logistics Specialist contributions to operations	Military Engineer Forces and Resources 1-6 **Chapter 2 Allied Joint Force Military Engineer Command and Control** Command & Control Principles 2-1 Engineer Organisations 2-2 Host Nation Support 2-4 **Chapter 3 Allied Joint Force Military Engineer Planning** Planning at the Strategic Level 3-1 Planning at the Operational Level 3-3 Engineer Input to Other Fora 3-6 Special Considerations for Engineer Planning 3-9 **Chapter 4 Military Engineer Support to the Conduct of Allied Joint Operations** Operational Principles 4-1 Military Engineer Support to the Conduct of Joint Operations 4-2 Specialist Military Engineer Contributions to Joint Operations 4-5

Table 2: The demonstration of coincidences and differences between the content of study draft 3 of AJP.3.12(B) and AJP.3.12(A)

Subchapter Summary: The main difference between AJP-3.12(A) and the draft of AJP-3.12(B) is that this publication draft better reflects the linkage between the newly revised capstone joint doctrine document AJP-01(D) and keystone joint doctrine documents AJP-3(B), the other keystone doctrine documents and the level 2 supporting joint doctrine publications.

It describes the actual fundamental aspects of military engineering and provides guidance for support to the conduct of joint operations at the operational level. These operations are complex and contain all the different tasks that span the range of military operations, from humanitarian aid to combat. Most operations will take place in all of the domains (air, land, maritime) while some will predominantly favour a single domain, such as land. The level of joint participation may vary and is likely to include non-military agencies, institutions or organizations.

The key theme in this publication remains: 'military engineering is a component of capability of all Joint Functions'. All military engineering support to joint operations can fundamentally be approached in the same manner because NATO forces must expect to perform a wide range of potentially simultaneous activities. AJP 3.12(B) focuses on the synchronization and coordination of military engineering activities, during the preparation, execution and termination of an operation.

ATP-52(B) "LAND FORCE MILITARY ENGINEER DOCTRINE" (2008) & The FIRST study draft 2 of ATP-3.12.1 (A) "ALLIED DOCTRINE FOR TACTICAL MILITARY ENGINEERING" (March 2012)

As it is apparent from the headline, current "ATP-52" document series are going to convert to "ATP-3.12" series, according to relevant AJP-3.12. The range of changes and the tendency of amendments are visible from the tables of context these two documents (Table: 3)

The first study draft 2 of ATP-3.12.1 (A) ALLIED DOCTRINE FOR TACTICAL MILITARY ENGINEERING ATP-3.12.1 (more than 221 pages)	**ATP-52(B) LAND FORCE MILITARY ENGINEER DOCTRINE ATP-52(B) DECEMBER 2008 (140 pages)**

The first study draft 2 of ATP-3.12.1 (A) ALLIED DOCTRINE FOR TACTICAL MILITARY ENGINEERING ATP-3.12.1 (more than 221 pages)	**ATP-52(B) LAND FORCE MILITARY ENGINEER DOCTRINE ATP-52(B) DECEMBER 2008 (140 pages)**
CHAPTER 1 – PRINCIPLES Comprehensive approach at the tactical level Tactical implications for military Engr operators Scope of tactical MILENG MILENG roles and tasks **CHAPTER 2 – MILITARY ENGINEERING COMMAND AND CONTROL** Principles Functional coordination and liaison Planning, employment and control of Engrs Rules of Engagement for Engrs **CHAPTER 3 – MILITARY ENGINEERING SUPPORT TO THE PLANNING OF OPERATIONS** Engineers and the NATO Planning Process Engineer Resources and Materials Infrastructure Development Plan Barrier Planning Engineers and Contractors Engineers and HNS **CHAPTER 4 – MILITARY ENGINEER SUPPORT TO THE CONDUCT OF OPERATIONS** Engineers and Knowledge Development The engineer estimate Pre-Deployment Deployment Engineer Support to Land Forces Engineer Support to Air Forces Engineer Support to Maritime Forces Engineer Support to Logistics Engineer Support Special Forces Engineer Support to post Conflict Operations Redeployment Specialist Engineer Contribution to Operations Annexes: A-L	**CHAPTER 1 ENGINEER FUNDAMENTALS AND ROLES** Section I – The operating environment Section II – The continuum of operations Section III – Key terms and definitions Section IV – Engineer roles Section V – Planning and employment Section VI – Multinational standardisation and interoperability **CHAPTER 2 ENGINEER COMMAND, CONTROL, INTELLIGENCE AND RECONNAISSANCE** Section I – Command and control Section II – Communications and liaison Section III – Information and intelligence Section IV – Engineer reconnaissance Section V – Rules of engagement (ROE) **CHAPTER 3 ENGINEER OPERATIONS IN FORCE PROJECTION AND SUSTAINMENT** Section II – Factors affecting Section III – Engineer capabilities required **CHAPTER 4 GENERAL ENGINEER SUPPORT** ~~**CHAPTER 5 OFFENSIVE OPERATIONS**~~ ~~**CHAPTER 6 DEFENSIVE OPERATIONS**~~ ~~**CHAPTER 7 STABILISING OPERATIONS**~~ ~~**CHAPTER 8 ENABLING ACTIVITIES**~~ ~~**CHAPTER 9 ENGINEERS IN SPECIFIC ENVIRONMENTS AND SITUATIONS**~~ **ANNEX A** ATP-52(B) - RELATED STANAGs **ANNEX B** FAMILY OF OBSTACLE TERMS **ANNEX C** ENGINEER INFORMATION REQUIREMENTS

