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**BI-NATIONAL CORPS OF NATO'S MAIN DEFENSE FORCES
IN CENTRAL EUROPE: CREATING INTEROPERABILITY**

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

by

**KOEN A. GIJSBERS, MAJ,
ROYAL NETHERLANDS ARMY**



**Fort Leavenworth, Kansas
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MASTER OF MILITARY ART AND SCIENCE


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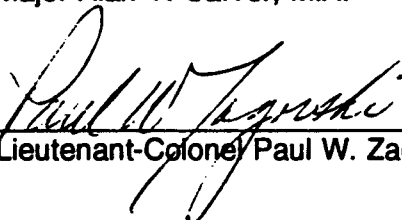
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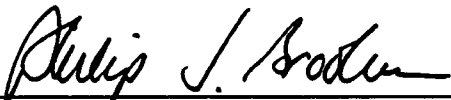
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ABSTRACT

BI-NATIONAL CORPS OF NATO'S MAIN DEFENSE FORCES IN CENTRAL EUROPE: CREATING INTEROPERABILITY, by Major Koen Gijsbers, RNLA, 173 pages.

This study investigates the problems that might occur, when combining units of two nations in bi-national corps. The study focuses on three new corps of NATO's Main Defense Forces: a U.S.-led U.S.-German corps, a German-led German-U.S. corps and an integrated German-Dutch corps. To ascertain the challenges of these new units, the study analyses the new operational environment in Central-Europe, the force development of the units involved and the plans for the bi-national corps. Furthermore, the study evaluates the capabilities of national divisions and the bi-national corps.

Creating the combined corps is not only a feasible concept, it is an essential concept for the future. The concept is a strong trigger to create better interoperability, essential for combined operations in any future contingency. The most critical areas of concern are differences in the concept of fighting with and structuring the corps, and conceptual and doctrinal differences concerning combat support, and combat services support. Combined training, a challenge of itself, will bring a solution for most of the problems.

PREFACE

The purpose of this thesis is to identify the challenges of interoperability, when combining German, US and Netherlands forces in three bi-national corps. The study tries to identify general trends, commonalities, and differences. My working experience in long term planning at the Dutch Army Staff has influenced this broad perspective.

Combined operations are a very sensitive matter. One of my conclusions is, that there is no good or bad, no right or wrong in combined operations. Different countries do things differently, and this might, or might not, cause interoperability problems. The study discusses the operational point of view; it does not try to incorporate more political-military factors. This will influence the value of some recommendations. However, in my opinion, they are militarily sound.

This thesis represents a different perspective to combining the corps. Writing this thesis gave me the opportunity to combine my knowledge about the Netherlands and German army gained during my study at the Royal Netherlands General Staff College and during my jobs in the 1.(NL)Corps and in the Dutch Army Staff with the knowledge acquired here at the U.S. Army Command and General Staff College. This thesis portrays, however, only one way of looking at the problem. Hopefully, some of my ideas will trigger staff officers and planners to identify more creative solutions for the huge task of creating interoperability.

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LIST OF ABBREVIATIONS

AA	Anti Air
A²C²	Anti Air Command and Control
ABC	Atomic, Biological, and Chemical [Warfare]
ACB	Armored Cavalry Brigade
ACE	Allied Command(er) Europe
ACR	Armored Cavalry Regiment
AD	Air Defense
AFCENT	Allied Forces Central Europe
AH/AtkH	Attack Helicopter
AMF	Allied Command Europe Mobile Force
AO	Area of Operation
APC	Armored Personnel Carrier
ARRC	Allied Command Europe Rapid Reaction Corps
ATACMS	Army Tactical Missile System
ATFV	Anti-tank Fighting Vehicle
ATH	Anti-tank Helicopter
ATP	Allied Tactical Publication
AVLB	Armored Vehicle Laying Bridges
BE	Belgium
C²	Command and Control
C³	Command, Control and Communications

CA	Civil Affairs
CFE	Conventional Forces Europe [Treaty]
CFV	Cavalry Fighting Vehicle
CGSC	Command and General Staff College
CGSOC	Command and General Staff Officer Course
CH	Cargo Helicopter
CINC	Command in Chief
CINCEUR	Commander in Chief Europe
CIS	Confederation of Independent States, Communication and Information Systems
COSCOM	Corps Support Command
CP	Command Post
CPX	Command Post Exercise
CRF	Crisis Reaction Forces
CS	Combat Support
CSBM	Confidence and Security Building Measures
CSCE	Conference on Security and Cooperation in Europe
CSG	Corps Support Group
CSS	Combat Service Support
DISCOM	Division Support Command
Div Arty	Division Artillery
DS	Direct Support
EAC	Echelon Above Corps
EW	Electronical Warfare
FM	Field Manual

FLOT	Forward Line Own Troops
FR	French/France
FSB	Forward Support Battalion
FSTS	Forward Storage Sites
FTX	Field Training Exercise
GE	German(y)
GPS	Global Positioning System
GS	General Support
HIMAD	High and Medium Altitude Air Defense
Hwr	Howitzer
IFF	Identification Friend-Foe
IFV	Infantry Fighting Vehicle
JCS	Joint Chiefs of Staff
JSTARS	Joint Surveillance, Target Acquisition and Reconnaissance System
KLK	Kommando Luftbewegliche Kräfte
LANDCENT	Land Forces Central Europe
LANDJUT	Land Forces Jutland
LNO	Liaison Officer
LOC	Lines of Communication
LRRP	Long Range Reconnaissance Patrol
LtTH	Light Transport Helicopter
MAIN	Main Command Post
MBT	Main Battle Tank
MC	Military Committee
MDF	Main Defense Forces

METT-T	Mission, Enemy, Terrain, Troops, Time
MG	Medical Group, Major General
MI	Military Intelligence
MLRS	Multiple Launched Rocket System
MND(C)	Multi-national Division Central
MoU	Memorandum of Understanding
MOUT	Military Operations in Urban Terrain
MP	Military Police
MSB	Main Support Battalion
NATO	North Atlantic Treaty Organization
NL	Netherlands
NORTHAG	Northern Army Group
OH	Observation Helicopter
OPCOM	Operational Command
OPCON	Operational Control
PLS	Palletized Loading System
Psyops	Psychological Operations
PUB	Publication
PzDiv	Panzer Division (Armored Division)
PzGrenDiv	Panzer Grenadier Division (Mechanized Infantry Division)
REAR	Rear Command Post
RITA	Resort Intégré de Telecommunication Automatic
RF	Reaction Forces
RMF	Ready Maneuver Forces

RPV	Remotely Piloted Vehicle
RSTA (STAR)	Reconnaissance, Surveillance, and Target Acquisition
SACEUR	Supreme Allied Commander Europe
SHORAD	Short Range Air Defense
SF	Special Forces
SP	Self Propelled
SS-LR	Surface to Surface Missile Long Range
SS-MR	Surface to Surface Missile Medium Range
TAC	Tactical Command Post
TACON	Tactical Control
TACSATCOM	Tactical Satellite Communications
TOA	Transfer of Authority
TF	Task Force
TRIAD	Tri-[types of] Air Defense
UH	Utility Helicopter
UK	United Kingdom
UN	United Nations
US	United States

CHAPTER I

INTRODUCTION

Historically, the problems of interoperability have been solved--when they have been solved at all--primarily through trial and error during the actual conduct of operations over an extended period of time. This is a costly process, in terms of men, material, and time; these may be lacking in future wars.¹

John Hixson and Benjamin Cooling

A Changing NATO . . .

The Summit of Heads of State and Government in Rome, November 1992, was the culminating step toward the adjustment of NATO to the new political-military environment. The Alliance made its first steps in a new direction; however, during the London Summit of July 1991. The London Declaration on a Transformed North Atlantic Alliance², a product of this summit, established the fundamental direction for the new NATO strategy and force structure.

The London Declaration was a reaction to developments in Europe that, despite all uncertainties, seemed irreversible.³ To respond to these developments, initiatives by the Conference on Security and Cooperation in Europe (CSCE), and progress in the Conventional Armed Forces (CFE) process, NATO indicated that it would change its strategy and force structure fundamentally. The changes would include smaller and restructured active forces that would rely increasingly on multinational corps made up of national units.⁴

In 16 months, NATO built a strategic concept to address better the new security environment.⁵ The Heads of State and Government approved the Alliance's New Strategic Concept at the Rome Summit of November 1992.⁶ The new strategic concept includes a strengthening of the political role in crisis management. Accordingly, it will achieve prevention of war, not only by deterrence, but by a combination of

dialogue, co-operative structures, and military deterrence.⁷ Deterrence will be provided by a transparent and verifiable force structure that protects peace, defuses crises, and provides for defense in war. The forces will be capable of several missions, including peace-keeping and humanitarian assistance. The force structure will comprise three categories of forces. As stated in the new strategic concept, "The conventional forces of the Allies will include, in addition to **immediate and rapid reaction forces, main defense forces, . . . ; and augmentation forces.**"⁸ The new concept further underlines the need for multi-national forces, as stated:

*. . . collective defence arrangements will rely increasingly on multi-national forces, complementing national commitments to NATO. Multi-national forces demonstrate the Alliance's resolve to maintain a credible collective defence; enhance Alliance cohesion; reinforce the transatlantic partnership and strengthen the European pillar. Multi-national forces . . . reinforce solidarity. They can also provide a way of deploying more capable formations than might be available purely nationally, thus helping to make more efficient use of scarce defence resources.*⁹

This thesis will focus on bi-national corps of the Main Defense Forces (MDF). The MDF will remain the bulk of the forces in the Central Region. Building these multi-national forces will be a challenge for all participants.

The Main Body of NATO Forces: Main Defense Forces

The principle role of Main Defense Forces (MDF) in peace is to provide an adequate core of forces with which to build necessary warfighting capability. They contribute to the strategy of deterrence and the protection of the peace. During crisis, the Main Defense Forces, that have a peacetime strength of about 50%, contribute to overall deterrence by increasing their preparedness and building up the warfighting capability in a politically controlled manner. If the situation deteriorates into a conflict, the primary role of the regional Main Defence Forces will be to counter aggression and restore the integrity and security of the NATO territories.¹⁰

The final structure of the Main Defense Forces in Central Europe will not solidify for some time.¹¹ By mid 1993, the MDF are expected to consist of four corps

under the command of the new NATO subordinate Commander, Land Forces Central Europe (LANDCENT).¹² A probable organization might be as follows.

- * One German-Dutch corps comprising one Netherlands and two German divisions.¹³
- * One U.S.-led corps with one U.S. division, one German division and possibly one Canadian brigade.
- * One German-led corps with one U.S. and two German divisions.
- * The existing LANDJUT (Allied Land Forces, Jutland) Corps with one German and one Danish division.¹⁴

This thesis will concentrate on the German-led, the U.S.-led and the German/Netherlands corps. It will not deal with the LANDJUT Corps. This Corps is excluded because it has already proven to be an effective corps. Furthermore, the LANDJUT Corps is not new. It has been part of the NATO force structure since 1962. However, the experience of the Corps is a valuable tool in any examination of the potential effectiveness of the other proposed bi-national corps.

"The Forces Will Rely Increasingly on Multi-national Units. . . ."¹⁵

A MDF structure comprising several multi-national corps has a political background, as evident in the new strategy. Multi-nationality at any organizational level creates additional interoperability problems for the military. As Colonel Roy Wilde (Royal Army U.K.) states, "No military commander given a choice free from external influences between the operational effectiveness of a national and a multi-national force, would easily choose the latter."¹⁶ While the initiative for multi-nationality is primarily political, the concept has major military significance. However, not all the impact is disadvantageous.

First, multi-national forces provide a better deterrent against a potential adversary; cohesion in the Alliance will multiply sole military capability. Second, in the long term multi-nationality will benefit the military itself, because it results in a synergistic effect uniting diverse, but complementary capabilities of the forces of several

nations. Third, NATO based its new military strategy on reduced force levels with many units held at lower states of readiness. This concept requires the combined pooling and strategically orchestrated employment of otherwise insufficient national forces and capabilities. As a result, some, and not only smaller nations --think about Belgium, but also the United Kingdom-- can retain higher levels of command structure through multi-nationality.¹⁷

Inspector of the German Army Hansen is clear about the usefulness of the concept, stating, "the arguments [advocating multi-national units] convince, even when increasing multi-nationality results in more efforts to achieve the same tactical-operational effectiveness, than in purely national formations."¹⁸

A Feasible Concept . . . ?

As we have seen above, the idea of multi-nationality is mainly politically driven. It will probably enhance interoperability, and, as a result, military capabilities in the long term, as nations are forced to work together more closely. The question remains open how multi-nationality influences the operational effectiveness of the units in the near term.

The operational effectiveness of multi-national forces will depend heavily on the levels of standardization achieved in doctrine, procedures and equipment. Interoperability between the units and systems of the MDF is considered the minimum level of standardization.¹⁹ The standardization of equipment in NATO is low. Insiders know that all countries are part of NATO, yet there are cultural and, accordingly, doctrinal differences between the German, U.S., and Netherlands armies.

This study will attempt to determine, to what degree the assignment of national forces to the bi-national corps of NATO's Main Defense Forces in Central Europe will create a problem for interoperability. Since a simple "yes" or "no" to this primary research question would satisfy neither the author nor the reader, it will also determine the conditions under which the units will be interoperable. If some new

structures would not permit this circumstance, it will focus on recommendations to how these conditions can be met.

Definitions.

The Glossary will explain uncommon terms, used in this thesis. We will state the next three definitions up front, because they are essential to understand the fundamentals of the study.

Combined operation - An operation conducted by forces of two or more allied nations acting together for the accomplishment of a single mission.²⁰

Interoperability - The ability of systems, units or forces to provide services to and accept services from other systems, units or forces and to use the exchanged services to enable them to operate effectively together.²¹

Limitations.

The study will concentrate on the operational aspects of the bi-national corps. Consequently, it distinguishes political considerations as part of the environment and as given facts. These considerations will have influence on the analysis of the study, but can't be influenced through this thesis.

The study is based only on non-classified sources. As a result, it will be easier to get access to the sources. This is important with the imposed time frame. Simultaneously, more readers can have access to this study.

CHAPTER II

REVIEW OF LITERATURE

There is but one thing more difficult than fighting a war with allies--this is to fight a war without them.¹

MG Orlando Ward

A Balance of Thought . . .

A principle of combined operations is to recognize, understand, and respect the ideas of soldiers of different nations involved. Therefore, this thesis should be based on a balance of German, U.S. and Dutch thought and, as a result, on a balance of literature from the three countries. Therefore, the core of the thesis, the analysis, will be based on an equitable balance of literature. Most literature concerning the theory of combined operations and coalition warfare does, unfortunately, not support this balance of thought, because it is of U.S. origin. This has a historical reason. The U.S. has fought many battles in a combined environment during and since World War II. Operation Desert Storm is a prime example; VII(US)Corps fought with 1(UK)Division under tactical control and XVIII(US)Corps conducted operations with a French Division in its order of battle. Besides, land forces of fourteen other nations contributed to the coalition.²

German forces gained much experience in coalition warfare during the Second World War, especially at the Eastern Front. However, German sources do not cover many lessons learned. After the war, the Germans gained no more experience in combined warfare. However, they attained profound peacetime experience within the NATO coalition, especially with the German-Danish LANDJUT Corps and with the 12. Panzer Division that trained during exercises under control of VII(US)Corps. The study

will survey these examples, even though, in the analysis of this study. The lessons learned from these experiences will help to determine specific criteria for success of bi-national corps operations in the NATO environment. Like the Germans, the Dutch, post World War II, have gained only peacetime alliance experience at corps level, that will be dealt with later in this study.

Combined Operations/Coalition Warfare Doctrine

Like literature, the German and Dutch doctrinal manuals give little information about combined warfare. The German army does not have a specific doctrinal handbook for combined operations. Army Regulation HDv 100/100 VS-NfD Truppenführung (Command and Control of Armed Forces)³ is very brief about the subject, only stating:

Armed forces of different nationalities, speaking different languages, and having different mentalities cooperate within the Alliance [NATO]; their command and control principles, organization, equipment and training also vary often. Therefore, the effectiveness of joint [sic] action depends on the degree of cooperation achieved and the ability of the allies to adapt to each other's peculiarities. Responsibilities must be clearly defined, and close liaison must be maintained. Standardization of command and control procedures, weapons and equipment facilitates cooperation.⁴

In the Dutch VS 2-1386, Gevechtshandleiding (Field Manual Operations),⁵ one paragraph deals with international cooperation:

Allied coalition warfare demands of the Dutch forces the capability to be able to cooperate with allied units of different nationalities. Therefore, the manual is consonant with NATO Allied Tactical Publication (ATP) 35(A), Land Forces Tactical Doctrine.⁶

The field manual does not give any further specific guidelines how to conduct combined operations.

Unfortunately, the NATO manual, ATP 35(A), does not mention specific ideas either. The only sentence found, states, "Successful military operations require cooperation between . . . , allied forces and nations."⁷ The document itself is an instrument of standardization. NATO developed the ATP to ensure common understanding and approach of the principles of land combat and the application of them in

tactical operations at brigade level and higher. The analysis of this study will try to determine whether this instrument resulted in effective, interoperable doctrine; whether the land forces of the three countries of the Alliance possess a common understanding of the principles of land combat; and whether they apply common doctrine in tactical operations.

Opposed to the little information in German and Dutch field manuals, much information about combined operations is available from U.S. publications, such as FM 100-5 Operations (1986)⁸ and JCS PUB 3-0 Doctrine for Unified and Joint Operations.⁹ Under the remark, that the nature of recent conflict indicates that the U.S. will continue to pursue its objectives through coalition and alliance arrangements in future, the new FM 100-5 Operations (final draft/1993)¹⁰ has a full chapter about combined operations. In addition, Commander Training and Doctrine Command (TRADOC) prepares a complete field manual about combined operations, FM 100-8 Combined Army Operations.¹¹

The JCS-PUB 3-0, Doctrine for Unified and Joint Operations, provides U.S. Commanders in Chief (CINC) guidance to serve as a combined commander, conducting combined operations. In our case, the document is a guide for CINC U.S. Forces in Europe (CINCEUR); however, it is not a NATO document. The document gives general guidance at the CINC level. As a result, it lacks real value for corps operations. However, it emphasizes the need for consensus on the threat, for a clearly defined chain of command, and for a responsive command and control structure.

The new FM 100-5, Operations (1993), boosted by the lessons learned from Operation DESERT SHIELD/STORM, distinguishes principles for and gives guidelines on how to conduct combined operations. These principles and guidelines will be an integral component to U.S. doctrine for the nineties and beyond. Accordingly, they will have impact on the operations of the U.S.-led, and German-led corps at least.

FM 100-5: Principles of combined operations. The successful commander considers the following factors in forming and sustaining the combined force.