Table 3: The demonstration of coincidences and differences between the content of The first study draft 2 of ATP-3.12.1 (A) and ATP-52(B)

Subchapter Summary: It was determined that ATP-52 was redundant in many respects with capstone NATO documents, and that MILENG doctrines had to be developed as a whole, ranging from strategic and operational (AJP-3.12) to tactical (ATP-3.12.1). According to the development of MILENG functions, there is no need component-specific doctrine, but it is necesarry to interpret the concepts present in new AJP-3.12 at the tactical level. The emphasis has shifted from the component focus (Land) to the level of the publication (tactical). This publication draft intends to address the same concepts and responsibilities introduced by AJP-3.12 and explain their application, bridging the operational and the tactical level. While joint doctrine focuses on describing "what" MILENG is, this publication attempts to define "how" it is executed. The draft of the document is much more comprehensive and it also gives us a new views on the framework of MILENG tasks (Figure 1) and on the range of MILENG capabilities (Figure 2).

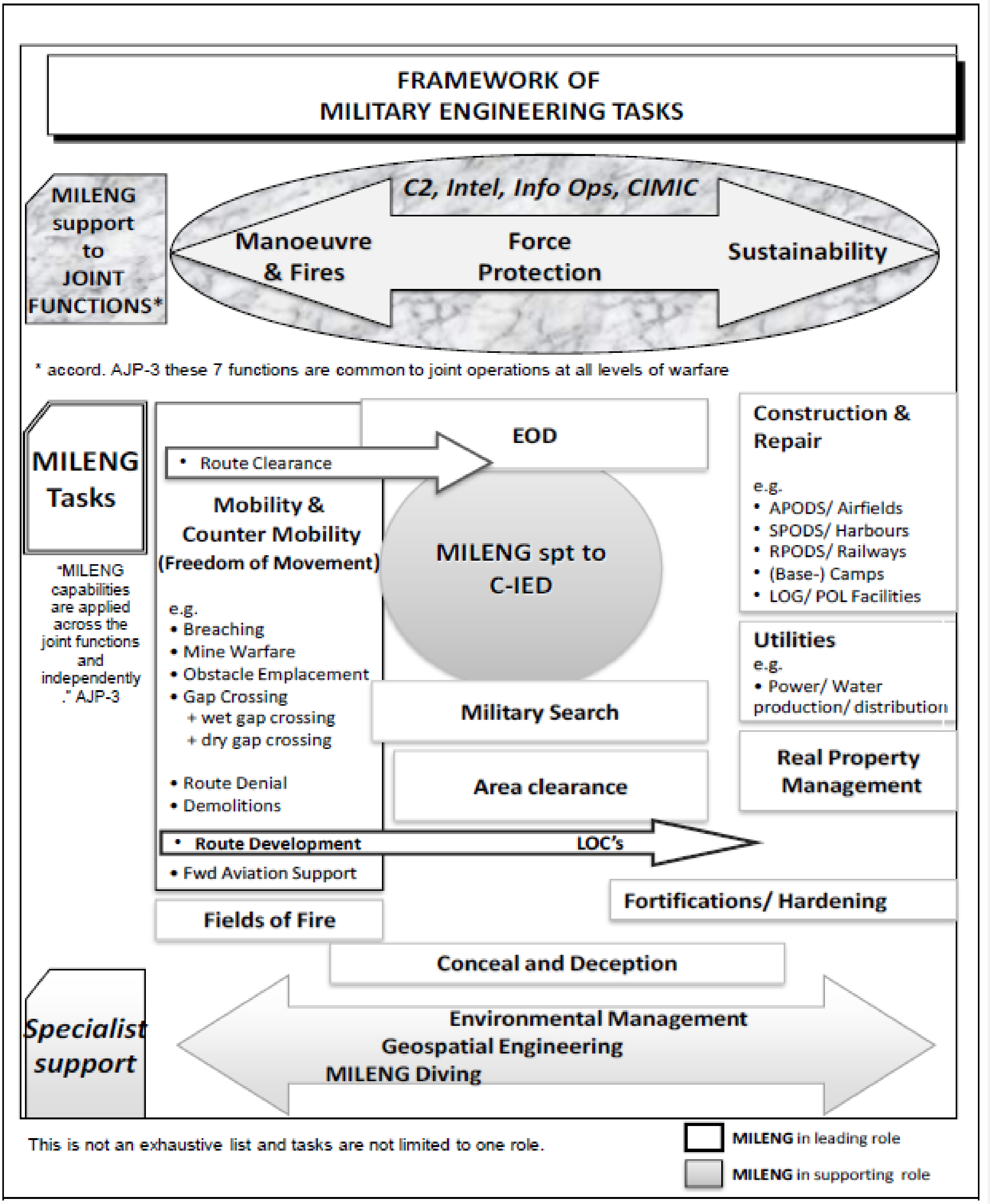

Figure: 1 The Framework of MILENG Tasks

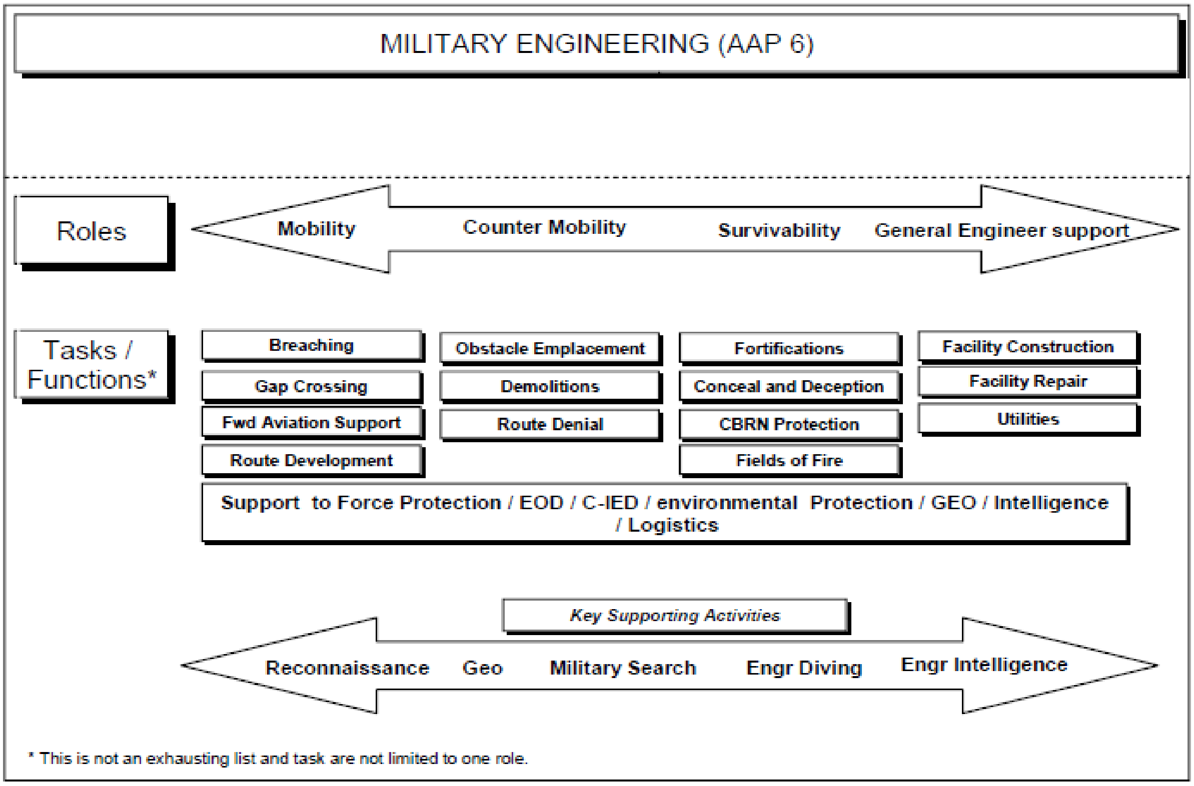

Figure 2 Military Engineer Capabilities

ENGINEER INTELLIGENCE IMPLICATIONS

Omitting the term of „Engineer Intelligence“ (from the text of previous MC 0560) would signalize some doubts about the term purity within the frame of Intelligence terms. Opinions about it are different among the MILENG community. For instance, some specialists from the Military Engineering Centre of Excellence (MILENG COE) have recently advocated meaning, that more appropriate term for this comprehensive activity is "Engineer support to Intelligence". By contraries, in Royal Engineers community (British Forces) is the term "Engineer Intelligence" stated officially. Another sample of modified term from US Army which is associated with MILENG functions is "obstacle intelligence2" (OBSTINT). Next reason for further discussions on this topic would be obvious coherency between terms "Engineer Intelligence" and "Engineer Reconnaissance". Whereas there are no doubts about that we recognize term "Engineer Reconnaissance" as a special capability, "Engineer Intelligence" is still unfixed officially in all NATO documents as a term3.

Main reasons for the existence of engineer intelligence

If we admit the necessity of the existence of Command and Control (C2) processes within the MILENG (what has been stated in previous documents/drafts as a principle) we have to consider appropriate structure and methods in the area of MILENG Information Management (IM). There are generally two types of MILENG specialists who need engineer intelligence

[2] **obstacle intelligence —** Those collection efforts to detect the presence of enemy and natural obstacles, determine their types and dimensions, and provide the necessary information to plan appropriate combined arms breaching, clearance, or bypass operations to negate the impact on the friendly scheme of maneuver. Also called **OBSTINT.** (JP 3-15)

[3] Note: with one exception – AAP-19 (D) (2003).

capabilities: engineer commanders and Joint Force Engineers (JFENGRs) or their equivalents (Engineer Coordinators) on other operational/tactical levels. Both of them will make/support decisions and they will plan or contribute to the planning processes. To do it properly, they will need (during operations) to:

- do Engineer Estimates;
- have Situation Awareness (SA);
- create MILENG Common Operational Picture (MECOP);
- achieve the situation understanding (SU).

The engineer estimate[4]