Goals and objectives. Nations will differ in rationale for entering an alliance. As a result, commanders of different countries and their forces will have a different perception of the goals and objectives of the combined unit. Maintaining cohesion and unity of effort requires the leaders' understanding of this different perception.

Military doctrine and training. As a result of different vital interests and culture, each nation's military will have different doctrine. Resultant training, equipment and technologies will vary. A combined commander and staff should be exercised in selecting national units for particular missions.

Equipment. Limitations of equipment could restrict employment options for various allies, and could reduce planning flexibility. Planners should determine the capabilities and not exceed these limitations.

Cultural differences. Each partner possesses a unique cultural identity. Nations with similar cultures will have fewer obstacles to interoperability. Differences in work ethic, standards of living, religion and discipline affect a nation's way of war. Planners must be aware of and sensitive to these differences in planning and conducting operations.

Language. Due to difference in languages, there normally will be high information losses. Different languages not only encompass the spoken or written language. Acronyms, symbols, and definitions of technical terms could also cause comprehension problems. Therefore, language is a tremendous limitation to combined operations, and it constrains all activities including the degree and level to which staffs and units can be integrated.

Role of personalities. Nations build alliances on mutual trust, understanding and reliance. To maintain this, the capabilities and personalities of commanders are vital. Personalities involved in combined operations directly influence the strength of an alliance.

FM 100-5, Operations, states the following guidelines to conduct combined operations.

1. Command. Nations should provide commanders with sufficient authority to achieve unity of effort. This authority, yet, is seldom absolute. Therefore, leadership will rely largely on consensus. There are two possible command and control structures for a combined force. First, if nations have similar forces, a combined headquarters may be effective.¹² Second, a coalition/alliance of dissimilar nations could use a primary (national) staff and an auxiliary staff to absorb, translate and relay executable instructions to the minority of foreign force. This structure has been use effectively in Operation DESERT SHIELD/STORM to coordinate Islamic and Non-Islamic effort. NATO forces are considered similar.

2. Intelligence. The collection, production and dissemination of intelligence is a major challenge in the conduct of combined operations. Normally, allied partners operate separate intelligence systems in support of their policy and military forces.¹³ A commander of a combined force should rapidly establish a system that maximizes each nation's contribution and provides all units essentially the same quality intelligence the lead-nation's commanders expect.

3. Maneuver. To achieve strategic and operational aims best, plans should reflect the special capabilities of each national contingent in the assignment of missions. Role specialization could be a tool to overcome differences in doctrine, training or equipment. Liaison, equipment exchanges, and training can offset some of these problems. Detailed planning with emphasis on rehearsals and careful wargaming should precede operations. Briefbacks become especially important to ensure understanding. The commander's intent and the concept of the operation also should receive special attention.

4. Fires. The focus of fire support at operational and tactical levels is on the synchronization of the full range of fires provided by all friendly forces. Ad hoc procedures should be developed, though these measures may be routine in an alliance.

5. Logistics. Combined logistics is a major challenge that has historically been a purely national responsibility. At times this may not be the preferred method. On the other hand, attempts to vary from this approach raise other problems.¹⁴ Nonetheless, allied force commanders must coordinate the use of infrastructure, host nation support, and prevent duplication of common supply functions. To reach significant economy of force, alliance partners should make provisions for resupply, maintenance, or other support operations, when partners use similar equipment. Combined commanders should at least form a combined logistics staff, and if feasible, a single combined supply agency.

6. Liaison. The importance of effective liaison to combined operations cannot be overstated. Liaison fosters understanding of assigned missions, promotes an understanding of tactics, facilitates transfer of vital information, and enhances mutual trust and confidence.

In conclusion, the new FM 100-5 states, that coalitions and alliances should pursue standardized procedures, equipment, and doctrine as time and national capability permit. The use of liaison, mobile training teams, development of standard agreements, and the exposure and ultimate integration of staffs promote this and enhances the ability of forces from different nations to fight along side each other.

Recognition of the importance of combined operations is a major step to solve interoperability problems. Sometimes, the conclusions of FM 100-5 are evident; in others, like the logistical and intelligence part, the document goes further than recognized within NATO. The question to analyze is, whether this doctrine helps the bi-national corps to solve their interoperability problems. This thesis will deal with this question in the analysis.

The last doctrinal manual to review is FM 100-8, Combined Army Operations (draft).¹⁵ The manual examines U.S. Army participation in combined operation forces throughout the operational continuum. It focuses on theater level more than on corps level. Because the manual does not add much important for corps level operations, except historical examples to FM 100-5, it has little value for this thesis.

Literature: One Standard Work . . .

Besides doctrinal sources, there is not a great deal of (unclassified) literature available concerning combined operations and coalition warfare. However, an important available source is Combined Operations in Peace and War¹⁶ by Hixson and Cooling. They conducted a historical analysis of the experience of allied forces in achieving interoperability in the 20th century. The study thoroughly examines combined operations to discover any body of knowledge, historical trends, or principles that might be translated into positive action to increase the cohesiveness of contemporary U.S. and NATO force contingents. The study offers examples of combined operations with a focus on problems experienced at the operational and tactical level. It highlights particularly the World War II experience of various allied groupings, as well as post-war experiences in Korea and NATO. The lessons learned chapter has, obviously, been a main source for the writers of FM 100-5, Operations. Most of the doctrine of this manual is in conformity with Hixson and Cooling's work.

Furthermore, the authors emphasize the role of the commander and staff, and of liaison teams and education/training. They perceive the personalities of commander and staff as the most important factor in the establishment of effective interoperability. Hixson and Cooling accentuate clarity and simplicity as a major planning feature for interoperability. Moreover, a thorough identification of interoperability problems and scrutinized planning of solutions should help to maximize effectiveness. Next, commander and staff visits, and the establishment of vertical and horizontal liaisons are essential to minimize information loss. Last, but not least, combined training exercises, despite the size of the units involved, are productive in terms of creating a spirit of cooperation, increasing the awareness of personnel concerned with problems of interoperability. Exercises involving integrated units should be structured to place maximum strain on all parts of the force in all functional areas. Failure to do this may conceal major problems in interoperability. This is particularly true of logistics. Differences in allied organization, doctrine, language, and terminology underscore the need for trained liaison officers and an allied educational program. Hixson and Cooling

conclude their work with the striking slogan, "Plan, train, organize for interoperability -- or have it anyway."¹⁷

... and Some Shorter Publications

Based upon his experience as a Theater and Army Group commander, General Devers (U.S. Army) lists his principle major problems in combined operations in "Major Problems Confronting a Theater Commander in Combined Operations," Military Review.¹⁸ He cites the personalities of senior commanders, their capabilities, their personal and professional habits, and their ambitions as the most important areas to influence the success of a combined operation. Furthermore, in ascending order, he identifies lack of clarity of directives, logistical doctrine and capabilities, tactical training, equipment and doctrine, and the use of personal influence to assure coordination as possible shortfalls. Based upon theater experience, these ideas could apply well to the corps level. They endorse the ideas of Hixson and Cooling and will help to serve in the analysis of the thesis to identify the main areas of concern to focussing our work.

In "Four Pillars of Interoperability," Military Review,¹⁹ Mullen and Higgings conclude that successful interoperability rests upon four fundamental pillars, articulated as general principles. The authors base their theory upon their experience in German-American peacetime training exercises. The first pillar is **training**: units that intend to fight together must train together. The second pillar is **doctrine**: units that intend to fight together must understand one another's doctrine, and doctrines cannot be too dissimilar. The third pillar is **communications**: units that intend to fight together must be able to communicate with each other. This means understanding each other's languages and exchanging sufficient interoperable communications equipment. The fourth pillar is **compatible structures**: units that intend to fight together should have compatible, not necessarily identical, structures.²⁰

In a combined effort, "The Challenges of Combined Operations," Military Review,²¹ Freeman, Hess, both Americans, and Faria, a Portuguese officer, intend to outline the framework within which combined operations must be conducted. Further-

more, the authors intend to identify the main areas of concern for future combined operations. They conclude that integration of national divisions in multi-national corps is feasible, but by no means easy. However, political importance may impose multi-nationality at lower levels, possibly even battalions. Even then, operational planners must make the combination work. The main areas of concern the authors identify, are comparable with those in FM 100-5, Operations. Coping with the difference in goals, doctrine, intelligence, language, training, equipment, logistics, cultures and sensitivities is the real challenge of combined operations, according to Freeman, Hess and Faria. "These problems [of interoperability] are never solved - they are simply managed."²² The latter suggests that the thesis should not look for solutions, commanders and planners should accept differences in interoperability and find ways to handle them.

A Recent Focused Study . . .

Colonel Seitz' (U.S. Army) report, NATO's New Troops: Overcoming Obstacles to Multi-national Ground Forces²³ intends to examine the implications of NATO's transition for the U.S. Army and NATO allies, investigating their ability to achieve the future multi-national force structure for NATO ground forces, primarily in the Central Region. The study reviews the political context, and then examines the challenges that national level ground forces will face when they reshape themselves into multi-national forces. The study does not focus on specific multi-national corps. Unfortunately, the study is written from purely an American perspective. This violates the principles of combined operations: respect for and clear identification and optimized use of other nations capabilities. For example,

Another measure of maneuver depth is presence of combat multipliers, as found in the U.S. Corps and not present in other national corps. For example, only the U.S. Corps has . . . , modernized heavy fire support system, . . . , air defense, engineer, and electronic warfare and intelligence units.²⁴

Thorough research, for example of the German or Dutch corps' organization, would have prevented Seitz to make this statement.²⁵ Statements like this do not enhance the acceptance of his research effort in an international arena.

Conclusion

Prior to the Gulf War and NATO's London Declaration, combined operations were not extensively discussed in either literature or doctrine. There is only one in-depth study available that addresses the theory of combined operations. The study of Hixson and Cooling, Combined Operations in Peace and War, influenced most of the doctrine and articles written since the above mentioned events. Most of the other available literature and doctrine is of U.S. origin. This implies cautiousness, applying this theory to the international arena of the MDF in the Central Region. Nevertheless, the theory is based upon a variety of experience from different countries including German and American forces. Furthermore, the literature is homogeneous in its theory; only accents differ. Most of the literature identifies that combined operations at corps level are feasible, but difficult. The areas of concern, identified in the different sources, overlap. As a result, the literature provides a valuable tool to apply to the German-Dutch, German-led and American-led bi-national corps, keeping in mind that some theory might be biased. Additionally, the literature gives some good solutions concerning interoperability problems. However, the discussed literature is too general to answer the research questions of this thesis.

CHAPTER III

RESEARCH DESIGN

General

The major question of this thesis is: *What problem will the assignment of national forces to bi-national corps of NATO's Main Defense Forces in Central Europe create for interoperability?*

In search of answers to this complicated problem, the analysis of the thesis concentrates initially on three groups of subordinate research questions:

1. What are the principles and critical factors for success of combined corps operations in Central Europe? What are the general criteria for interoperability within NATO's Main Defense corps?
2. What are the plans of the German, U.S. and Dutch armies concerning the three bi-national corps?
3. Do the new plans for the different corps, match with the principles and critical factors for success of combined operations? What are the main areas of concern?

Methodology

By the nature of the primary and subordinate research questions, it will be obvious that the thesis will be based on a mainly qualitative approach. The study will address the three groups of subordinate research questions in three separate chapters. All three chapters contribute to the analysis of the thesis. The literature review concluded that there is hardly any literature available, that answers the primary research question as a whole. The literature that is available is too general in its conclusions. Therefore, the study will discuss a frame of reference to evaluate the plans.

Frame of Reference

The frame (chapter IV) will consist of three elements. First, it will discuss the environment in which the new corps will operate. From this discussion the study will generate qualitative measures of effectiveness for corps operations in Central Europe. It will use recent literature, mainly from German and U.S. sources, to develop this building block. The second element of the frame will discuss the theory to structure a bi-national corps. This element will generate criteria for evaluation of the structure of the bi-national corps. The study evaluates examples of structuring combined operations since the beginning of World War II. The third element is directed toward the internal organization of the bi-national corps. It will discuss the influence of the environment and the corps structure on the battlefield operating systems. The study will use the lessons learned of many multi-national corps-division operations, in peace and war to discuss how to deal with interoperability problems within a bi-national corps.

Plans

Chapter V (Plans) is the second part of the analysis. As opposed to the frame of reference, it has a more descriptive nature. The chapter will describe the relevant force development plans for the coming years. The chapter will have two sections. The first section will concentrate on the national plans of the three nations concerned: the U.S., Germany, and the Netherlands. The second section will discuss the plans for the bi-national corps, as now negotiated between the nations. To build this part of the analysis, the study evaluates many recent publications about the developments in the different national armies. An important element of these sources are the recently published force structuring plans announced by the Secretaries of Defense of Germany and the Netherlands. For the U.S. force models, the main source used is material of the Command and General Staff Officer Course (CGSOC). For the discussion of the plans of the bi-national corps, the study will use the draft Memoranda of Understanding (MoU) between the nations involved. The U.S.-German MoU is in a final phase. The

German-Dutch MoU was also in a final phase. However, a fundamental change in the plans, last November¹, made it necessary to start over.

Evaluation

The last, and perhaps most important part of the analysis is the evaluation of the plans. This evaluation will consist of three main elements. The first element is an evaluation of the structure of the three bi-national corps. The thesis will compare and contrast the plans for the bi-national corps with the criteria for structuring bi-national corps from the frame of reference. The second element is an evaluation of the battlefield operation systems of the bi-national corps. The study will compare and contrast the contributions of the nations to the bi-national corps, and mirror this information to the criteria of the frame of reference. Moreover, it will try to identify areas where interoperability problems might occur. The third element of the evaluation reflects the output of the corps. The thesis will try to identify how the corps best fit into the operational framework in the Central European theater. It will use the qualitative measures of effectiveness, discussed in the frame of reference, to conduct this part of the evaluation.

Conclusion and Recommendations

The last chapter, the synthesis, will identify the areas of concern for interoperability, and the characteristics of the three bi-national corps. Furthermore, it will recommend how some of the interoperability problems could be eased.

CHAPTER IV

FRAME OF REFERENCE

For the practicing professional, therefore, any debate about the necessity of interoperability is irrelevant and does not accurately reflect the nature of the current operations in the multi-national military environment of Europe. History shows that it is not a question of philosophy when one talks about interoperability. On a multi-national battlefield, it is a reality with which everybody must cope.'

George Blanchard, General, U.S. Army, 1979

This frame of reference consists of three sections. The first section surveys the factors affecting the bi-national corps structure; the second section discusses the structuring of the corps; the third section evaluates how the environment and the structure of the corps influence the battlefield operation systems of the corps.

Section I

Factors Affecting Bi-national Corps Structure

This section will make use of the METT-T model, Mission, Enemy, Terrain, Troops and available Time, to evaluate the environment of the new bi-national corps.

Mission.

The political and military strategic changes in the Central European theater have two major implications for the corps assigned to the Allied Forces Central Europe (AFCENT). Not only do the corps have to transform from a national toward a bi or multi-national structure, but they also have to adopt a totally new operational concept.

NATO is replacing the outdated 'layer cake' defense concept, the concept with eight corps defending besides each other, with a new and flexible perspective for its future defense. NATO abandoned the traditional fixation on the former Cold War East European adversaries and is replacing it by modern thinking at the operational level. The aim is to develop an even more defensively oriented armed force structure in Europe, that corresponds to the Conventional Forces in Europe (CFE)-treaty and Confidence- and Security Building Measures (CSBMs).² Besides a defensive capability for its own territory, NATO stresses crisis management internally and externally to Europe, and thereby maintains a position to exert a positive force to resolve conflicts.³ The further diminishing threat on Central Europe makes it possible to use the same troops, at least the active units, for both purposes.

As the introductory chapter showed, the principal role of Main Defense Forces

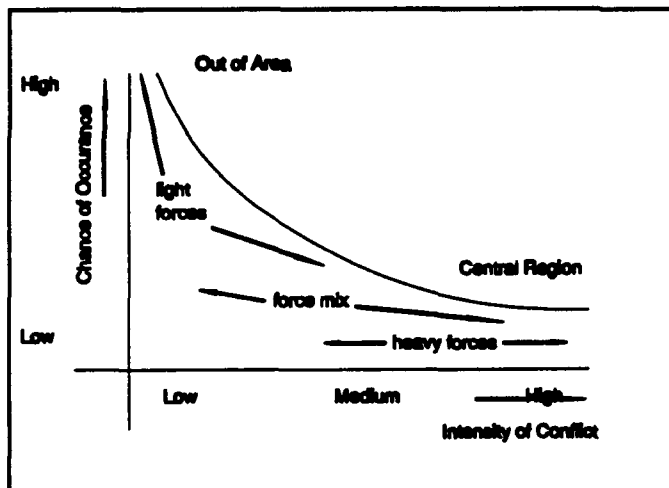


Figure 1: Chance of Occurance of Conflict.

(MDF) in peace, crisis and war is to build adequate warfighting capability, contribute to deterrence and if necessary, counter aggression and restore the integrity and security of the NATO territories. The fully active and highly mobile Reaction Forces (RF) will be earmarked for crisis management. Active parts of the MDF, however, could also be

used for these missions. A good example is the deployment of VII (US) Corps to Saudi Arabia to free Kuwait.

It is essential to recognize that the deployment for crisis management has a much larger chance to occur than the employment of all available MDF for a defense of the Central Region (figure 1).⁴

Enemy.

The fall of the totalitarian regimes in Eastern Europe; the demise of the ideology on which they were based; and the retreating CIS forces from Central Europe ended a direct threat on NATO's Central Region. A return to a political-military situation as existed before 1989 is considered impossible. Other security risks, as now witnessed in Yugoslavia, emerge. However, in the long term a large-scale conflict can never be ruled out.⁵ The ability to determine the capabilities required for the corps of the MDF is not made easier by this absence of a significant threat. In the past, the force structure of any unit was directly defined against a distinct and measurable threat. That no longer exists. The strategic situation does not lend itself to a detailed threat-based force planning.⁶

What capabilities should the corps of the MDF have? As defined earlier, the MDF provide a bulk of force that should be capable to fight that large-scale conflict that can never be ruled out, but that has a limited chance of occurrence. This large scale conflict could be identified as an attack, only after a significant strategic reaction time, at least several months,⁷ by an enemy that has an overall equal strength, in quantity and quality⁸ of force, employing former Soviet Bloc doctrine.⁹ By concentrating its force, this enemy would be able to attack in one or just a few sectors.¹⁰ The capability to counter this 'worst case' threat will provide the necessary deterrence to avoid a medium or high intensity conflict on NATO territory in the Central Region.