From the moment they are engaged in operations, engineers are continually conducting estimates of how they can best array their assets in support to the commander's plan and how accomplish MILENG tasks. Their technical expertise is not only an enabler but also a force multiplier. In order to fully contribute to operations, engineer commanders and chiefs may have to conduct a deliberate estimate of key factors in order to make the deductions that will help validate courses of action or identify new ones.

The engineer estimate is not divorced from the commander's battle procedure and aims at supporting it. However, engineers may initiate estimates which are specialty-driven and continually evolving while external capabilities are inventoried. Following that logic it can be said that there are three kinds of engineer estimates:

- General Engineer estimate. This is an overall assessment of the operating environment, including friendly forces, adversary, threat, terrain and external assets – from and MILENG perspective. It is aimed at providing a wider picture of the "engineer problems and solutions" in a theatre. As a result, guidelines and general concepts of support will be provided and technical Requests for Information will be formulated with a view to potential tasks;
- Tactical estimate. This is an estimate directly linked to the Comprehensive Operational Planning Directive (COPD) and Operational Planning Process (OPP) of the supported friendly forces. The scope is generally limited to assigned and implied tasks and identified Courses of Actions (COA).
- Technical estimates. Those are assessment of purely engineer tasks/problems and the most efficient and effective to resolve them. These estimates increasingly include considerations to outsourcing and contracting services, requiring technical expertise.

MILENG Situation awareness.

For situation awareness is also necessary to have/create and to maintain databases which contain as much information as possible on all MILENG matters concerning the area of interest. MILENG considerations during the step of planning would include, but are not limited to:

- Terrain and related weather analysis in support of operational area / environment visualization;
- Host Nation (HN) infrastructure and resources assessment;
- Assessment of coalition and HN MILENG capabilities;

[4] The first study draft 2 of ATP-3.12.1 (A) ALLIED DOCTRINE FOR TACTICAL MILITARY ENGINEERING

- Assessment of present non-military organizations which provide MILENG-related capabilities, including the support they need and which support they can provide to MILENG;
- Additional digital mapping and imagery requirements for projected missions;
- Capabilities of assigned military engineer forces;
- Adversary military engineer capabilities;
- Environmentally sensitive areas and other impacts on the environment;
- Historic and cultural resources;
- Bed-down requirements for supported friendly force.
- Non-military engineer capabilities;
- LOC and ports of debarkation (airport (APOD), seaport (SPOD) or rail port (RPOD)) supportability.

The MILENG common operational picture

To create MECOP is mainly about relevant information. Relevant information is all information of importance to the commander and staff in the exercise of command and control. Engineer intelligence is from a special point of view a subset of relevant information which is needed for command and control in the MILENG.

A MILENG common operational picture would be a single display of relevant information within a engineer commander’s area of interest. It is a part of all-embracing operational picture tailored to the engineer’s requirements, based on common data and information shared by more than one command. Data and engineer’s information from all echelons of command and shared among all users will create the MECOP. Although ideally MECOP is a single display, it probably will include more than one display and information in other forms. During the process of setting out the MECOP it is necessary to respect the range of MILENG capabilities and tasks. It is necessary to be aware of the fact that some relatively independent tasks from the range of engineer capabilities can have influences on other engineer capabilities. For example the EOD/C-IED tasks will have an impact on mobility capabilities).

Maintaining an accurate MECOP is complex and difficult. Information Management contributes to the information superiority, necessary for an accurate MECOP. Engineer information management should be considered as a component of all C2 systems within MILENG. Engineer information management will be the provision of relevant information to the right person at the right time in a usable form to facilitate SU and decision-making. It will use procedures and information systems to collect, process, store, display, and disseminate information. Engineer information management will provide the structure to process and communicate engineer information and to put decisions into action. The adequate engineer staff plays main role in the process of creating MECOP, helping to SU and enabling information superiority.

Situational understanding

To have right/relevant information to the right person at the right time and place in a usable form facilitates SU and decision-making processes.

To help the process of SU it is useful to create some special products where military engineer specialists apply analysis and judgement according to different conditions. They can facilitate decision-making process by identifying opportunities for mission accomplishment, threats to mission accomplishment and the force, and gaps in information. Engineer specialists (commanders and chief engineers) use situational understanding for C2, where execution information (plans and orders) play important role. The plan elaboration of an MILENG support should follow the normal method of an estimate, but certain aspects peculiar to engineers need emphasis. These are:

- Obtaining Information. The engineer commanders or engineer coordinators must base their decisions on the best possible information. This will come through engineer channels, from the tactical commander and his staff and from supported units but it may take time;
- MILENG subject matter expert (SME) analysis, assessments developing and relevant advices/recommendations providing. During this process is an advantage to have possibility to simulate an influence of different aspects and circumstances which could happen or we can predict, including cases of a contingency;

Military Engineer Support to Knowledge Development[5]

Knowledge Development (KD), as outlined in the BI-SC 6concept, is a process where information is collected, fused and analysed to create ‘‘actionable” knowledge which is then made accessible across the staff, coalition, Alliance, as required.

KD is a continuous, adaptive and networked activity carried out at strategic, operational and tactical levels of command. It provides commanders and their staff with a comprehensive understanding of complex environments, including the relationships and interactions between systems and actors within the engagement space. These systems may include but are not limited to politics, military, economy, society, infrastructure and information (PMESII) domains. This approach enables the Commander and staff to better understand possible effects of military, political, economic and civil actions on different systems and actors within the engagement space. KD primarily supports decision making throughout the different phases of NATO’s Crisis Management Process

<u>Engineer information</u> is unprocessed data, which may be used in the production of intelligence and knowledge. It may come from many sources including maps, satellite imagery, reconnaissance, POWs as well as military and civilian sources. The engineer must identify information requirements to the HQ staff for inclusion in the intelligence collection plan.