However, much more important is a capability of active forces, to be employed as crisis reaction forces (CRF).¹¹ These forces could be employed in crisis management and response, across operational continuum. Employment could be within NATO territory, but employment out-of-area is more likely. Units of the heavy MDF, with a CRF contingency mission, must be capable to fight in mid to high intensity levels of the operational continuum, because lighter RF will be capable of fighting in the low intensity environment. Most likely, heavy CRF forces will face a Soviet-type threat as identified above, like the Iraqi forces. However, their protection will make heavy CRF useful for UN employment in peacekeeping as well.

Terrain.

The area of operations of the MDF is the Central Region. Not, as in the 'layer cake' concept, will any corps get its own area to plan for; all the corps of the MDF must be able to fight in an area that stretches from the north of Denmark to the Alps (750 miles); from the Oder-Neisse border to Aachen (400 miles).¹² The terrain will play a significant role in the success or failure of a campaign; it will influence the new operational concept for the Central Region profoundly. The extension of the area of operations endorses an operational defense in depth. The high level of urbanization, however, will limit the depth to be used. Furthermore, in the north, a web of waterways and many marshes, as well as the acquisition of an enlarged Baltic coastline will play critical roles in the developing future concepts of operation. The influence of the mountainous, forested areas in the south is well known by U.S. and German planners. According to Johnson and Young, the major parts of the area of operation favors delay and defensive operations. Delaying operation will lead an attacking enemy into terrain suitable for counterattacks. The operational depth will be limited by the high urbanization in the area of operation, close to the borders.¹³

Again, no longer is the terrain in the Central Region the only influencing factor for the operational concept of MDF. The requirement for corps units, available for crisis reaction out-of-area, stretches the necessary capabilities further. The diversity of terrain features in Germany, however, supports the requirements for out-of-area operations. Desert Storm showed that VII (US) Corps, deployed from south/central Germany, was well capable of fighting in the desert.

Troops.

The introductory chapter identified that three types of troops are available to defend the NATO territory in the Central Region: RF (ACE Mobile Force [AMF], ACE Rapid Reaction Corps [ARRC]), MDF and Augmentation Forces. Deployment of the RF and the fully active parts of the MDF, also called Ready Maneuver Forces (RMF), as well as the mobilization and deployment of the remainder of the MDF, will be used as

an instrument of crisis management. The number of corps available as MDF is still under discussion. Originally, before the diminishing of the Soviet Union, NATO identified the need for seven corps: LANDJUT, NL/GE, GE/NL, BE-led, GE/U.S., U.S./GE Corps and the GE Corps East. The contributions of the different nations would be about 17 division equivalents.¹⁴ As a result of further force reductions in most nations following the diminishing of the Soviet Union, NATO will review the implications of changing force levels for the new force structure in Central Europe.¹⁵ The number of available corps will certainly decrease. For example, the Dutch will not have their own corps any more, but will contribute to a combined German-Dutch Corps. Additionally, under German pressure, the Franco-German Eurocorps will be made available for NATO purposes, if necessary.¹⁶

Time.

The disappearing of a direct threat on the NATO territory in the Central Region has an enormous impact on the readiness of the MDF. Not any more have the forces to be capable to react to a surprise attack within 48 hours. The reaction time anticipated for the deployment of the ARRC will be roughly 5-7 days.¹⁷ The RMF, the fully active parts of the MDF, might be able to react at a comparable time. Confidence and Security Building Measures (CSBMs), that allow early identification of concentration of any forces in Europe, as well as the employment of RF and RMF, facilitate an extended reaction time for the MDF. As a result, large parts of the MDF can exist of reserve, or round-out units to be deployed from the other nations, even from the U.S..

Operational Concept.

What does this METT-T analysis mean for the operational concept in which multi-national corps will fight? Gary L. Guertner identifies seven generic measures of effectiveness of the operational concept to use as a tool for building a general level of

consensus within the Alliance. The measures of effectiveness are demonstrability, flexibility, mobility, lethality, command and control, sustainability and affordability.¹⁸

Demonstrability has mainly a strategic meaning. On the one hand, it should reflect NATO's center of gravity--its political cohesion. Forward and active presence, multi-national exercises and the deployment of units in a crisis provide both the military and political foundations for credible deterrence in Europe. On the other hand, further integration and stability in Central Europe demand a demonstration of purely defensive capability and a binding of German armed forces in the process of European integration.¹⁹ The concept of multi-national corps provide an element of that necessary binding. The purely defensive orientation should be demonstrated by few active forces, positioning of those forces in depth, absence of preparation measures for a forward defense, and the absence of large active armor units. As a result, the operational concept should rely on operational level maneuver defense with reliance on operational level counterattacks to defeat enemy penetrations and to restore territorial integrity of the Alliance.²⁰

Flexibility. The need for flexibility has everything to do with the uncertainty of the environment in which the corps of the MDF have to operate. First, the corps as a whole will have to be prepared to operate in an operational level maneuver defense in the Central region. Some active units of the corps will have to be able to be employed in mid/high intensity conflicts out-of-area as well.

Second, the units have to be prepared to fight in different areas of operation. The corps can be employed in an area from Denmark to Bayem; active crisis reaction units could be employed everywhere in the NATO territory, as well as in particular crisis areas outside this territory.

Third, the C² structures for the defense of NATO territory in the Central Region is clear; all the corps will fight under command of Landforces Central Europe (LANDCENT). However, the C² structure for crisis management might vary. The staff of

the ARRC will have a major task for crisis within the NATO territory; outside the territory the C² structure is depending on the coalition to be formed.

Lastly, the corps of the MDF will have different tasks within the operational concept of 'counter concentration'. In the concept of counter concentration defense one could identify four major tasks for a corps: delaying, defending/blocking, counter attacking, and securing operations in areas where the defender will take deliberate risk. Transition from one task to the other one will be an important factor to gain initiative. But, will all the corps have to be able to fulfill all the different tasks? This would enhance flexibility, but it might be too much to ask. The evaluation chapter will identify which bi-national corps are best capable for the different tasks.

The new Field Manual 100-5, Operations, introduces a new tenet of Army Operations doctrine, 'versatility'. "Versatility is the ability of units to meet diverse mission requirements. Commanders shift focus, tailor forces, and move from one role or mission to another rapidly and efficiently. Versatility implies a capacity to be multi-functional, to operate across regions throughout the full range of military operations, and to perform at the tactical, operational, and strategic levels."²¹ Versatility is exactly what the new NATO forces need. This study will adopt this tenet.

Mobility. The MDF are depended on three types of mobility: strategic, operational, and tactical.

Strategic Mobility is essential to increase the readiness of units that are not forward deployed in the Central Region. Some reserve, round-up, and round-out units have to be deployed from the home countries. The increased reaction time can decrease the emphasis on strategic mobility to deploy forces from the U.S. and other home countries to Germany has had for decades during the Cold War. Strategic mobility for crisis reaction units remains one of the bottlenecks in contingency planning. Besides, it is a new element for at least the German and Dutch Army. The strategic movement of heavy units will require intensive planning, evidenced by the movement of VII (US) corps from Germany to Saudi Arabia.

Operational Mobility is an essential element of a concept that makes use of large operational reserves. Planners have compiled a large base of knowledge on movement of forces in the Central Region. Future operations will require much more complex organization and planning, because no more will most movements consist of largely east-west traffic between clearly defined national boundaries. Movements will consist of multi-directional traffic over extended distances. During Operation Desert Shield/Desert Storm, XVIII Airborne Corps and VII Corps moved laterally, from their assembly areas to their attack positions in less than two weeks over considerable distances: 500 and 330 miles respectively. VII Corps had to move more than 7,000 tracked vehicles and more than 40,000 wheeled vehicles. For the operation almost 4,000 heavy equipment vehicles were used, many driven by contracted civilians.²²

Tactical Mobility. The heavy corps in Europe posses an excellent tactical ground mobility. The need for this kind of mobility in the Central Region scenario has been emphasized for decades; it has led to the excellent capabilities demonstrated by U.S., British and French forces in the desert. Conversely, within the corps structures, there is a need for an enhanced capability of airborne, or air mobile/assault operations. Because the essence of the concept of counter concentration is taking risk outside the counter concentration area, there is a need for fast moving reaction forces in these risk areas, to establish time for concentrating reserves.

The heavy armored tracked vehicles provide excellent ground mobility in the Central Region. For CRF, operating within the NATO area as well as outside, tracked vehicles might not always provide the best tactical mobility. The British peacekeeping forces in Yugoslavia, for example, have problems with their tracked Warrior armored personnel carrier (APC) on the slippery mountain roads. In these areas, wheeled armored vehicles provide better tactical mobility.²³

Lethality. The essence of NATO's conventional deterrence has always been the technological superiority of its forces. The Gulf War has shown clearly the value of this concept. Gary L. Guertner is convinced that the U.S. Airland Operations Concept,

now further developed in the new U.S. FM 100-5, Operations and just called "military operations,"²⁴ should be adopted by NATO for the defense of Europe:

*Conventional arms modernization and new military doctrine are inextricably linked in the U.S. Airland Battle concepts. Airland Battle integrates modern high-tech weapons and operational mobility to strike anywhere on the battlefield. It is defined by smart bombs, stealth fighters, short-range tactical missiles systems (ATACMS), Multiple Launched Rocket Systems (MLRS), both with 'smart' submunitions[sic], helicopters, air assault forces, modern tanks, and infantry fighting vehicles; all are linked and directed by space and airborne warning and target acquisitions systems. These are the weapons, the doctrine, and the technologies that former Soviet Army Chief of Staff Marshall N.V. Ogarkov predicted . . . would give "conventional forces on the defensive the same degree of lethality as battlefield nuclear weapons." . . . The Iraqi testbed for U.S. high-tech conventional forces and the doctrinal capabilities of Airland Battle against a numerically superior force strengthen the position of those who argue that NATO's new military strategy should adopt similar operational concepts for the defense of Europe.*²⁵

Guenter's arguments make sense. The concept is coherent with Alex Bürgener's (Colonel, German Army) ideas of future operation.²⁶ Besides, lethal munitions, deep strike capability, high accuracy, and smaller, more mobile force structures are basic elements to protecting our soldiers. "Clean" surgical strike warfighting capability has become a necessity in the western societies. With the increased influence of the media, limiting casualties is a condition for protracted support of the public opinion.

Furthermore, the possible use of active parts of the MDF as CRF inside or outside NATO territory, increases the necessity of a doctrine for both types of actions based upon common principles.

Command and Control (C²). Being the linking pin of all the battlefield operation systems, effective C² is essential. Five areas are important for the multi-national corps. First, the dilemma of consolidated command structures versus versatility. If there would be a clear vision of the threat and the enemy's doctrine, a consolidated command structure would be preferred. The lack of a clear vision of the threat, however, asks for a versatile structure. Not only should divisions be interchangeable between corps, or should they be able to reinforce other corps. Combat support (CS) units, especially those on corps level, should also be able to support across bound-

aries, to gain effectiveness. This is a result of the commonly accepted doctrine not to hold CS in reserve. Active units of the MDF, when they are deployed as CRF, should be able to support a coalition effectively. Preplanned packages of more self-supporting combat or CS units should merge to build an effective reaction force. This is the concept behind the ARRC, a command structure built around a choice of up to eight national or multi-national divisions. Depending the type of crisis, the ARRC could command a mix of light, air assault, or heavy divisions. However, Desert Storm has shown, that this versatile concept is also valuable outside NATO's force structure. With little prior planning, the British 1st Armored Division fought under tactical control of VII(US)Corps, and the French 6th Light Armored Division fought under control of XVIII(US)Corps.²⁷ It might be clear, that common knowledge of NATO doctrine made this possible.

Second, to carry out economy of force missions with emphasis on the use of operational reserves--the essence of the counter concentration defense--, it will be essential to discern rapidly the point of an opponent's main effort or his center of gravity. This concept not only emphasizes the need for effective reconnaissance, surveillance, and target acquisition (RSTA) capabilities at all levels of operation. The concept can only work, if the RSTA systems are supported by an effective C² system. Rapid cross-unit and cross-nation flow of information is a condition for effective decision making in multi-national units. General Homer, U.S. Air Force, stresses the must of real-time dissemination of intelligence data for an effective use of air power in Airland Battle in future wars.²⁸ In the past, cross nation flow of sensitive intelligence has not always been the best example of mutual support.²⁹

Third, ground space management will significantly burden the C² system, especially at corps level. The number of forces deployed, the multi-directional operational movements required, the limited maneuver space, and overlapping lines of communication (LOCs) will affect operational planning.

Fourth, cross-boundary airspace management is an essential element of modern warfare. Multi-national operations add the need to link the low level army

airspace management systems with each other, and with the NATO medium and high airspace management system. This would allow weapon systems to minimize the use of radars and will give them sufficient time to react to an enemy threat. Furthermore, it is a measure to help solving the problems concerning identification of friend or foe.

Lastly, the concept of Airland Operations stresses the importance of synchronized operations of all battlefield operating systems. It also emphasizes the need for corps and division to fight the deep, close and rear battle at the same time. To synchronize battlefield operating systems of different nations will be a significant burden, that need thorough study and planning.

Sustainability of the corps of the MDF, in peace, crisis and war, will be the critical path of its operations. The sustainability of the national corps in the 'layer cake' concept was too heavy a burden for some nations. The new concept relies on large scale operational level maneuver, and will tax an already overburdened logistical system.³⁰ The reliance on multi-national formations, and the new operational concept will not make the problems easier, because logistics most likely will remain a national responsibility. Planners will have to work out which elements of the force could be supported multi-nationally, to decrease the logistical burden. The requirements for standardization, interoperability and interchangeability will undoubtedly increase. In the evaluation, a comparison of equal major end items will be made, to evaluate the level of standardization of equipment in the different multi-national corps.

The concept of prepositioning of stocks, directly behind the areas of operation of the corps needs revision. No longer is the location of the area of operation known in advance. It makes more sense to store national stocks more central in the AFCENT area of operation, or to pull them back to a location where stocks could be shipped easily to future crisis areas.

Affordability is not an operational question. It is a strategic question with enormous consequences for the operational level. Forward presence and the percent-

age of active forces, as opposed to reserves, are a direct result of affordability. It has led to the idea to lessen the distinction between RF and the active parts of the corps of the MDF. Both should be used as CRF, in or out of NATO territory. The result is a further need for versatility.

Affordability could lead to a growing distinction between training and equipping of active crisis reaction units, and other active and reserve units. This distinction could lead to a classification of forces, to an army in the army, that decreases versatility.

Lastly, affordability emphasizes the use of cost-effective combat capabilities with an optimal mix of high-mid level technology. The high-tech elements, like modern C² systems, global positioning systems (GPS), drones, remotely piloted vehicles (RPVs), attack helicopters, will be used as force multipliers for CRF as well to enhance the effectiveness of the bulk of mid-level technology equipment of the corps of the MDF.

In summary, the change of the environment in which the corps of the MDF will operate, inflict two major changes on those units. Not only will they have to restructure toward bi or multi-national forces, they also will have to adopt and further develop a totally new concept of operations. The diminished threat and the affordability question cause to use active units of the corps in a dual role; they, or at least a number of them, can be used as CRF. Furthermore, they will have to generate the reserve forces for the corps as a whole. This dual role increases the need for versatility. Furthermore, the adoption of a concept of operations based on economy of force and the use of operational level reserves, emphasizes increased mobility, especially on the strategic and operational level, effective C² and RSTA and a new enhanced form of sustainability. The dual role of active units of the MDF will prevent the units to focussing training only on the mission in the Central European theater; they will have to train for all their possible missions, with the most emphasis on the most likely ones. This is not the mission as MDF, but the mission to operate as crisis reaction force. A dilemma!

Section II

How to Structure a Bi-national Corps: Lessons Learned?

The second step to building the frame of reference is to analyze the consequences of the discussions above for the structure of the bi-national corps. Multi-national formations are not new. At Waterloo, for example, Arthur Wellesley, better known as the Duke of Wellington, commanded a combined Anglo-Dutch army and cooperated with the Prussian Field Marshall Gebhard Blücher to defeat Napoleon. Waterloo taught us the challenge of building a combined unit, the influence of a great leader on the process, and the need for effective liaison between cooperating Armies. Unfortunately, Waterloo does not provide us with a major lesson on how to structure our modern bi-national corps.³¹

During the First and the Second World wars, coalition warfighting became more rule than exception. The principle of combining forces was to integrate at theater level and, consequently, to command the national corps and Armies with a joint and combined staff. There have been occasions where the Allied disposition and the enemy situation forced units to integrate at a lower level. An example is the integration 36th U.S. Infantry Division in the II (Fr)Corps to fight the Germans in the Colmar Pocket. This and other examples of enforced integration taught us, that unprepared combined operations should be prevented.³²

Korea proved the effectiveness of combined operations at a lower level. Significant is that the U.S. provided the preponderance of the force, and a greater portion of the logistical support. As a result, the U.S. could strongly affect the process and progress in turning a variegated group into a homogeneous body in combat. Korea proved, according to U.S. Army historian William R. Fox, "that the most efficient unit a member nation can contribute to a future UN action is a division, followed in order of worth by a brigade group, brigade, or regimental combat team." A battalion or battalion combat team proved least effective simply because it had to be attached to a larger organization and thus placed an undue burden on the support service [CS and CSS] of

that unit. The division, brigade or regimental sized units were largely self supporting and could operate under headquarters sufficiently staffed to handle control, liaison, communications and logistical support.³³

The preponderance of experience of integration at corps level is derived from the NATO force structure. General Eisenhower, the first Supreme Allied Commander Europe (SACEUR), was originally skeptical of extending multi-nationality to lower levels, but he supported the concept of an European Army with Belgian, Dutch, French, German, Italian and Luxembourg troops under the 1950's European Defense Community concept.³⁴ The idea was not adopted. Nevertheless, this vision of multi-nationality contributed to greater European integration as evidenced by the Allied Command Europe (ACE) Mobile Force, the LANDJUT Corps, the integrated air defense system, the allied tactical air forces and the standing and on-call maritime forces. The concept is less evident in the "layer cake" defense organized along the inner German border. Later, the shift to the concept of Flexible Response emphasized the role of operational reserves, like III(US)Corps or the 7. Panzer Division. In larger exercises, like Reforger, these reserves trained to counterattack in the areas of operation of the national corps and emphasized the role of multi-national cooperation.

Basic Models. As a result of NATO's experience, planners distinguished two basic models for a multi-national corps: the LANDJUT Corps and VII(US)Corps with 12. Panzer Division for planning purposes under operational control. These two examples helped to develop realistic theoretical models that can be identified as two extreme solutions, both within the intent of the London Declaration.³⁵

Model 1: Integrated Model (based upon the LANDJUT corps). It has a fully integrated corps staff, in which both countries are equally represented. The corps troops are multi-national; the subordinated divisions are purely national.

Model 2: Lead-nation Model (based upon experience VII Corps/12. Panzer Division). It has a national corps staff, in peacetime already augmented with staff officers of the other nation³⁶. The corps troops are provided by the lead-nation; the sub-

ordinate divisions are purely national. The model can be achieved by cross-assigning divisions.

One could integrate forces further, at the divisional level or lower. Several recent studies conclude that the optimum effect of integration can be achieved at the corps level, using divisional building blocks.³⁷ Integration at

a lower level is difficult, but not impossible, and could very well take place in special combat support units, e.g. communications.³⁸ The Korean example, as well as recent experience in VII(US)Corps,³⁹ showed that cross-attachment of brigade sized units is possible, if these units are supported by sufficient organic CS and CSS support.

This leads us to variations of one of the two models, concerning combat support (CS). Specifying further the integrated model there are two way to organized CS, in a **mixed CS model**, or in a **role specialization model**. In the mixed model, the corps level CS is provided by both nations, each supporting mainly their own national divisions. In the role specialization model, individual nations perform an entire corps level function in support of the entire corps (e.g. one nation provides the entire corps artillery or engineers) as their own national contributions to the corps. Theoretically, this distinction could also be made for corps CSS. However, as a result of a lack of standardization and interoperability, logistics is still identified as a national responsibility. In the future, this could change.⁴⁰

Versatility. The new operational concept demands a versatile force structure. The LANDCENT commander needs to have the capability to continuously optimize the structure of the corps he commands, the missions and the areas of operations of these

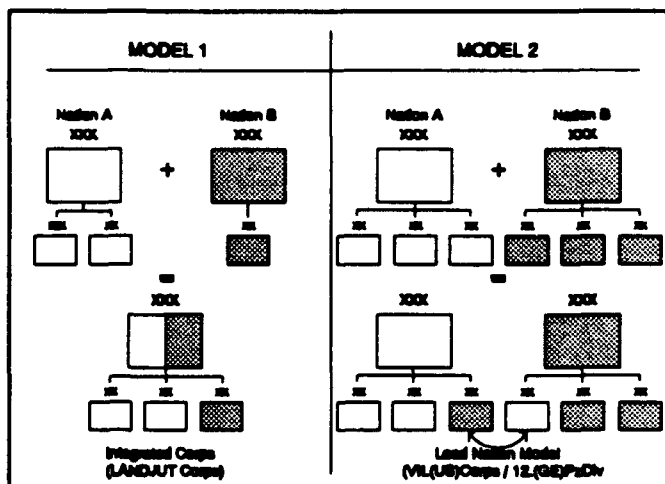


Figure 2: Theoretical Models for Bi-national Corps.

corps. In some occasions he will need a five-division corps, like VII Corps in the Desert, in an other case a two-division corps for a certain mission. Therefore, the corps structure should not be rigid, but divisions should be exchangeable to other multi-national corps.

Evaluation of Theoretical Models. Both corps models have proved to be effective. The LANDJUT Corps has been operational since April 1, 1962. The bulk of the forces was provided by Germany (6. Panzer Grenadier Division) and Denmark (JUTLAND-Division). Augmentation by U.S., British and Dutch troops was planned and extensively trained for. Almost all countries contributed to the corps staff. A thorough evaluation of the almost thirty years of experience in 1990, provided major arguments to extend the number of multi-national corps in NATO's force structure.⁴¹

The lead-nation model proved to be effective as well in peace and war. The relationship of VII(US)Corps and 12. Panzer Division showed the feasibility as well as the challenges of the concept.⁴² DESERT SHIELD/STORM clearly showed the effectiveness of the U.S./U.K. partnership in offensive operations.

Integrated Versus Lead-nation Model. Clearly, both models have their pro's and con's. The integrated model, to start with, limits the out-of-region/area deployment capability of a corps, when only one of the partners wants to deploy with the corps-staff and corps troops. The integrated model relies on the contribution of both nations in essential functions. Therefore, the it is not suitable for a corps, in which the U.S. contributes. The Regional Defense Strategy of the U.S. identifies that the objective for the level of U.S. forces in Western Europe should be "a capable corps . . .with sufficient organic combat and support capabilities to . . .support out-of-area contingencies".⁴³ The U.S. would never have been able to send VII Corps to the desert, had the corps relied on a large number of foreign staff officers and corps CS/CSS units, that were not part of the Coalition. Because the Central Region is not the only contingency for U.S. units, U.S. corps and divisions should be part of a lead-nation model corps.

Conversely, the integrated model better serves the strategic goals of the multi-national concept. The structure creates an interdependence that in the long run will lead to better standardization, rationalization and interoperability. It better prevents renationalisation of the defense policies, one of the dangers in Europe resulting from the lack of threat.⁴⁴

Integrated Model: Mixed CS Versus Role-specialization Model. In the short term the mixed CS model will provide better effectiveness than the role specialization model. The mixed CS model nurtures a national relation between division and corps troops. As a result, it decreases the versatility of the corps structure, because it will be more difficult to support a division of the other nation. The role specialization model creates more multi-lateral interdependence. It will better serve standardization, rationalization and interoperability in the long run, as a result of the necessity of cooperation of CS units of different nations at division and corps level. In the long term, it will be more flexible and efficient. The lack of immediate threat in the Central Region makes the role specialization model preferable over the mixed CS model.

Summary. History has taught us that fighting with multi-national corps is a feasible concept. NATO studies advise structuring the corps of the MDF as bi-national corps using national divisions as building blocks. There are two basic models that both have proved to be effective: the integrated model and the lead nation model. In the integrated model, the CS function at corps level could be organized as a mixed structure or using role specialization. The integrated model supports the intent of the London declaration better and is a better incentive to enhance standardization and interoperability. The lead nation model ensures an independent out-of-area capability for the contributing nations. The corps structure should not be rigid; divisions must be capable to fight under the command of different corps.

Recent ideas to use active corps units as CRF have major implications for the structure of the corps. Depending on the contributions a country wants to make to a coalition force, multi-national integration could be necessary at lower levels than corps.

However, the smallest national contingent in a multi-national force should be separate brigade or regiment, with sufficient organic CS and CSS.

Section III

Building The Corps: Integrating The Lessons Learned!

The next step to discuss are the critical factors for success of combined operations at corps level, derived from experience. This section will make use of the general theory of combined operations, as introduced in the literature review, of lessons learned from multi-national peacetime corps operations in the European NATO environment, as well as wartime lessons of combined corps operations, e.g. Desert Storm.

To describe these critical factors, this section will make use of the battlefield framework, described in the Blueprint of the Battlefield⁴⁶. The framework differentiates two major elements, combat power and supporting functions. Combat power comprises four major functions of maneuver, firepower, protection, and leadership. The supporting battlefield functions include battle command, control, communications, intelligence, air defense, electronic warfare, mobility and survivability, and lastly, logistics. The commander must integrate and coordinate these functions with the dynamics to synchronize the battle effects in time, space, and aim.

Combat Power.

Maneuver. The following three areas have proved to be critical for the function maneuver, the relation of subordinate unit capabilities and their missions, doctrine and the training of that doctrine.

Capability Versus Mission. Different bi-national corps will have differing capabilities; this is a key consideration in operational planning. Different national divisions in the corps will, most likely, have differing capabilities as well; here, it is a

key consideration in tactical planning. The fact that the capabilities are different is not the problem, as long as the differences are identified.

There are two ways to deal with the different capabilities.⁴⁶ First, the corps commander can take the strong "have's" from one division and share it with the "have not's." This solution might reach beyond the authority of the corps commander, because he deals with units from different nations. A better way to deal with differing capabilities is to tailor the missions and make them compatible with the capabilities of each coalition unit. For example: the 1st U.K. Armoured Division possessed the capabilities needed to fix Iraqi forces in Western Kuwait. This allowed VII Corps' divisions to maneuver to envelop Iraqi Republican Guard forces.⁴⁷

If an allied unit is weak in a certain area, it would be necessary to supply that deficiency from the resources of the other ally.⁴⁸ In principle, the corps should be capable to support the weaker force with its own assets (corps troops).

Doctrine. Major General Johann Adolf Graf von Kielmansegg, Chief of Staff Headquarters Northern Army Group (Northag), said about equal doctrine in a combined division,

A multi-national division is only then ready to fight, when everyone in the division has the same idea about how one attacks, how one defends, how one uses CS, from mine warfare to artillery support. One can only do those operations in one way; and, we are still at the beginning, despite 40 years of NATO experience.⁴⁹

In a combined corps, the interaction between units of different nations is weaker. However, tactical interoperability issues which have surfaced from operations during operation Desert Storm, indicate a need for defined doctrine for alliance or coalition military operations as well.⁵⁰ ATP-35A, the NATO doctrinal manual, has supported interoperability of doctrine throughout the years. It created a fundamental capability for U.S. and British forces to fight together in one unit in the Desert. Nevertheless, the manual should be updated. Conversely, doctrine is, and should be, highly influenced by national culture. Therefore, to have harmonized doctrines throughout NATO is the ideal aim.⁵¹

Training. Brigadier P. Cordingley, a British brigade commander during Desert Storm, experienced the value of training for a combined unit very expressively. For him, the value of training was to change the American perception of the British Army, as well as to positively influence the media, and to become, through training, an effective part of the coalition army. Cordingley states about the American perception of the British Army,

. . . they believed that our equipment was unreliable and we would not therefore be trusted to be in the right place at the right time It seemed to me that training held the key to resolving to become an effective coalition army. We needed to give ourselves confidence to go to war and we also needed to give the Americans confidence in us.⁵²

The three and a half months preparation time allowed to do the necessary training in theater. Commanders should not rely on that in the future and conduct sufficient combined training in peacetime. Cordingley further warns not to rely too much on simulation for combined training.

To conduct that necessary training, the corps commander should be able to influence training and exercise planning of national divisions and other supporting units.⁵³

Firepower. Fire support will not, normally, be kept in reserve. Consequently, multi-national artillery support is essential to achieve the necessary mass of fires. As a result, equal doctrine, at least common understanding of doctrine for fire support has to be achieved.⁵⁴ When one has reached these goals, following the doctrine becomes essential. During Desert Storm, for example, some troops were not following doctrine about fire support coordination line. Furthermore, violations were reported of units maneuvering outside their established boundary and not clearing fires across boundaries. The conclusion is clear: When one establishes equal doctrine in a multi-national unit, train for it!⁵⁵

Protection. Protection conserves the fighting potential of a force so commanders can apply it at the decisive time and place. Protection has one component that is particularly of importance for multi-national units: the prevention of fratricide--the unintentional killing of our own soldiers by our own fire. The use of differing equipment in a bi-national corps, perhaps even the same equipment as the opponent, increases the likelihood of fratricide.

Effective command and control over maneuver and fires, satellite navigation--in the Central Region of great use at night and low visibility conditions (!)--and in the future perhaps an identification system friend-foe (IFF), decrease the probability of fratricide. Brigadier P. Cordingley about the use of satellite navigation in Desert Storm, "For the first time in the history of the British Army, we were likely to know where we were when we fought the battle. . .we could maneuver at night with a level of certainty about what we were doing and also it would be an important factor in stopping fratricide."⁵⁶

Leadership. The most essential dynamic of combat power is competent and confident leadership. Leadership provides purpose, direction, and motivation in combat. Especially in a bi-national corps it is of great importance. General Saint clarifies this as follows, "Implicit in the effective employment of national forces in combined operations is an understanding of capabilities and limitations of each unit you command. . .It is the national capabilities, then, that help define boundaries, missions, depth of areas and speed with which they can move around the battlefield."⁵⁷ Desert Storm taught us the same lesson. Commander to commander visits are invaluable in providing participating commanders with a clear picture of conditions and capabilities of the ally.⁵⁸ Furthermore, commanders must establish a command atmosphere in which criticism can be freely exchanged; This will provide an opportunity for subordinate allied commanders and staff officers to offer constructive suggestions and vent their feelings.⁵⁹

Battlefield Functions.

Battle Command and Control and Communications (C3) Evaluating his contribution in the Gulf War, Major General Rupert Smith, Commander 1st British Armoured Division, values four arrangements for C3. First, the employing of staff officers of the subordinate division in the American corps staff with the object of ensuring that the interests and peculiarities of the British division were understood and included in both the planning and execution from the outset.⁶⁰ Second, the usual deployment of liaison officers (LNOs), both vertically and horizontally in the hierarchy. LNOs have to be deployed to both corps MAIN and Tactical Command Post (TAC). The LNOs have to be of high quality. They have to be more than just a conduit for information. At the speeds of operational maneuver the LNO have to comprehend what the commander is about, and be part of the planning process in their own right. Third, the division should establish communications backwards to corps MAIN and TAC and sideways to flanking division in parallel to the corps' own nets. This is a result of the speed of operations in operational warfighting; it ensures continuous communications with the corps and, for example, it guaranteed for the British that their division gained more than a fair share of Air assets. Parallel use of communications systems are also established in the French-German Brigade. RITA and AutoKo systems work parallel together.⁶¹ Fourth, the need for delegation of authority, mission type orders and rather issuing directives than detailed orders. Especially when two divisions of different nationalities have to work closely together, like in a battle handover procedure. To some extent it catered during DESERT STORM for the lack of equal terminology, drills and procedures.⁶² For interoperability, clarity and simplicity of orders are not just principles, but commands!

Intelligence. Commanders win battles, campaigns and wars by generating combat power at the decisive time and place. Intelligence identifies these decisive points and reduces uncertainty about the enemy and the environment. In a bi-national corps, the intelligence proces creates a new challenge.

Desert Storm clearly showed that modern medium/high intensity warfare creates a need for division commanders to have "eyes" over the horizon. Tactical dissemination of combat intelligence, down from national, corps and other national assets is essential. Timely sharing of intelligence is further compounded by common problems of computer and communications interface. Issues surfaced regarding releasability, cultural restraints and priorities for support. Coalition partners expected more intelligence products than were received. This created a potential of disrupting cohesiveness of the coalition.

Liberal sharing of information by the two partners of a bi-national corps will build trust and confidence. Unrealistic expectations are training issues. Troops must train during combined exercises to evaluate misunderstanding of intelligence capabilities so that unrealistic expectations are reduced.⁶³

Moreover, knowledge of the capability of intelligence assets is essential to be able to centrally make and manage intelligence collection plans and conduct efficient analysis. In a bi-national corps, with differing assets in both divisions and corps, this will enable to fill the gaps or prevent unefficient overkill.

Air Defense. Air defense artillery provides the ground commanders with protection from enemy air attack by destroying or driving off enemy close air support aircraft and helicopters. The speed and agility of those aircraft increase the need for a linked A²C² system over the boundaries of the different national divisions. Besides, a link with the high & medium level A²C² system supports the effectiveness of the air defense and decreases the potential of fratricide. During last year's REFORGER exercise, another important lesson was learned about joint/combined airspace management. In a lessons learned document, an evaluator expressed, " . . . however, NATO doctrine is not synonymous with U.S. doctrine. The lack of commonality in terms and doctrine caused confusion throughout the REFORGER exercise. This significantly increased the potential for fratricide."⁶⁴ Again, differing doctrine and lack of equal terms create potentially dangerous situation in a multi-national environment.

Electronic Warfare (EW) uses the electronic spectrum to locate enemy units and facilities, intercept his communications, and disrupt his command and control, and target acquisition system at critical moments. Corps must divide targetting responsibilities between subordinate command assets. During execution, reliable, rapid communication links between EW units in adjacent sectors are mandatory, since EW effects ignore unit boundaries. EW operations can perfectly support one unit's mission, and concurrently create electronic fratricide and disrupt friendly operations elsewhere.⁶⁵ Effective EW is already difficult to manage in a single nation concept; in a bi-national corps it needs combined training to learn the difficult lessons.

Mobility and Survivability. Mobility operations preserve the freedom of maneuver of friendly forces or obstruct the maneuver of the enemy in areas where troops can use fire and maneuver to destroy him. In a defense fought at the operational level, mobility operations are of great importance. There will never be enough engineers to fulfill all the tasks maneuver units wants them to fulfill; therefore, engineers should be used where needed most. Engineers, as well as other CS units, from different nations should permanently be acquainted with their tasks in a multi-national environment. Furthermore, there is an increasing need for engineers at corps level. First, for mobility operations at corps level; second, to support divisional operations and give the corps commander the tools to weigh the main effort. This further increases the need for multi-national CS operations and training.⁶⁶

Logistics. Major General Rupert Smith, Commander, 1st British Armoured Division, under tactical control of VII Corps during Desert Storm, alludes to his experience,

Wheresoever the fight took me, my logistics would run back to the Port of Jubayl. There was never going to be any lateral replenishment from another division or corps. Groupings within the division would have to be logistically independent, at least for a time and I would need to know that time.⁶⁷

A NATO division was fighting within a foreign NATO corps; nevertheless, both had their own and separate LOCs from the front toward the homeland. Among other

elements, this experience of poor interoperability, has led to three new logistical principles, three new NATO principles and policies for logistics. First, nations and NATO authorities now have a collective responsibility for logistic support of the operations of the combined corps. Second, nations must ensure individually or by cooperative arrangements the provision of logistic resources to support their forces. Third, the corps commander needs to be given sufficient authority over the logistic resources to enable him to deploy and sustain his forces most effectively. He needs to have the authority to redistribute specified logistic assets between the national forces; he needs the authority to establish host nation support requirements.⁶⁸

Brigadier Richard Obe, deputy Chief of Staff for G1/G4 of the ARRC, states about this Corps: "Logistic structure must enable the corps to be fought as a corps, rather than a disparate collection of combat formations." This results in a new logistical concept for multi-national units. The minimum level of standardization from the logistical point of view is,

- * equipment: interoperable
- * combat supplies: interchangeable
- * procedures: common (new).

The first two have been NATO policy for a long time. In many areas NATO forces had good success; in others they did not. The need for commonality of logistical procedures at corps level is new. For example, interchangeable supplies are a necessary tool for the corps commander to weigh his main effort. Common procedures must make this multi-national support work. The procedures go further than just reports and returns. Definition of terms, roles and responsibilities should be included.⁶⁹

Ideally, the corps should establish a single logistic supply chain under a single allied command. Everyone understands that this goal might be far ahead. However, logisticians should see it as a challenge, rather than to avoid the issue. The greater the degree of multi-nationality, the greater will be the need for fully integrated support organizations and arrangements.⁷⁰

Summary.

Successful interoperability is not magic. The problems of operating with allies yield to command and staff awareness of their existence and detailed planning for their solutions, as do other urgent military missions and requirements. To summarize the most important critical factors for success of the bi-national corps.

- * C2. Commanders and headquarters commanding a bi-national corps must have a thorough knowledge of the capabilities, command and fighting traditions of the various forces.

- * A prerequisite for integration is an adequate communications system, using if at all possible the same equipment, procedures and language.

- * CS. CS should be available at corps level and support where needed. CS should permanently operate and train in an international environment.