<u>Engineer Support to Knowledge Development.</u> In the current Operating Environment, Engineer Information supports both the traditional Intelligence process and the wider Knowledge Development process. It plays a fundamental role in the successful planning of military operations. Engineer information may be collected and reported by all arms/branches, by intelligence gathering services as well as by dedicated engineer reconnaissance. Once reported, information is collated and managed by engineer staff elements. Many items of engineer information are of interest to other arms/branches, intelligence services and agencies and the ability to exchange information within, and between, headquarters is required.

A structured sequence or process is needed to identify the information and intelligence requirements, gather the relevant information, process them into a product and disseminate them to those who need it. This need for a structured approach is satisfied by a four-stage-sequence consisting of Direction, Collection, Processing and Dissemination. The so called ”Intelligence-Cycle” is the foundation for all intelligence activity. These phases are discrete

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[5] The first study draft 2 of ATP-3.12.1 (A) ALLIED DOCTRINE FOR TACTICAL MILITARY ENGINEERING

[6] Bi-SC, Knowledge Development, Pre-Doctrinal Handbook, Final Draft 22 SEP 2009

operations and they culminate in the dissemination of the required intelligence product. The integration of engineer staffs and information into this Intelligence Cycle is critical.

Engineer support to Knowledge Development is very wide-ranging in its scope. It may encompass the operational capabilities of friendly and enemy forces, the terrain, the weather, geographic information as well as information on infrastructure, utilities and resources needed to conduct operations. It can be considered as both a product and a process that supports the following functions:

- Force Generation. Engineer support to Knowledge Development informs the force generation process by allowing the engineer commander to advise on and plan the optimal engineer force structures for particular operations paying regard to terrain, tasks and enemy;
- Intelligence Preparation of the Battlefield (IPB). The purpose of IPB is to help commanders to refine their intelligence requirements, identify decision points and to inform the Operational Planning Process. Within this process the engineer focuses on the terrain aspects of Battlefield Area Evaluation (BAE);
- Situational Understanding. Engineer information adds to the overall situational understanding with particular emphasis on terrain and the capability of enemy engineers. Modern technology offers considerable benefits in ensuring engineer situational understanding information is rapidly and accurately reflected in a complete all arms/branches or joint picture.
- Joint Targeting Process. Engineers can contribute to the joint targeting process by input to the selection of targets, aiming points, and Battle Damage Assessment (BDA);
- Force Protection. Engineers can add considerably to force protection planning and implementation by examining how the enemy could exploit the terrain and what actions our own forces could take to reduce or negate potential enemy action.

FORCE PROTECTION IMPLICATIONS

Survivability

Survivability is closely connected with Force Protections. If we want to survive, we have to make relevant Force Protection7 precautions. Survivability includes all aspects of physically protecting personnel, weapons, and materiel from the effects of enemy weapon and detection systems. It may also include deception measures. One of the basic terms for solving survivability problems and developing appropriate solutions is the Threat.

All arms/branches are responsible for their own immediate survivability requirements. Engineers will augment and enhance unit survivability measures within the limits of available resources and the priorities of the commander. Engineer effort will be concentrated on tasks requiring specialist skills or equipment. Survivability measures begin with the use of all available concealment and cover, followed by digging and constructing fighting and protection positions.

The main engineer survivability tasks are:

- Assistance in the preparation and construction of field fortifications;
- Assistance in the hardening and construction of protective infrastructure works;
- Assistance with camouflage, concealment and deception;

[7] Force Protection. “Measures and means to minimize the vulnerability of personnel, facilities, materiel, operations and activities from threats and hazards in order to preserve freedom of action and operational effectiveness thereby contributing to mission success.” (AAP-6, Jun 2004)

- Assistance in the clearance of fields of fire;
- Managing the explosive threat.

Managing the explosive threat8 are those tasks related to minimizing the threat posed by all kinds of explosive devices, both manufactured and improvised, to friendly forces. This includes all actions from providing advice and engineer intelligence to deliberate actions such as disposal, search and EOD/C-IED clearance.