- * CSS. In the near term logistics will remain a national responsibility. However, the corps commander should have more influence to weigh his main effort according to his mission. Multi-national logistic support is possible in many areas of support and troops should train for that.

- * Doctrine. There is a need for equal doctrine for CS and CSS units that support multi-national forces. Equal doctrine for maneuver units could help to better understand the capabilities of these units. Therefore, where cultural differences allow, the nations should try to establish more equal maneuver doctrine. Any new doctrine should be developed for MDF operations, as well as for contingency operations of CRF. The ATP-35A is a good starting point.

- * Training. A bi-national force is more dependent on Field Training Exercises (FTX) than a national corps. It is indisputable that the depth of integration of forces is inversely proportional to the number of FTX required. Therefore, the lower a force integrates, the more FTX are needed.

CHAPTER V

PLANS

The outcome of the battle depends not on numbers, but upon the united hearts of those who fight.¹

Kusunoki Masashige (1294 - 1336)

The Governments of the USA, Germany and the Netherlands announced more reductions of their forces after the desintegration of the Soviet Union. Moreover, the European countries, whose force structure focused solely on forward defense for decades, are restructuring at least parts of their forces to create effective tools for crisis management. Because the bi-national corps have to be effective in 1995, the study will use that year to compare the plans. This chapter contains a description, not an analysis of the force development plans of the three countries. Section I will describe the divisions and corps, and their developments. Section II will discuss the plans for the bi-national corps. Both sections of this chapter do not intend to be complete. The study will focus on relevant issues to be used in the next chapter for evaluation.

Section I

National Plans

U.S. Army Forces in Central Europe.

General. The Bush Administration was clearly committed to providing a credible forward presence in support of its security obligations in Europe. With the Regional Defense Strategy of January 1993, Secretary Cheney delivered this statement:

But our objective should be to preserve a substantial level of U.S. forces in Western Europe with sufficient organic combat and support capabilities²

President Bush had advocated a forward presence of 150,000, e.g., roughly 92,000 Army personnel to man the skeletal force structure in a manner that would ensure a combat capable corps, and, hence, provide a credible commitment to friends and potential foes.³

However, shortly after the change of the guard, President Clinton's spokesman George Stephanopoulos announced a reduction to 100,000 soldiers. At the same time, the Joint Staff is preparing a new strategy, and force structure, that can deal with the announced budget cuts. Clearly the number of active divisions will be reduced; what implications will this have for the force structure in Europe? Will the forward presence be reduced to one division, in stead of two? The U.S. made a firm commitment toward NATO and Germany to cross-assign one division and, hence, to create two bi-nation corps.

Don Snider concludes that the U.S. commitments can be fulfilled, focused on crisis management rather than defense and warfighting, with a force of 75,000, with only 24,000 Army, stating,

Additionally, U.S. commitments to NATO force structure (the second role of U.S. residual forces) can be accomplished with this residual force. The only question might be whether the two brigades in Germany, along with division and corps planning cells, will fulfill U.S. commitments to the multinational corps structure of NATO's Main Defense Force. At least two historical precedents indicate they will serve quite well in representing U.S. military interest in allied planning at necessary levels: the British Army on the Rhine during the last decade, and the U.S. forward planning cell of III U.S. Corps planning and exercising the allied reinforcement of the Northern Army Group (NORTHAG) during the same period.⁴

What Snider forgets is that it takes two to tango. The most important principle of multinational forces in the MDF is reciprocity. Cross-assigning a German division of about 15,000 - 20,000 active troops with a U.S. skeleton division of about 6,000 might be called a creative explanation for reciprocity.⁵

Nevertheless, this study should not outrun the facts, and focus on a more or less capable corps of around 60,000 peacetime forward presence, with two divisions with each at least two brigades.

Mission. The mission of the U.S. forces in Central Europe is stated in Cheney's new strategy,

... to maintain the viability of the Alliance; promote peaceful progress in Europe; permit timely reinforcement of Europe should there be a reemergence of a significant threat; and support out-of-area contingencies.⁶

Main Defense Forces. As a result of this strategy, the U.S. contribution to the MDF will be a two division corps, V Corps. The 3rd Infantry Division will be cross-assigned with II.(GE)Corps. Most of the present maneuver units of the Corps will be active. Some maneuver units are round-out National Guard units. CS and CSS highly depends on the deployment of Army Reserve and National Guard forces from overseas.

Crisis Reaction Forces. As stated in the strategy above, all the European based units of the Corps are available for out-of-area contingencies as CRF. Hopefully, V Corps will not follow the example of VII Corps: it did return to Europe after their contingency operation in the Desert, but was then deactivated! Johnson and Young suggest that one of the two divisions also should fill the U.S. role in the ARRC.⁷ This might call for more forward present units in this division; ARRC units are rapid reaction forces and should be capable to deploy in about a week or two.

Force Structure. The following description will depict a wartime organization of an illustrative brigade, division and corps for an established theater. A U.S. corps does not have a fixed structure, but will be adapted to the needs of the contingency. Concurrently, the study will briefly discuss the battlefield operation systems maneuver (doctrine), C², intelligence, CS and CSS. An overview of strength and equipment can be found in appendix A.⁸

Brigade. Most brigades are divisional and normally fight as part of a division. Divisional brigades are tactical headquarters that control mission-tailored battalion task forces (TFs). Brigades can direct battles up to 15 km forward of the FLOT by controlling TFs and attack helicopter units, by establishing priorities for supporting artillery fires, and by coordinating allied Air Force Close Air Support operations. The brigade does not have organic CS and CSS supporting units; however, the division will tailor or support the brigade with sufficient CS, CSS, and C² to its mission.

Normally, a brigade consists of three to four battalion TFs. A brigade will have 58-116 Main Battle Tanks (MBT) M1A2 Abrahams, 54-108 Infantry Fighting Vehicles (IFV) M2 Bradley, 18-24 Cavalry Fighting Vehicles (CFV) M3 Bradley, and 12-24 Anti-Tank Fighting Vehicles (ATFV) M901. The total strength of the maneuver part of the brigade task force is 2000-2800 soldiers. With divisional CS, CSS and C² the brigade strength increases to 4600-5600 soldiers.

Division. The heavy division is a fixed organization with organic maneuver, CS, CSS and C² units. The sustainability of the division is limited; it must be supported by CS, CSS and C² of the corps. There are two types of heavy divisions, both with ten battalion TFs. The armored division has four mechanized infantry and six tank battalions; the mechanized division has five and five. The armored division has 348 MBT, 216 IFV, 100 CFV, and 48 ATFV. The mechanized division has 290 MBT, 270 IFV, 100 CFV, and 60 ATFV.

Furthermore, the division can conduct deep operations with the aviation brigade. The aviation brigade consists of a cavalry squadron with two ground and two air cavalry troops, two attack helicopter battalions with either 18 AH-64 Apache or 21 AH-1S Cobra helicopters, and an assault and command company.

The CS units of the division are an engineer brigade, a chemical company, division artillery and an air defense battalion. The engineer brigade has three armored engineer battalions that each support one brigade TF. The emphasis on mobility support for the brigade is a result of Desert Storm; for example, each brigade will be supported by the 12 bridge laying tanks (AVLB) of the armored engineer battalions.

The water crossing capability for a division is limited to about 22 m; support of larger bridges has to come from corps. The division artillery (Div Arty) has three battalions, that each support a brigade, and one MLRS battery. In total the division contains 72 howitzers and 9 MLRS. The air defense battalion has a combination of 27 self propelled (SP) Pivat 20mm gun systems and 75 shoulder fired Stinger missiles. Each brigade will normally be supported by one Gun/Stinger battery.

The CSS of the division is organized in the Division Support Command (DISCOM). The DISCOM provides CSS to assigned and attached units in sector through organic units. It consists of three Forward Support Battalions (FSB), that support one brigade with maintenance, supply and medical support under division control. Furthermore, the Main Support Battalion (MSB) provides the direct support (DS) maintenance, supply, transportation and medical support to the assigned and attached units in the rear area and it backs up the FSBs.

The C² is guaranteed by the headquarters, a signal, and a military intelligence (MI) battalion, and a military police (MP) company. The MI battalion supports each brigade with a company size MI TF.

The total strength of an armored division is 17,285; of a mechanized division 17,568 soldiers. About 49% of them conduct maneuver, 27% CS, 16% CSS and 8% C². However, if the corps troops that directly support the division in its area of operation are counted as well, about 15,000-20,000 troops should be added to the divisional strength.

Corps Troops. All battlefield operation systems contribute to the corps troops. Because the divisions are lean, they are heavily dependent on the support of CS and CSS from the corps level. As mentioned before, the corps is not a fixed organization; therefore, the type and number of corps troops will differ in every corps and even for every contingency. Our starting point, however, is an illustrative corps for an established theater as depicted in appendix A.

The maneuver units at corps level are a separate heavy brigade, an Armored Cavalry Regiment (ACR), and an aviation brigade. Furthermore, a civil affairs (CA)

brigade and a psychological operations (Psyops) battalion contribute to the operations. The separate brigade is organized for and capable of conducting sustained operations under corps control. Unlike divisional brigades, they have a fixed organization that include combat, CS and CSS units. The ACR is a second organization at corps level that can conduct sustained operations with its combat, CS and CSS units. The ACR facilitates the corps commander's ability to maneuver brigades and divisions, concentrate combat power, and apply combat power at a decisive time and place. The ACR conducts reconnaissance operations, security missions, and economy of force operations with a mixture of MBTs, CFVs and attack helicopters. The third maneuver brigade at corps level is the corps aviation brigade. The brigade consists of two attack helicopter groups and one aviation group. The attack helicopter groups have the primary mission of attacking enemy armor formations. Attack helicopter battalions are either held by the corps commander for deep operations or given OPCON to divisions.

More than 35% of all maneuver soldiers in the corps are allocated at corps level. The corps troops consist of 247 MBT, 108 IFV, 152 CFV, 24 ATFV and 108 attack helicopters.

The core of the CS units is organized at corps level. These units support the divisions or conduct independent operations at corps level. An example of the latter is the ATACMS units that provide a deep operations capability that goes beyond the area of influence of the divisions. The corps artillery consist of a number of artillery brigades to support divisions with howitzers and MLRS or to conduct deep operations with ATACMS. The corps engineer brigade has engineer groups to support the divisions with armored and wheeled engineer capability and a variety of equipment and bridges. Furthermore, it has the capacity to conduct mobility operations in the corps rear area. The chemical brigade has a variety of battalions for decontamination and smoke operations, mostly in support of the divisions. Recently, it fielded the German chemical reconnaissance vehicle (FOX). The air defense brigade consists of various types of anti-air missiles, such as Stinger, and Chaparral for short range, HAWK for the medium altitude, and Patriot for the high altitude.

The CSS units of the corps are organized in the Corps Support Command (COSCOM). The COSCOM plans for and directs the provision of CSS through its functional control centers and subordinate commands to Army forces in the corps area and to other forces as designated. The COSCOM has the capability to create Corps Support Groups (CSG) and Medical Groups (MG) for multi-functional support of divisional operations. Normally, the CSG provides maintenance, supply (less medical, general support (GS) ammunition and bulk fuel) and field services. Ammunition and fuel distribution units can be attached to support extended or independent division operations. The corps aviation brigade has 115 light and 32 medium transportation helicopters in its organization that can conduct CSS.

The total strength of the corps troops is about 66,000 soldiers. 21% contribute to maneuver, 31% to CS, 38% to CSS and 10% to C².

Corps. The corps has the capability to perform contingency operations, because its organization is not fixed. For example, if the corps is sent to an undeveloped theater more engineer, logistical and transportation units will be added. A three division corps has a strength of about 118,000, of which 33% maneuver, 29% CS, 29% CSS and 9% C². In such a corps, 44% of the troops are under command of the division commanders. The corps commander can influence the battle with the remaining 56% of the troops.

Maneuver Doctrine. U.S. military doctrine makes the distinction between the strategic, operational, and tactical level of war. A forward presence corps normally conducts operations at the tactical level, as opposed to a contingency corps that will contribute to the operational level in a Joint Task Force.⁹

Central to its ability to fight and command forces on the battlefield is a structure which relates own forces to the forces of the enemy in four dimensions, the width, depth, and height of the battlefield and time. The combination of the dimensions leads us to the important time-space relationship. This framework is characterized as deep,

close and rear operations. Synchronization of deep, close and rear operations is a complex undertaking, particularly above brigade level.

U.S. doctrine makes the distinction between two types of operations, the offense and the defense. The purpose of the offense is to seek the outright defeat or destruction of the opposing force. However, attacks are also used for related purposes. Offensive objectives also sustain or regain the initiative, secure key and decisive terrain, fix the enemy as an economy of force measure, deprive him of resources, and deceive or divert him from the main effort. Counterattacks can disrupt the enemy's attack.¹⁰ The immediate purpose of the defense is to defeat an enemy offensive operation. However, a force may also defend when it is unable to attack. The defender may need to buy time, hold a piece of key terrain to facilitate other operations, preoccupy the enemy in one area so he can be attacked in another, or erode his resources at a rapid rate while our own are reinforced. Doctrine makes the distinction between mobile and area defense. Mobile defenses employ a combination of fire and maneuver, offense, defense, and delay to defeat the enemy attack. Commanders conduct an area defense to deny the enemy access to specific terrain for a specified time. Delaying operations are seen as part of the mobile defense.¹¹

Deep Operations Capability. Corps and divisions conduct deep operations as an integrated part of their scheme of maneuver. The division has a capability up to 30 km beyond the FLOT, the range of MLRS. Corps can attack 100+ km beyond the FLOT with ATACMS. Both division and corps will use attack helicopters and electronic warfare assets to conduct deep operations. Corps deep operations are an integral part of the echelon above corps (EAC) campaign plan. The corps deep operations plan must control key engagements in the close arena. Concurrently, the corps must deny the enemy the ability to concentrate combat power by attacking follow-on forces at depth. The same concept, with limited ranges, will be conducted by the divisions.¹²

Intelligence. MI units organize for combat to provide the best possible mix of intelligence and electronical warfare (IEW) assets to support the commander's objectives. Corps and division have a variety of assets, ground and aerial, human intelligence (humint), radar, EW as well as unmanned assets. The division resources have the capability to provide information up to about 50 km beyond the FLOT, with an optimum density of overlapping resources up to 30 km. Corps has surveillance, target acquisition and reconnaissance (STAR) capabilities up to 150 km; with support of EAC and Air Force more than 200 km beyond the FLOT (for example with Joint STARS).¹³ Desert Storm made clear that the availability of information is so overwhelming, that now the interpretation and dissemination has become a problem.

Command and Control. The U.S. Army command and control system makes use of mission type orders for subordinate commanders. However, U.S. staffs have the tendency to manage lower level missions with a great amount of detail. The American bureaucracy can be illustrated by its vast numbers of field manuals and regulations, and by the sheer volume of corps and division orders. Conversely, this is also a result of the flexibility built in the basic organization of corps and division. The corps and division troops must be allocated to lower level organizations and must be given clear guidelines for each separate plan.

The command post system (CP) identifies three CPs at division and corps level, the Tactical CP (TAC), the Main CP (MAIN) and the Rear CP (REAR). The TAC is responsible for the current close battle, the MAIN conducts deep operations, synchronizes the close, deep and rear battle, and plans future operations, and the REAR is responsible for rear area security and support.

The tactical communications structure includes a network of combat net radio's, an area common user telephone system and a data distribution system that is under development. The U.S. Army is working with the German Army on an interface between their communication networks to allow transfer of data distribution.

Combat Support. The CS system is structured for flexibility. The brigade has no organic CS, but the organic divisional CS will support the heavy brigades being able to tailor the force. The supporting corps assets give the ability to further weigh the main effort, and fulfill divisional level missions. The remainder of the corps CS troops fulfill specific corps level tasks with support of theater level assets. Only 40% of CS personnel is commanded by the divisional commanders; the remaining 60% is controlled by the corps commander to fulfill the above mentioned missions.

Combat Service Support. The concept of the CSS system is equal of that of the CS system, flexibility first. Only 25% of CSS personnel is commanded by the division commanders; the remaining 75% is controlled by the corps commander to tailor the forces and weigh the main effort. A second characteristic is the multi-functional concept, combining supply, maintenance, transport and medical support, at brigade level (FSB), at divisional level (MSB and DISCOM) and at corps level (CSG and COSCOM). The CSS units supporting a tactical commander are unified in command. *The tactical staff sets the priorities; the logistical commander executes.*

German Forces.

General. The German Army is undergoing significant modification as a result of the unification of its country. The unified army has adopted the CFE force limit of 370,000, originally meant for West Germany alone. Chancellor Kohl confirmed at the Wehrkunde International Security Conference at Munich on 6 February 1993 that Germany will cut its forces to below 370,000.¹⁴ At the same time, the German Army is implementing Army Structure 5. The basic idea of this structure combines the field army and the territorial army into a single army. The commands of corps and Territorial Command, as well as the commands of division and the Wehrbereichs Command will be combined. The new commands will have the capacity to split into tactical and territorial elements in case of employment or exercise.

Mission. The first mission of the Bundeswehr remains the defense of the German territory within the concept of the NATO Alliance. The latter means that Germany will protect and support the defense of the territory of NATO partners as a result of the Alliance charter, when necessary. Furthermore, Germany envisions the growing obligations towards missions in support of the United Nations (UN) policy, for protection of peace and support in distress. The Bundeswehr needs to be prepared for these diverse missions, including the contribution to a international deployment of forces, if the UN or Conference on Security and Cooperation in Europe (CSCE) demand this.^{15 16} To support these missions, Germany differentiates two types of forces, MDF (Hauptverteidigungskräfte) and CRF (Krisenreaktionskräfte).

Main Defense Forces. The MDF will exist of three corps with in total 8 divisions and three airborne brigades. I. Corps (Münster) with three divisions will be multinational and have a German-Dutch corps staff. The 6. Division will contribute to the LANDJUT Corps; II. Corps (Ulm) with three divisions will be bi-national and will cross-assign 5. Division with V(US)Corps; IV. Corps (Potsdam) with two divisions will be national. The core of the MDF will exist of partially active units. Some units will be fully reserve. The units that contribute to the CRF will be fully active. The active and partially active units build and fill the reserve units of the MDF. All together, about 50% of the main weapon systems will be operated by reserve forces.¹⁷

Crisis Reaction Forces. The contribution to the CRF will be generated out the active units of the MDF. The German contribution exist of the three airborne brigades, a mountain brigade, two heavy divisions, a division staff for air mobile forces, transport helicopter brigade and logistical units. These forces can support the ACE Mobile Force (AMF) with 26. Airborne Brigade, the Multinational Division Central (MND(C)) with 31. Airborne Brigade, the ARRC with 7. Panzer Division, and the EuroCorps with 10. Division. The CRF are an instrument of political crisis management and if necessary, will contribute at the same time as guard or covering forces to allow the mobilization of the

MDF. The CRF will have priority for modernization. For example, the light forces will receive new armored transportation vehicles, a highly mobile reconnaissance vehicle, and in the future new helicopters (TIGER). The heavy forces will receive the modified LEOPARD 2 main battle tank (MBT), and new mechanized howitzers (Panzer Haubitze 2000).

The announced further cut in the Bundeswehr size could reduce the number of brigades in the force structure.¹⁸ It is not likely that this will affect German contribution to multi-national CRF, because the need for these units is strongly emphasized.

Conscription. The German army will, at least for the near future, remain consisting of a mainly professional cadre with conscript soldiers. The conscripts are in service for 12 month. Chancellor Kohl announced a reduction of service time to 6 - 9 months.¹⁹ This could lead to a larger percentage of professionals, especially in the CRF. In political as well as military cycles, the conscription model is increasingly discussed. Discussion topics are, fairness of the system, when only a relatively small group of the youth has to join; decreasing service time available for training versus the diversity of tasks, especially in CRF. For many Germans, however, conscription is still a safeguard for popular control of the military. As a result, a change to a full professional army is not expected in the near future.

Force Structure. The following description will depict the wartime organization of an illustrative brigade, division and corps. It will focus on the mechanized brigade, because it is the core maneuver unit of the divisions; on the division and lastly on the corps. Concurrently, the study will discuss shortly the battlefield operation systems maneuver (doctrine), C², intelligence, CS and CSS. An overview of strength and equipment can be found in appendix B.²⁰

Brigade. The brigade is a fixed organization with organic maneuver, and CS units. The maneuver units of the mechanized brigade consist of two armor and two mechanized infantry battalions, a reconnaissance company, and an antitank company.

The brigade has a fixed structure and holds organic CS units, e.g., an artillery battalion and an armored engineer company. The brigade has 106 MBT Leopard 2, 106 IFV Marder, 24 Mechanized howitzers M109 (in the CRF to be replaced by the highly effective Panzer Haubitze 2000) and 15 ATFB Jagdpanzer. The total strength (war-time) is 4636 soldiers, of which 3416 are fighters.

Division. The division is a fixed organization with organic maneuver, CS, CSS and C² units. The maneuver units of a division consist of three mechanized brigades, a light infantry regiment, and a cavalry squadron. The division has 345 MBT, 318 IFV, 67 CFV, and 45 ATFB.

The CS units of the division are an engineer brigade, an artillery regiment and an air defense regiment. The engineer brigade has two engineer support battalions, two bridge battalions and two ABC decontamination battalions. The division owns a variation of bridges, from combats bridge to floating bridges. The artillery regiment has a battalion mechanized howitzers and a battalion MLRS. In total the division contains 96 Howitzers and 18 MLRS. The air defense regiment has two gun battalions (42 GEPARD 35mm).

The CSS of the division consist of four regiments, e.g., one supply, one repair, one medical and one hospital regiment.

The C² is guaranteed by the headquarters and a command support regiment. In this regiment the communications, electronic warfare and military police units are organized together. Lastly, the division has a supported by a C² helicopter company (BO 105).

The total strength of a division is almost 40,000 soldiers, of which 37% maneuver, 29% CS, 21% CSS and 13% C².

Corps Troops. The maneuver units at corps level are an airborne brigade, a AT helicopter regiment, and a cavalry squadron. The airborne brigade has two airborne infantry battalion and one airmobile anti-tank battalion. This battalion has 37 airmobile armored ATFB (Wiesel) with TOW and 24 airmobile IFV (Wiesel) with 20mm gun. As a result the brigade has good ground mobility and strong AT capability. The helicopter

regiment has 45 AT helicopters and 15 observation helicopters. The cavalry squadron has 54 wheeled light reconnaissance vehicles. Only 12% of the maneuver soldiers are allocated at corps level.

The corps has very few organic CS units. Most of these units are organized in the divisions. The corps has an air defense Regiment with short range air defense (SHORAD) missiles, the ROLAND.

The CSS units of the corps are a C² support brigade, a supply brigade (class III & V), a logistical brigade, and a medical brigade. Recently, all the transportation helicopters are pooled at Army level. A corps, however, can count on an average of 52 light and 32 medium transport helicopters, in peacetime organized at Army level.

The total strength of the corps troops is about 41,000 soldiers, of which almost 70% CSS.

Corps. The corps has a fixed structure and can consist of two or three divisions and the above mentioned corps troops. A three division corps has a strength of about 160,000, of which 31% maneuver, 23% CS, 33% CSS and 13% C². In a three division corps, 75% of the troops are under command of the division commanders. The corps commander can directly influence the battle with the remaining 25% of the troops.

Maneuver Doctrine. German military doctrine makes the distinction between the strategic, operational and tactical C². The corps level is part of the operational command system; division and lower conduct tactical C².²¹

Depending on whether terrain is to be held or seized, or whether it is to be abandoned in order to create the necessary prerequisites for other operations, every engagement is characterized by one of the following types of combat, defense, attack, or delay. The purpose of the **defense** is to annihilate or destroy, if possible, strong enemy forces and²² to hold a certain area against all attacks. Combat must be carried into the depth of the enemy area right from the beginning. The purpose of an **attack** is to annihilate or defeat enemy forces and²³ to seize terrain; in most cases, it is to bring

about a decision. An attack requires the employment of maximum combat power at the decisive point. **Delaying** actions provide the basis for other operations, if necessary, by sacrificing terrain. Depending on the situation and intentions, the purpose is to gain time, canalize enemy movement, wear down enemy forces, or protect friendly forces against imminent destruction by superior enemy forces. A delaying action is not intended to bring about a decision. It requires sufficient depth of the area.²⁴

Deep Operations Capability. The deep operations capability of a corps and of its divisions is limited to about 30 km, the range of the MLRS. The AT helicopters have no forward line own troops (FLOT) crossing capability. In procurement are the attack drone (codename TAIFUN), capable of fighting armor up to 150km beyond the FLOT and an attack helicopter (codename TIGER) with FLOT crossing capability. However, both will not be fielded, if at all, before the year 2000.

Intelligence. The German STAR system has improved over the years. At the moment the 'Aufklärungsverbund' (integrated STAR system) is high-tech and gives commanders at all levels a good capability to command and control effectively. There is human intelligence at brigade and division level (cavalry) and at corps level (Long Range Recce Patrol [LRRP]). Electronical warfare units are operating at division and corps level. Radar systems support artillery and cavalry for target acquisition and reconnaissance. Furthermore, recently the drone CL289 is fielded for surveillance and target acquisition up to 150km beyond the FLOT. In the future, the system will be further enhanced by an RPV for the division level (KZO/Brevel), a counter battery radar (COBRA) and unmanned ground sensors.²⁵ A Joint Stars type radar and electronic warfare plane (LAPAS) is deleted from the plan for budget reasons.

Command and Control. The German Army invented the mission-type order system (Auftragstaktik), and still uses this way of command and control. The German army's command post (CP) system has a tactical CP (TAC), a main CP (MAIN) and a rear CP

command post (CP) system has a tactical CP (TAC), a main CP (MAIN) and a rear CP (REAR) at corps and division level. Current operations are conducted from the TAC. Planning, and synchronization are conducted from the MAIN, while sustainment and rear operations are led from the REAR.

Like STAR, the amelioration of command and control with modern, digital systems has the highest priority in the Army. The best STAR, and weapon systems lose effectiveness, if the numerous data can not be transformed in time into useful information for commanders and fire control officers. Nevertheless, the German communications system Autoko lacks interoperability for data transmission with the U.S., French, UK, and Dutch system. Therefore, the first three countries and Germany work together to create an interface that makes it possible to communicate cross nation without unwanted limitations.²⁶

Combat Support. The core of the CS system is arrayed at division level and below. The brigades have organic engineers and an artillery battalion. The close relation between maneuver and supporting units is considered more important than a flexible system. The division has a huge engineer brigade with six battalions, an artillery regiment, and an air defense regiment to weigh the main effort and fulfill divisional tasks. 95% of the CS personnel is organized in units at division level and below. The divisions will not be supported by corps level CS units. The short range missile regiment (ROLAND) conducts air defense of the corps rear area in conjunction with allied air force HAWKs and Patriots.

Combat Service Support. One of the major advantages for the German CSS system is, that the theater of operations is their homeland. As a result, major parts of the CSS system make use of fixed real estate. The new operational concept for the Central Region has erased the clear vision of which units will fight where, but, the concept still has advantages. However, the logistical system was not built for the support of CRF

out-of-area. Therefore, parts of the system will be rebuilt and more logistical units will be have an active status than planned before.

Brigades do not have their organic logistic support. They will be supported by the division. The corps commander directly controls about 50% of the logistical capacity. The other 50% is controlled by the division commanders. The support system is a functional system. The supply & transportation system, the maintenance system and the medical system operate more or less independently throughout the corps. Priorities are set at the different levels by the tactical commanders.

Dutch Forces.

General. Like the German forces, the Dutch forces are undergoing significant change. In January 1993, Secretary of Defense Ter Beek, published his Defense Priorities Review, a review of the Defense White Paper of Spring 1991. The White Paper announced a reorganization and reduction of the armed forces. The reorganization had to make the troops more mobile and flexible; as a result, a mechanized brigade is transforming into a light airmobile brigade. The reduction was possible as a result of the decreasing threat from the East, and necessary to pay the reorganization. However, because a major threat could not be ruled out (the Soviet Union still existed), the minimum army forces were supposed to be the two division I.(NL)Corps. This corps should be transformed into a bi-national corps by cross-assigning a division with I.(GE)Corps by 1995.²⁷

The review of the White Paper was announced when this paper was published. The following discussion will focus on the new plans, as announced in the Defense Priorities Review.

Mission. Secretary Ter Beek reveals in the Review, "More than ever before defense efforts will have to be geared to crisis management tasks, which encompass both peacekeeping and peace-enforcing operations. Not only are the armed forces indispensable for allied defense, it is increasingly recognized that they can contribute to

international stability and the provision of humanitarian aid."²⁸ The main tasks of the armed forces can be summarized as follows:

- * To carry out crisis management operations as part of Dutch security policy;
- * To protect the integrity of national and allied territory and to protect national territory against threats resulting from the participation in crisis management operations.

In the future the Dutch armed forces will be capable of:

- * Maintaining a capacity for simultaneous participation in a maximum of four peacekeeping operations (UN or CSCE) with a battalion or equivalent size;
- * Maintaining rapidly deployable assets in peacetime for the protection of the NATO treaty area and for an adequate contribution to peace-enforcing operations. For this purpose larger units may be required, such as the airmobile brigade, a light [sic]²⁹ or a mechanized brigade;
- * Maintaining the capacity and the infrastructure to generate sufficient forces for the allied defensive potential in case of a major threat against NATO territory.

Crisis Reaction Forces. Paramount in the new organization is its effectiveness and the direct deployability of units intended for crisis management operations. Secretary Ter Beek announced that all the active forces could be used as CRF. The new security situation and increasing emphasis on crisis management will lead to further reductions in the army's peace and wartime organizations. The reductions must be complemented by further integration in multinational structures, such as the MND(C) and the German-Dutch I. Corps.

The Army units available as CRF are three separate brigades, e.g., an airmobile brigade³⁰, the armored cavalry brigade (ACB) and a mechanized brigade. Furthermore, CS units like an engineer battalion, and an air defense battery, CSS units like a transport battalion, and C² units like a signal battalion, EW assets, RPV or MP can contribute. The air mobile brigade's prime mission is to operate as CRF as part of the four brigade MND(C). Secretary Ter Beek offered the brigade also to the Euro-

Corps, with priority for the MND(C). The other CRF units are not predestinated to a certain command structure.

Main Defense Forces. The Dutch contribution to the MDF will consist of one mechanized division, and additional corps troops. The mechanized division consists of the ACB and two mechanized brigades. Through 1998, a third mechanized brigade will be kept in the organization. By then, a decision will be made if the brigade will remain in the wartime organization of the Dutch forces. The air mobile brigade will also be part of the corps troops. All the units will be part of the I.(GE/NL)Corps with its headquarters in Münster, Germany. Besides the ACB and essential contributions for the corps staff to operate, all units will have their barracks in the Netherlands. The 41. ACB remains, and the Dutch part of the Corps staff will be, stationed in Germany.

The above mentioned CRF units are also part of the MDF. One of the tenets, formulated for the Dutch contribution to peacekeeping and peace-enforcing specifies, that in the event of a direct threat to the territory of the Netherlands or the NATO treaty area, the defense of these territories will receive the highest priority. About half of the personnel of the wartime organization of the MDF will be reserve forces.

Conscription. After careful consideration the Dutch government has decided to place the armed forces, which currently consist partly of conscripts, on an all-volunteer footing. The requisite direct deployability of units for crisis management operations has been the determining factor in this decision. After a five years transition period the obligation to enlist will, to all intents and purposes, be abolished or suspended. In 1998 the Army will be an all-voluntary force. In order to reduce the conscription burden to a minimum during the transition period, the time spent under arms is to be reduced from twelve to nine months for most conscripts with effect of 1994. However, already in 1993 part of the Army is all-volunteer. For example, the newly built airmobile brigade has only voluntary soldiers in its organization.

Force Structure. The following description will depict the wartime organization of the ACB and a mechanized brigade, of the 1.(NL)Division, and of the corps troops. Concurrently, the study will shortly discuss the battlefield operation systems. An overview of strength and equipment can be found in appendix C.³¹

Brigade. The brigade is a fixed organization with organic maneuver, CS, and CSS units. It can be compared with the U.S. separate brigade. The structure of the ACB and the mechanized brigades only differs in the types of battalions assigned. The ACB has a cavalry squadron, a tank battalion, and two mechanized infantry battalions. The mechanized brigade has two tank and two mechanized infantry battalions. The CS units in the brigade are a artillery battalion, an armored engineer company, mostly for mobility operations, and a mechanized air defense battery. The CSS units are a supply, a maintenance and a medical company. The brigades will be able to conduct independent operations for at least 24 hours.

The ACB holds 67 MBT Leopard 2, 98 IFV YPR 765 25mm, 80 CFV (armored, wheeled), 24 ATFV YPR 765 TOW, 20 howitzers M109, and 10 SP armored AD gun systems 35mm (Leopard). The mechanized brigade holds 108 MBT, 84 IFV, 40 CFV, 24 ATFV, and 20 howitzers and 10 AD guns of the same types. The wartime strength of the ACB is about 4000 soldiers, of which 2200 are fighters; the strength of a mechanized brigade is about 4000 soldiers, of which 2200 contribute to maneuver.

Division. The division has a fixed organization with organic maneuver, CS, CSS, and C² units. The maneuver units of the division consist of the ACB and three mechanized brigades, a cavalry squadron, and a LRRP company. The division holds 404 MBT, 364 IFV, 250 CFV, and 96 ATFV.

The CS units of the division are an artillery regiment, two engineer battalions, two specialized engineer companies, a mechanized air defense battalion, and three light gun companies. The artillery regiment contains two battalions mechanized, and two battalions towed howitzers, and two batteries MLRS. The engineer battalions are armored; the engineer units have a variation of bridges and equipment; they also

possess little ABC decontamination capability. In total the division contains 168 howitzers, 20 MLRS and 80 AD guns and additional stingers.

The CSS units consist of two combined supply and transportation battalions, a maintenance battalion, a medical and a hospital battalion.

The C² units of the division are a signal battalion, an EW company, a RPV company, and a MP company. The division has no organic helicopters.

The total (wartime) strength of the division is about 27000 soldiers, of which 33% maneuver, 33% CS, 27% CSS and 7% C².

Corps Troops. The maneuver units at corps level are the airmobile brigade and a special forces (SF) company. The airmobile brigade will consist of three light infantry battalions with light strike vehicles and several types of AT weapons, and organic CS and CSS units. The brigade will get OPCON over two attack helicopter battalions and one transport helicopter battalion, that are Air Force units. In 1995 the unit will have its first 7 CH47D Chinook transport helicopters. In 1996 the first ten attack helicopters will be fielded. In 2000 the strength will be 13 CH47D and 17 light/medium (like UH-60), and 40 attack helicopters. When the unit is fully operational, it is capable of air assault operations.

The precise type and number of CS and CSS corps troops has not been determined yet. Most likely, the Dutch will not contribute with CS units and will field some CSS units. The C² units will consist of three or four signal battalions, some MI units and a MP company. The total Dutch contribution to the corps troops will be about 11000 soldiers (tentative!).

Maneuver Doctrine. Dutch military doctrine makes distinction between the strategic, operational, and tactical level of war. The corps operates on the operational level; divisions and lower on the tactical level of war.³² According to Dutch doctrine, the corps, fighting on the operational level conduct offensive or defensive operations. Divisions conduct offensive battles, defensive battles or delaying operations to fulfill its mission. The purpose of the **defensive battles** is to hold key terrain, by canalizing,

disrupting and finally blocking the opponent. The purpose of the **delay** is to stall and disrupt the enemy over a certain time and space to set the conditions for an attack or defense. The purpose of the **offensive** is to seize key terrain and³³ deprive the enemy's capability and will to fight.³⁴

Deep Operations Capability. The deep operations capability of the division is limited to about 30 km, the range of the MLRS. When the attack helicopters are fielded, the corps deep operations capability will be extended using these helicopters, that will have FLOT crossing capabilities.

Intelligence. The divisional STAR system is consequently improved over the years, and is now high-tech. There is human intelligence at battalion (cavalry), and division level (cavalry and LRRP). An EW system, developed in cooperation with the German army, is fielded at divisional level. A radar system supports target acquisition for artillery.

In the near future, an RPV company and unmanned ground sensors will be fielded. Furthermore, maneuver battalions will get specialized armored vehicles for artillery observers. The corps will be supported by a SF company, that has deep humint surveillance, laser designation, and deep strike capabilities.

Command and Control. The Dutch command and control system makes use of mission-type orders. The CP system differs from the U.S. and German system. Divisions and corps have a double TAC and a double MAIN. One of each CP is active; the other moves. Databases provide each type CP with equal information. The TAC conducts current operations; the MAIN conducts planning, synchronization, rear operations and sustainment control.

The communication system ZODIAC with the three basic systems, e.g., area network telephone system (secure), combat net radio and digital distribution data, is fielded. Some satellite communication (TACSATCOM) systems are fielded, mostly for CRF. The system will be enhanced with single channel radio access and military

satellite communication. Artillery and air defense are procuring warning and battle control systems. At present, the communication systems ZODIAC and the German Autoko have interoperability limited to voice.

Combat Support. In principle all the combat support systems for the Dutch division will be organic. The brigades have limited organic capabilities, that have to be supported by divisional units. For example, the equipment of the brigade armored engineer company is focused on mobility operations. The brigade will be supported by divisional armored engineer units with a focus on counter mobility and survivability. The Dutch have not planned to field CS units at corps level.