Military Engineering support to Force Protection capabilities

The Allied Joint Doctrine for Force Protection (AJP-3.14) (2007) provides the basis for developing both strategic and operational FP plans, and for its effective implementation through FP directives, and instructions. It forms the cornerstone of NATO FP doctrine that is essential to the protection of personnel, facilities, material, operations, activities and information, wherever NATO forces may be employed. The doctrine distinguishes six special parts of NATO Force Protection Capabilities (Figure 3).

Military Engineering Support to Force protection is considered as a special part of six defined capabilities, but military engineers are not involved only within this box rather provide support in many other areas. FP involves coordinating the activities of a large number of specialist areas, each with their own plan and priorities. This is not a simple task and Military Engineers must support the efforts to integrate these capabilities. From the one point of view, MILENG support to Force Protection would be defined as "those MILENG activities whose special purpose is the minimization of the risks to a force's assets and preserve its operational effectiveness, from the actions of an adversary as well as occupational/environmental hazards."

Figure: 3 NATO Force Protection Capabilities[9]

[8] Note: This task is not exclusively executed as a survivability task, it is often conducted as a mobility task when the explosive threat hinders Freedom of Movement (FOM) of friendly forces.
[9] Note: AJP-3.14

The "Military Engineering Support to FP" capability would be divided into following relatively independent sorts of capabilities.

- Protective Infrastructure. This includes all the infrastructure related measures that contribute to FP. This includes the planning, design, construction and maintenance of all infrastructure and facilities to include appropriate blast and ballistic protection. It also includes consideration of appropriate safety distances within a camp layout;
- Fire Protection. Fire Protection includes the design and construction of fire prevention and suppression systems within infrastructure. It includes the development, implementation and monitoring of a fire safety program within a camp, including training. It also includes fire response capabilities;
- Explosive Ordnance Disposal. EOD is often required to contribute to incident response and recovery activities. EO forces disposes of EO that threaten friendly forces and with their capabilities contribute to protection of personnel and materiel;
- Improvised Explosive Device Disposal. IEDD may be required as part of an incident response or recovery activity;
- Explosive Threats & Hazards Awareness. Military Engineers are responsible for the provision of awareness training to all force personnel on mines and other explosive hazards.
- Support to Countering-Improvised Explosive Device (C-IED). The support to C-IED includes IEDD (defeat the device) and IED awareness (education);
- Concealment and deception. This includes the planning, design and lay out of concealment and deception;
- Military Search. Military Search is an essential element of FP – both protecting coalition bases and enabling freedom of action and movement. Military Search provides assurance of potential "high level" targets during pre-planned events. It is also employed to safeguard disparate friendly or neutral factions in the area of operation (ATP-73);
- Route and Area Clearance. The focus of Route Clearance is mobility. Neutralization focus is both on EO and obstacles. Route and Area clearance leave residual risk.

NATO Force Protection Model[10]

Force Protection Model. FP is an integrated process. It is aimed at applying controls and measures that contribute to tactical self-sufficiency to the lowest practical level. The NATO FP model applies the threat and vulnerability in the following steps (as it is shown in the Figure 4):

- Identify the assigned and implied tasks through mission analysis;
- Identify those assets that are critical to mission success (criticality assessment);
- Determine likely threats and hazards to personnel and those assets that are critical to mission success (threat assessment);
- Identify vulnerabilities that could be exploited by threats and the impact of incidents on the force's effectiveness, thereby affecting mission success (vulnerability assessment);
- Determine the risks to mission success from an assessment of the ability of the threat to exploit identified vulnerabilities, and accidental and environmental hazards caused by human error, topography, climate, weather and the presence of TIM and endemic diseases that pose risks to personnel and critical assets (risk assessment);
- Identify and implement appropriate FP controls and measures to reduce risk to a level acceptable to command and calculate and monitor the residual risk or gaps in order to manage the mission (risk management). Willingness to accept risk is likely to be influenced by political constraints;

10 Note: AJP-3.14

- Identify and implement incident response and recovery controls and measures, including the development and implementation of an emergency response and recovery plan (incident response and recovery);
- Maintain, reassess, and amend FP controls and measures throughout the mission (supervise and review).