Combat Service Support. The CSS system has a functional character, at brigade, division and corps level. Priorities are set by the tactical commanders. Brigades have organic CSS that make them capable for independent operation for about 24 hours. The division has also organic CSS capability that will give them a capacity for self sustainment of at least 72 hours. There will be some CSS elements at corps level to support corps troops in the rear area.

Section II

Plans for Bi-national Corps

This section will discuss the plans that the German and U.S. army, as well as the German and the Dutch army have developed for the bi-national corps. Germany and the U.S. have signed Memoranda of Understanding. Germany and the Netherlands have signed a declaration of intention to create a combined corps. The plans are still developing; the Corps will be operational in 1995. This year, however, the first results of the planning will be executed.³⁵

Cross-Assignment of German and U.S. Divisions: Two Bi-national Corps.

General. For the purpose of implementing of **Military Committee (MC) 317 (NATO force structures for the mid 90s and beyond)**, and to promote interoperability between the respective Corps, the U.S. and Germany will create a German-led and a U.S.-led bi-national Corps. These Main Defense Corps will be primarily employed in the Central Region of the NATO territory.

Basic Terms and Conditions. Germany will provide the 5. Division to the U.S.-led V Corps and the U.S. will provide 3rd Infantry Division to the German-led II. Corps. The divisions will have organic combat support and sufficient logistic elements to sustain them. The leading nation will provide the corps troops. Doctrine and tactics will remain a national responsibility within the framework of Allied Tactical Publication (ATP)-35.

Command and Control. All organic units designated to the Corps will remain under national control. Upon Transfer of Authority (TOA) by the Defense Planning Committee (DPC), the units will come under Operational Control of the lead nation.

To facilitate the C² of the OPCON division, staff personnel will be exchanged at corps level in peace, crisis and war, based on the principle of reciprocity. A limited number of officers and NCO's will serve as full-time staff during periods of peace, crisis and war, in the staff areas G2 (Intelligence), G3 (Operations), CS, G4 (CSS) and G6 (Communication and Information Systems). During exercises, crisis and war, additional personnel will be exchanged. The exchange does not eliminate the need for regular exchange of liaison teams to maintain coordination and cooperation between corps and divisions.

Communication and Information Systems (CIS). Corps will install and maintain its own national CIS and will execute overall CIS management responsibility. The OPCON division will install and maintain its own national CIS. CIS field training is vital and will be conducted in accordance with the overall training schedule. As long as the inter-

operability between CIS systems is not guaranteed, communication systems and/or liaison officers will be exchanged between Corps and the OPCON division.

Military Intelligence and Electronic Warfare. Divisions designated to the bi-national corps will possess sufficient intelligence and electronic warfare resources to meet the needs of the division commander. After TOA, the lead-corps will be responsible for integrating divisional resources into the corps intelligence system.

Training and Exercises. Training will generally remain a national responsibility. Subordinate divisions will continue to train and conduct operations according to their national training doctrine and standards. The corps staffs will exchange planning and training/exercise directives in order to develop combined training and exercise programs with the aim to promote interoperability. Planning of combined training/exercises should be mission oriented. Corps commanders will have the opportunity to look at training events in the divisions OPCON in wartime and during exercises.

Logistical and Medical Support. Each nation remains responsible for providing logistical and medical support for its units and personnel. However, duplication and redundancy should be avoided. Procedures for cross-national supports should be established based on the principles of reciprocity, or by providing items and services of equal value.

Integration of German and Dutch Forces in I.(GE/NL)Corps.

General. After the Dutch White Paper 1991, the original concept was to cross-assign divisions between I.(GE)Corps and I.(NL)Corps, based upon the same principles as mentioned above for the U.S.-led and German-led bi-national Corps. However, the further reduction of Dutch armed forces, announced in the Priorities Review of January 1993, made the plans changing. No longer will the Dutch have their own Corps; however, they will contribute with 1.(NL)Division, part of the corps troops and part of

the corps staff to the I.(GE/NL)Corps. Furthermore, the commander of the Corps will alternate between Germany and the Netherlands. Through this provision, the Netherlands will still be able to operate at corps level.

Basic Terms and Conditions. The concept of the corps is not clear. Yet, Germany and the Netherlands are still negotiating. However, an intention statement has been signed. By the end of this year, a detailed structure and organization will be determined. Progressive integration of the two existing corps staff will start in 1994; the Corps should be established in 1995. It is clear that the integration of two Corps into one is more difficult than the less committal cross-assignment that was planned earlier. Nevertheless, some ideas about the concept will be presented.³⁶

Command and Control. TOA for allied formation will generally occur on the DPC decision. The commander relationship before TOA is not determined yet. From TOA on, all allied units designed for attachment will be under Operational Command (OPCOM) of the commander of the I.(GE/NL)Corps.

Currently, I.(GE)Corps commands in peacetime three divisions, an airborne brigade and corps troops. 6.Division will transfer to the LANDJUT Corps from TOA on. The 7.Panzer Division and 31 Airborne brigade have employment options in the ARRC and the MND(C). The Dutch contribution to the Corps will be 1.(NL)Division, 11.(NL)-Airmobile brigade and 33% of the corps troops of the I.(GE/NL)Corps. The airmobile brigade has, like the German airborne brigade, employment options in the MND(C) as crisis reaction force.

Exchange of Staff Personnel. The equality of the national contribution to the corps staff will be shown both in quality and quantity. The staff functions will be equally divided, taken into account the importance of the function; in general 50% of the staff personnel will be contributed by each country.

The concept of training, logistics, medical support, CIS will be equal to the bi-national U.S.-led and German-led Corps.

Summary

Section I discussed the developments in the U.S., German, and Dutch army, as far as they are related to the multinational corps discussion. The forward presence of U.S. forces in Europe will reduce; the structure of German and Dutch forces will change significantly. The structure and doctrine of U.S. Corps is strongly influenced by the need to be able to operate all over the world. Therefore, the structure is flexible and is build to tailor forces to the mission. The structure of German and Dutch forces is more fixed. All CS and CSS components are organic to brigade and division. As a result, the corps level has only limited CS and CSS capabilities. Section II described the plans for the new multinational corps of the MDF. One German and one U.S. corps will cross-assign each a division from TOA. In peacetime, these units will train together; some personnel is already exchanged in peacetime. Training and logistics, however, remain basically a national responsibility. The German and Dutch will build a integrated corps. The corps staff is already effective in peacetime. In principle, the divisions will be assigned from TOA. Most of the provisions are equal to those of the German - U.S. corps. The following chapter will compare and contrast these concepts with the frame of reference, that this study addressed in chapter IV.

CHAPTER VI

EVALUATION

Combined operations is an art, not a science.'

Lieutenant General Yeosock, 1991

General Yeosock made this statement while serving as U.S. Army component commander during Operation Desert Shield/Desert Storm. This evaluation will compare capabilities, strengths, doctrine and other 'facts'. The real strength of military operations is, however, that it is an art more than a science. As an art, this implies that soldiers can and will make the operations work, although they might scientifically not be the most optimal solution! General Yeosock also concluded, that each operation with allies or coalition partners will bring its own unique challenges. This chapter will evaluate what the unique challenges of our bi-national corps are. The evaluation will consist of three steps. Step one is an evaluation of the structure of the bi-national corps. Step two is an internal evaluation of the battlefield functions within the three corps. Step three is an external evaluation of the capacities of the three bi-national corps.

Section I

Structure

Basic Models. Chapter IV identified two basic models to create bi-national corps, the lead-nation model and the integrated model. The German-led and the U.S.-led Corps will be build by cross-assigning divisions. They clearly use the former model. The

German-Netherlands Corps will follow the basic principles of the LANDJUT Corps. If one considers the premises of building the three corps, the chosen basic models are in fact the only feasible solutions. V(US)Corps has to be capable of executing contingency operations out-of-area as a CRF. This study already discussed that a lead-nation model would be the only feasible way to support this option. The Dutch will no longer have their own corps. Therefore, integrating with the I. German Corps will give them an opportunity to retain corps status. The German forces want to be capable supporting multinational CRF at the divisional level. The Germans will have that capability with both Corps structures; for example, 7. Panzer Division, part of the German-Netherlands I. Corps, will have employment options in the ARRC; 10. Division, part of II. German-U.S. Corps (German-led), will have employment options in the Euro-Corps. All these options can be supported with the chosen basic structures of the three Corps.

Level of Integration. The best way to build a multinational unit is by using national divisions as building blocks. The UN operation in Korea and NATO's peacetime experiences in Germany taught, that integration of forces at brigade or regimental level is possible, if these units have sufficient organic CS and CSS.

The three bi-national Corps do not violate this principles. These Main Defense Corps are built using divisions as building blocks. Some units of the corps, however, also contribute to CRF. The Americans intend to do so with divisions or the complete V. Corps. The Germans with units up to the divisional level. The Germans plan to support CRF, including support of UN operations, with airborne, and/or mountain brigades with employment options in a German light division KLG (Kommando Luftbewegliche Kräfte) and in the MND(C). The Dutch want to support CRF, including the UN, with their airmobile brigade, a Armored Cavalry Brigade (ACB) or a mechanized brigade.

According to NATO studies, the employment of brigades in a multinational structure is not the most effective way to work. According to the Korea experience, it

could work, because all the units concerned do have their organic CS and CSS. Notwithstanding, it would be of great support, if the employment options of the units involved are known in peacetime and limited to only a few.

The German force structure has adopted this principle. It allows only two employment options for a unit to train for, one as part of the MDF, and one as part of a CRF. For example, 31. Airborne Brigade could be employed as the airborne brigade of I. Corps (MDF), or as one of the brigades of the MND(C)(CRF); 23. Mountain brigade could be employed as a brigade of 1. Mountain division (MDF), or as one of the light brigades of the KLK (CRF).

Conversely, the Dutch have four employment options for their airmobile brigade. The brigade could be employed as part of the corps troops of I.(GE/NL) Corps (MDF); as part of the MND(C) (CRF); as part of the EuroCorps (CRF); or independently in a coalition (CRF). Limited available training time demands prioritizing of the employment options. Because the brigade's most likely employment option is apparently out-of-area, independent operations or operations within the EuroCorps might be more important to train for than operations within the MND(C)² or in the I.(GE/NL) Corps. The commander MND(C), for example, might have an other perception.

The Dutch Defense Priorities Review identifies independent operations [within a coalition]³ as an employment option for the ACE and the mechanized brigade as CRF. For operations in the low spectrum of the operational continuum, this could be feasible. It is questionable, whether heavy forces are best for these types of operations. For peace-enforcing, the brigades should operate in a divisional structure.⁴ This would support training and effectiveness of heavy units as CRF, if CRF employment options were known already in peacetime. For example, a good employment option for the Dutch mechanized brigade could be in the 7. Panzer Division, that has only two brigades in its basic structure.⁵ This division has employment options with the ARRC. Corps Troops. In principle, the corps troops in a lead-nation corps are national troops of the leading nation. The corps troops in the integrate corps consist of troops of both nations that participate in the corps.

Lead-nation Model. In the U.S.-led corps, the corps troops will obviously be American. The German division, employed in the American Corps, does have organic CS and CSS to operate independently for some days without support from the corps level. The German-led corps has no CS units at the corps level to support the divisions.⁶ The German structure employs all the supporting CS organic in the divisions. The cross-assigned U.S. division will bring its organic divisional CS as well as a U.S. corps slice of CS. Furthermore, besides the organic German corps CSS troops, a U.S. Corps Support Group (CSG) and a medical group (MG) will be employed in the corps rear area supporting the cross-assigned U.S. division. Hence the principle of a lead-nation corps is, that one nation employs all the corps troops, this principle has to be violated to support a U.S. division.

Integrated Model. The idea of an integrated corps is that the corps troops consist of both nation's troops. As long as interoperability is low, CSS units would support only national troops. The CS could be organized in a mixed way, e.g., corps level units supporting national troops, or in a role specialization model. As stated in chapter IV, the latter would be preferable. The German-Netherlands Corps has no corps CS units to support the divisions, besides a German air defense regiment, supported by a Dutch TRIAD (Hawk, Patriot) unit. These units primarily defend corps rear area; the TRIAD unit will cover part of the divisional area's as well. This mutual support could be seen as a form of role specialization. The German unit is responsible for SHORAD, the Dutch for the air defense in the medium and higher levels. The logistical forces consist of both German and Dutch troops. In principle, they will support their own national troops. As far as possible, they will also support each other.

Versatility. Versatility is the inherent ability of tactical units to adapt to different missions and tasks, some of which may originally be not beforehand identified. It is an essential character of the units that have MDF and CRF tasks. The necessary versatility is well build in the structure of the three Corps and their units at different levels. The flexibility of the U.S. Corps structure--it is not a fixed organization--gives the

Corps the potential to fight different types of conflict, within different command structures, at many places in the world. The German divisions have plenty organic CS and CSS capabilities to operate under different corps command structures. The Dutch brigades, supported by organic CS and CSS, have a same capability at a lower level. The structure of a unit, however, is only a conditional element of versatility. Professionalism, training, discipline, competency, and the availability of equipment, tailored for different tasks are important elements of versatility. However, versatility has its limits.

Section II

Internal Evaluation

The big issue concerning the bi-national Corps is to identify the areas where interoperability problems might occur. Only when identified, these areas become the challenges for the soldiers to make combined operations work. This section will evaluate the corps, using the model of the *Blueprint of the Battlefield*. First, however, this section will discuss whether the mission of the three forces might lead to friction or conflict of interest.

Mission. All three countries identify defense of the NATO territory in the Central Region, and peacekeeping/peace-enforcing contingency operations part of their mission. However, emphasis is different. The Americans will retain forward deployed forces in Central Europe to maintain the viability of the Alliance, to promote peaceful progress in Europe and to permit timely reinforcement of Europe should there be a reemergence of a significant threat. For these reasons, they also maintain most of their forward operating bases in Central Europe. Furthermore, forward deployed forces could support out-of-area contingencies. The Germans identify the defense of their, and NATO, territory as the first and most important mission for German forces. They envision furthermore the growing obligations toward the UN and CSCE, to deploy

forces for protection of peace or support in distress. The Dutch identify as their most likely mission the carrying out of crisis management operations, e.g., support of international peacekeeping or peace-enforcing efforts. They will maintain the capacity and the infrastructure to generate sufficient forces for the allied defense. Should the latter be necessary, this operation will have priority; employed CRF will be called back to Europe and operate as part of the MDF.

These different emphasis in the missions of national troops do not really harm the employment of MDF. When a significant threat would reemerge in Central Europe, all three nations will emphasize employment of their forces in the Central Region. A problem might occur with units that have employment options in the ARRC or MND(C), as well as in the Main Defense Corps. A future crisis in Europe will initially demand for limited and rapid deployment of forces. As a result, the RF will be engaged first. When later on the employment of MDF is necessary, the units with double employment options are already committed. The question is, when, if at all, and in what condition, the units committed in the RF will be available for the MDF. This dilemma might occur, as an example, for 7. Panzer Division, with employment options in the ARRC and in I.(GE/NL) Corps; or, for 11.(NL) Airmobile brigade, and 31.(GE) Airborne brigade, both with employment options in the MND(C) and in I.(GE/NL) Corps.

Combat Power.

The figures used for this evaluation are derived from appendices A, B, and C. Maneuver. This evaluation will touch two areas, e.g., the relation of divisional capabilities and their missions, and doctrine.

Capability Versus Mission. The different divisions of the three corps have the following wartime capabilities.

	MBT	IFV	CFV	ATFV	AH	personnel
U.S. Armor	348	216	100	48	36	8300
U.S. Mech	290	270	100	60	36	8600
GE	345	318	67	45	0	14800
NL	404	364	250	96	0	9300 ⁷

- Table 1: Organic Maneuver Capabilities of Divisions -

The U.S. division consists of three ground maneuver brigades. The German division contains three ground maneuver brigades and a light infantry regiment. The Dutch division will have four brigades, at least until 1998, three mechanized brigades and one ACB. The U.S. brigades are task organized; the German and Dutch brigades have a fixed organization. All the divisions have an cavalry battalion/squadron in the division; the U.S. cavalry squadron (mechanized & aviation) is part of an aviation brigade. These configurations will give all the divisions good capabilities for all types of heavy operations, like attack, or defense, delay, or guard.

Comparing the numbers of maneuver soldiers in the divisions, the German is by far the strongest. The extra 5000 - 6000 soldiers in the division are mostly infantrymen. Not only has the division an extra light infantry regiment; the strength of infantry in the maneuver brigades is larger too. As a result, the German division has better capabilities for a more stationary defense, for operations in wooded areas, and for operations in urban terrain (MOUT). Normally, the division will be supported with anti-tank helicopters from the corps. These helicopters have no cross-FLOT capability. The AT-helicopters strengthen the division's defensive capability.

The U.S. division has an organic aviation brigade. This gives the divisions a better deep operations capability. The 36 attack helicopters have a cross-FLOT capability to attack enemy concentrations of tanks and other high priority targets well before they can influence the close battle. This capability makes the division very effective for attack and mobile defense.

The Dutch division with three mechanized brigades and a ACB will have many fighting vehicles in the organization. The division will consist of more than 1100 tanks and other armored vehicles, as opposed to less than 800 in the other divisions. As a result, the division will have capabilities to operate in larger areas of operation. The number of vehicles favors guard/covering force missions or delaying operations. The number of tanks and anti-tank weapons makes the Dutch division also very capable for (counter)attacks. If understood, this variety of capabilities of the different divisions will give corps planners tools for creative tactical planning. Using them well, the mix of units will enhance the effectiveness of the corps!

Doctrine. "Harmonized doctrine throughout NATO is the ideal aim," was one of the conclusions of the frame of reference. A new, updated ATP-35A could help to harmonize our doctrine. To show, that our doctrine diverged over the years, this section will discuss, as an example, a few subjects concerning doctrine.

Levels of War. All three Armies make the distinction between the strategic, operational, and tactical levels of war. According to U.S. military doctrine, a forward presence corps, like V Corps, normally conducts operations at the tactical level. According to German and Dutch doctrine, the Corps conducts operations at the operational level; divisions and brigades conduct operations on the tactical level. All this seems very semantic. It is not, because this concept influenced the way the different Armies organized their corps. An U.S. division has a fixed organization, but needs support from Corps for CS, CSS and C². German and Dutch divisions, in contrast, have about all necessary CS, CSS and C² organic in their organization.