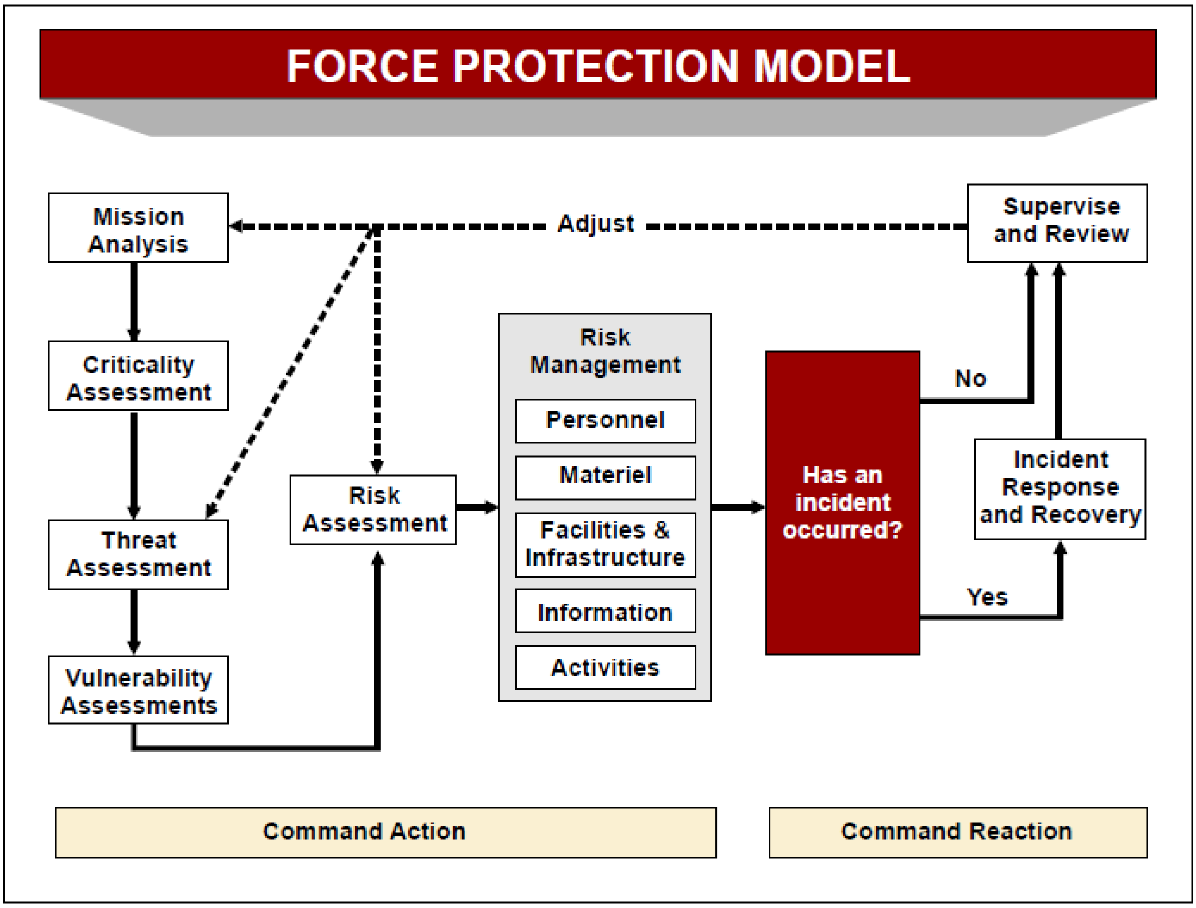

Figure 4: NATO Force Protection Model

Military Engineering supports all the steps in NATO model. Advice on critical infrastructure, assessment of adversary explosive capabilities, potential impacts of environmental hazards and advice on FP measures are but a few of the means by which Military Engineering supports this process.

Within the categories of Material and Facilities and Infrastructure, Military Engineers have much greater responsibilities. They are often primary planners and advisers and as also often responsible for the implementation of such measures for the force as a whole. This includes the ongoing maintenance and repair of FP facilities and infrastructure.

Military Engineers are sometimes required to provide advice on Procedural, Personnel and Information controls and measures in their capacity as advisors. As commanders and chief engineers they must ensure the implementation of controls and measures within their units.

Military Engineer input Risk Assessment is vital, particularly regarding categories of Adversary Emplaced Threats and Environmental Hazards. Military Engineers are responsible for the development of information and knowledge regarding all types of explosive hazards as well as many environmental hazards.

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