	Maneuver	CS	CSS	C ²	total
U.S.	36%	59%	75%	61%	56%
GE	12%	5%	53%	27%	25%

- Table 2: Percentage of Troops at Corps Level -

Identifying the percentage of troops at the corps level as opposed to at the divisional level, the bulk of CS, CSS and C² is in direct influence of the U.S. Corps

commander. He, as a tactical commander, can weigh the main effort not only by tailoring the mission and area of operation (AO) of his divisions, or by corps deep operations; he also can tailor the amount of CS, CSS and C² to different divisions. As a result, a U.S. Corps commander has more direct influence on the battles. Considered to work at the operational level, the Germans and the Dutch corps commanders take more distance; they tailor mission and AO. German and Dutch doctrine, however, identifies the division as a more or less independent unit to fight its battles. That is why a German or Dutch division is tailored to conduct operations logistically independent for about three days.

As a result, the U.S. corps has more inherent flexibility. As a corps, it will have more versatility. U.S. corps are not specifically build for the European theater; they must be capable of fighting anywhere in the world. This versatility will be an important character in the new operational environment in the Central Region. In the bi-national corps this flexibility will decrease significantly. The U.S. will cross-assign 3rd Infantry Division to II(GE) Corps with 'sufficient CS, CSS and C².' The corps will support the division with a corps slice. This means that the divisional strength will grow from 17,000 to about the double strength.⁸ As a result, the capability to tailor the force in the U.S.-led corps will decrease.

Purpose of Operations. Another distinct difference of doctrine is the purpose of offensive and defensive operations. The U.S. doctrine focuses on the enemy; the German and Dutch focus more on terrain. For example, U.S. FM 100-5, Operations states, "The immediate purpose of the defense is to defeat an enemy attack."⁹ The German HDv 100/100, Command and Control of Armed Forces states, "The purpose of the defense is to annihilate or destroy, if possible, strong enemy forces and to hold a certain area against all attacks."¹⁰ The Dutch VS 2-1386, Gevechtshandleiding states, "The purpose of defensive battles is to deprive the enemy the entrance in, but at least the way through, key terrain, by canalizing, disrupting and finally blocking the opponent."¹¹ This different focus must be seen in an historic perspective. In the perceived East-West conflict, German and Dutch territory was at stake. Since the Civil War, the

U.S. fought its conflicts always on the territory of other countries. From this perspective, the Germans and Dutch will not give up territory as easily as U.S. forces would. All three Armies perceive defense in depth favorable over forward defense; however, the Germans and Dutch identify that often the space may not be available to choose this option. Different perception of what the purpose of operations is, and how they should be fought, could hamper the cohesiveness in a bi-national corps, if not communicated well.

Organizing the Battlefield. A last example of not yet harmonized doctrine is the way the three countries organize the battlefield. U.S. commanders will usually fight deep, close and rear operations simultaneously in a manner that appears to the enemy as one continuous operation. The close, deep, and rear operations are led from different command posts, the TAC, MAIN and REAR, and synchronized by one, the MAIN. Deep operations are executed at the theater, corps and divisional level with fires, lethal and non-lethal, maneuver, and protection. U.S. corps and divisions both have organic maneuver, CS and C² means to conduct deep operations, corps beyond 100 km, and divisions up to about 30 km beyond the FLOT. Dutch and German forces recognize the essence of deep operations, but they identify them as a more integrated part of the division's and corps' operations. The German and Dutch do not lead their deep or rear operations from different command posts; they plan and support from the MAIN and control the current battle from the TAC. Their capabilities for deep operations at the divisional level have the same depth (MLRS and EW), but lack attack helicopter assets to attack moving targets. At the corps level, the Germans and Dutch do have organic maneuver troops to conduct deep operations (airborne, airmobile brigades and special forces), but they lack fire support. The Germans, though, do plan to acquire an attack drone system, TAIFUN, comparable with the ATACMS. However, this system will not be operational before the end of this decade. The Dutch will field, starting in 1996, attack helicopters with FLOT crossing capability to support their air mobile brigade.

Different doctrine has led to a different organization of the battlefield; it has also led to a different CP concept of U.S., German and Dutch forces. In the near term, U.S. forces focus more on deep operations than German and Dutch forces. This might lead to an unbalance in the bi-national German-U.S. Corps. To integrate the different CP concepts, significant training efforts will be needed. Command Post exercises (CPX) will be a useful tool to streamline these combined operations.

The two areas concerning maneuver will give an indication of the similarities and differences of U.S., German, and Dutch maneuver forces and doctrine. The purpose is not to create equal structures and doctrine. This would neglect the essential cultural influence in force development and doctrine. The purpose is to learn about each others forces and doctrine to be able to harmonize our effort. Obviously, German and Dutch doctrine is closer related, and shows more similarities, than German and U.S. doctrine. This implies that it will be easier to cooperate at lower levels of force for Dutch and German forces. For example, after some training, a Dutch brigade could fight effectively in a German division. Harmonized doctrine, tuned to an updated NATO doctrinal manual ATP-35(A), would support combined operations further. Combined training, however, is the most important tool to make combined operations work. Combined training should consist of CPXs as well as of Field Training Exercises (FTX). The lower the level of integration of force, the more need there is for FTX!

Firepower. Firepower consists of maneuver and fire support. The maneuver part of firepower is discussed before. Our divisions will have the following fire support capabilities.

	Howitzer	MLRS
U.S.	72	9
U.S. w/spt ¹²	132	21
GE	96	18
NL	168	20

- Table 3: Fire support capabilities divisions -

A U.S. division has significantly less organic fire support; with support of the corps fire support slice, however, the number of tubes increases. It seems that the Germans have less fire support available than other nation's divisions. There are fewer tubes available, but the Germans will field automatic loading weapon systems in some heavy brigades.¹³ One battery of these howitzers (Panzer Haubitze 2000) will have about the same capability as one battalion of M109s. With eight howitzer battalions, the Dutch divisional fire support is strong.

Only in the U.S. corps does the corps commander have the ability to weigh his main effort with fire support. It would increase the flexibility and versatility of the other corps, if more fire support was available at the corps level. This study concluded before, that, because CS is never held in reserve, CS should always train and execute operations in an international environment. Cross-national fire support is only possible, if the fire support C² systems are interoperable. Momentarily, the three nations developed and fielded/are fielding their own systems, TACFIRE (U.S.), ADLER (GE), and VUIST (NL). Interoperability of these systems is essential for effective fire support of our troops.¹⁴

Protection. Fratricide is the component of protection, particularly of importance in a multinational unit. As a result of the increasing role of the press, fratricide has the potential to hamper the cohesiveness of alliance forces. Fratricide is much more likely to occur in the new environment in Central Europe, using a fluid battlefield concept, than it was in the 'layer cake' concept. Therefore, prevention of fratricide should be high on our multinational checklist. Multinational training, interoperable battlefield control system, and the use of satellite navigation are instruments to prevent fratricide. The U.S. is currently developing active ('IFF') and passive systems to prevent fratricide of combat vehicles. International cooperation with allies, especially with those who will work together in the same corps, should be stimulated.

Leadership. The most essential dynamic of combat power is competent and confident leadership. Understanding of capabilities and limitations of national forces in combined operations, commanders visits and effective communication are essential for leadership to be effective.

Our bi-national corps do have all the ingredients to be led by effective leadership. Commanders will be trained and will have experience working with the other nations forces; staff officers will be cross-assigned already in peacetime; in principle, these officers will be educated in the foreign nation's staff college. This is an essential training for these officers, because it will enable them to understand the procedures and culture of the other nation better. As a result, the foreign forces will be better integrated in the other corps. Besides, it require immense staff work to learn to use each other capabilities most effectively and to learn to deal with each others cultural differences and sensitivities. Training, training and more training will be essential to create mature combined units. And lastly, the leadership at all levels will need patience and stamina.

Battlefield Functions.

The similarities and differences of the battlefield functions in the corps and divisions of the three allied forces would be a good subject for another thesis. This study will only highlight the most important challenges of interoperability in these functions.

Battle Command, Control and Communications. The C² operating systems of the three Armies have many similarities; the systems are based upon the same principles. The staffs are built according to the same (originally French) model with a Commander, Chief of Staff, coordinating staff groups and special staff groups. The command estimate process uses basically the same model. However, the U.S. process produces more formal products than the German's and the Dutch'. An example is the synchronization matrix. In U.S. staffs, the synchronization matrix is seen as an essential tool to

synchronize the battlefield operating systems in the close, deep and rear battle. An other difference is the output of the command estimate process, the operation plans and orders. U.S. staffs tend to create more detailed, and more voluminous documents. This could frustrate the C² process in the German-led corps. The U.S. division will get less detailed written information to create her plans than they might expect.

A second concern for C² is language and terminology. In the bi-national corps, the written communication between division and corps will be in english. This will not be a problem for either the German or Dutch commanders and staffs. What could become a problem, is that the terminology, used in the different forces, is not common. U.S. terminology differs from NATO doctrine. The German and Dutch understanding of English NATO terms, will be influenced by their different background. Common understanding of terminology is essential in combined operations. The use of AAP-6, NATO Glossary of Terms and Definitions, and clear agreements on the meaning of terms in the bi-national corps is essential for effective C².

A last concern is the effectiveness of communication systems. All agree, that corps and division need effective voice and digital data communication. The U.S. and Germany work together, with France and Great Britain, to create a interface between national C² communication systems.¹⁵ Because the Dutch division should be able to work under the German corps staff, but also in other corps structures, it seems necessary for the Dutch to join this project. Furthermore, the lessons learned of the ARRC, yet building a multi-national corps, should be taken into account.

Intelligence. The three national intelligence systems share a well-balanced and high-tech intelligence system at the division level and below. At the corps level, only the U.S. intelligence system has organic means to construct a complete template of the enemy's course of action three days ahead. The Germans planned a deep looking airborne intelligence system, LAPAS. Because the system is no longer in the plans, the road seems to be open to join the U.S. with Joint STARS, to fill the intelligence gap.

Cross-assigning divisions makes it necessary to exchange intelligence information from one nation to another. Exchange procedures used to be not very easy. The MoUs for the corps identify the necessity for exchange of information, but only after the formal cross-assignment, after TOA by the DPC; the lead corps will be responsible for integrating divisional resources into the corps intelligence system. This will not work well, if it is not trained in peacetime. Training is important, as Desert Storm experience taught, to learn each others intelligence capabilities and limitations, so that unrealistic expectations of receiving intelligence product are reduced. More liberal sharing of information, already in peacetime, would build trust and confidence in bi-national corps.

Air Defense. Comparing the air-defense systems of the three corps, learns us the same ideas as from the fire support systems: air defense, being CS, should not be kept in reserve, and therefore, continuously train and conduct operations in a multinational environment. Like the fire support C² system, there is even a greater need for interoperability of A²C² systems. The opponent's airframes will not recognize our boundaries and will rapidly move from one nations AO to another's. Linking these A²C² systems would give own air defense the necessary warning to be prepared to attack. For example, the German and Dutch army are working on an interface between their A²C² systems, HFlaFüSys (GE) and WGL (NL).

An other concern is the difference in types of systems in the different corps at corps level. The U.S.-led Corps has organic SHORAD, and high and medium range air defense, e.g., Hawk and Patriot (HIMAD). The German-led Corps has only SHORAD; the German-Netherlands Corps will have organic SHORAD, and HIMAD in the corps. The German-led Corps has to be supported by LANDCENT with HIMAD means.

Electronic Warfare. The EW systems are spread over the corps comparable to the intelligence systems. All the corps will have excellent means at divisional level; only the U.S. Corps will have sufficient EW means at corps level. To avoid electronic fratricide and disruption of friendly operations, combined training is essential.

Mobility and Survivability. No force will ever have enough engineer support. Therefore, like other CS, engineer support will never be held in reserve. Engineers are not dependent on sophisticated electronical C² systems and can easily operate in any multinational environment. As a result, the 'have's' and the 'have not's' of engineer support should be shared among the national forces.

The personnel wartime strength, devoted to engineer support varies between the nations.

	Division	Corps level
U.S.	1395	8816 ¹⁶
U.S. w/spt ¹⁷	4300	3000
GE	6759	0
NL	2500	-

- Table 4: Engineer support personnel strengths -

After cross-assigning a division, with sufficient engineer support, to the German corps, the U.S. corps will retain engineer support to operate at the corps level. This is essential, mostly for mobility operations. Strangely enough, the new organization of the German corps, does not identify engineers at the corps level. The German-Netherlands corps will have about 15,000 engineers in its AO. The German-led corps about 17,000 engineers. It seems logic to shift at least 25%-30% of these troops to the corps level. It would support versatility, if 50% of these troops were organic corps troops. The corps commander could then easily weigh the effort of engineer support.

Logistics. Logistics might be the biggest challenge of the bi-national corps. According to Brigadier Richard Obe, the minimum level of standardization in a multinational unit is, interoperable equipment, interchangeable combat supplies, and common procedures. Not all equipment will be interoperable yet, not all combat supplies are interchangeable yet, nor do NATO forces share common procedures yet. Nevertheless, it is important not to surrender to the idea that logistics is a national responsibility. Doing so, the logistical system will never become more efficient. A major purpose of building

multinational units is to create a greater interdependence between the nation, to achieve what 35 years of NATO did not achieve: a high degree of interoperability, standardization and rationalization of the allied forces. This is exactly what is needed, if NATO wants to play an important role as a crisis management force for the UN or the CSCE.

The new U.S. doctrine states this well, ". . . The [U.S.] Army cannot rest on the notion that logistics is a national responsibility. While that is an accepted principle, the Army endeavors to streamline multinational efforts towards focused combat power. . . . The Army is obligated to ensure that the logistics system interfaces with others as necessary."¹⁸

Therefore, the focus of planners should not be seeking for differences in the logistical systems. They must focus on similarities and opportunities to work together effectively. There are many opportunities, like transportation services, medical support, some classes of supply (I, III, V, water) and even some maintenance. The Dutch and German forces have much more common equipment than the German and the U.S. forces; hence, integration of logistics will be less difficult to achieve in the former combination. However, the opportunities are there in all three corps to create more logistical interoperability.

Summary. A comparison of U.S., German and Dutch forces identified many similarities, as well as many differences. A major difference between the U.S. and the European forces, is the role of corps level troops. In the U.S. system, corps troops support divisions and fulfill corps level tasks. In the two European corps, these troops fulfill only corps level tasks. When cross-assigning a division to an other nations corps, however, the U.S. corps will support a division with a corps slice. With this slice the U.S. division is more similar. For example, comparing personnel strenght in the BOS:

	Man	CS	CSS	C ²	personnel
U.S.	49%	27%	16%	8%	17,300
U.S./w spt ¹⁹	26%	34%	32%	8%	33,500
GE	37%	29%	21%	13%	40,000
NL	33%	33%	27%	7%	27,000

- **Table 5:** Percentage of personnel per BOS in a division -

All divisions of the different countries will be capable to fulfill their operations effectively. Yet, the divisions do have a different character. The U.S. division's strength is mobile operations, like attack, or defense in depth. The German division's strength is defense, especially forward defense in urban or wooded areas. The Dutch division's strength will be operating in large AOs, e.g., in guard, cover or delay missions.

The interface of divisions with the corps of the other nation will create challenges for combined operations. Peacetime planning, supplemented with training, CPX and FTX, will make our corps effective fighting machines.

Section III

External Evaluation

For the last step, this evaluation will return to the first step of the analysis. The analysis started evaluating the factors affecting the bi-national corps structure. This external evaluation will make use of the seven measures of effectiveness of the operational concept, developed by Gary L. Guertner. This evaluation will discuss the bi-national corps as an entity. Starting point is, that internal challenges of interoperability have been solved by planning and training the force.

Demonstrability. The purpose of the new operational concept, and of the forces in Central Europe, is to demonstrate NATO's center of gravity, its political cohesion, and to provide a credible deterrence. Furthermore, the forward present forces should

demonstrate a purely defensive capability and prevent a reemergence of national defense policies.

Assuming that forces continue sufficient training, and that the national modernization plans will be executed, the mix of CRF and MDF will form a credible deterrent for a mechanized conflict in Central Europe. A discussion of deterrence toward other types of conflict go beyond the purpose of this thesis.

The limited number of forward present, active forces demonstrate a purely defensive capability, that is necessary to build a climate of confidence and trust in the European theater. Positioning the forces in depth would support this further. For example, stationing part of the forward present U.S. forces in the Netherlands, as suggested in a recent study of the Dutch commission for Atlantic Cooperation, would not only demonstrate a more defensive capability, it would also help Germany by sharing the burden of Allied defense.

The corps will demonstrate two major tasks in this new operational environment. First, they will further enhance and stimulate a further integration of multinational forces. Second, they will be the mother of CRF units in the corps organization; they share great responsibility for training, readiness, and support of the highly active and agile CRF in their organization. This will have a positive emanation toward the other troops of the corps.

Flexibility. Creating bi-national corps, the units gain versatility by optimal use of the different characteristics of the divisions and corps troops. Furthermore, it provides the corps with flexibility through an enhanced deception capability. The opponent will have problems to identify who he is fighting.

As a result of the cross-assigning of a division to a German corps, the U.S. corps will lose some flexibility. More corps troops have to be allocated to the divisional level, before knowing the character of the operations plan. The German-Netherlands corps will gain flexibility, because more maneuver troops will be available at corps level.

Unfortunately, the German-led and German-Netherlands corps lack sufficient CS at corps level. This will limit the flexibility of the corps commander. For example, the absence of organic engineer units at the corps level will endanger sustainment operations and mobility in the corps rear area. Further, it will limit the possibility of the corps commander to use scarce resources at the place where needed most.

The Main Defense Corps join responsibility for the effectiveness and versatility of CRF. Versatility will be enhanced by training the CRF for expected missions. To focus training, a limited number of employment options would be of great help. This study already discussed the example of an employment option of a Dutch mechanized brigade in 7. Panzer Division, both part of I.(GE/NL) Corps.

Mobility. Operational mobility will be a problem in preparation for war. With the limited number of active forces, and the lack of large training areas in Central Europe, it will be difficult to train for. However, forces must find creative ways to do the essential training. For example, units can train by conducting long distance movements with brigades and even larger units from home base to training areas all over Europe. Training in different countries will enhance the versatility of these units! This training will be necessary to practice the movement control organizations and prepare engineers for keeping routes open.

The tactical ground mobility is a strong capacity that all the forces possess. The bi-national corps will have enhanced tactical air mobility: all the corps will have a mix of 100-190 transport helicopters in their organization. Most of the German and Dutch helicopters, however, will also support the MND(C) and the ARRC. It is uncertain, if, when, and in what state, these helicopters will be available for the corps.

Lethality. The lethality of all three corps will be excellent. Modernization programs created organizations with highly effective weapon systems for a mechanized battle. All corps will have modern MBTs, IFVs, CFVs and ATFs. The German-Netherlands corps will have about 3000 of these fighting vehicles; the U.S.-led corps about 2100

(2700)²⁰; the German-led corps will have about 2300. All corps will have anti-tank or attack helicopters. The U.S.-led corps will have the most, about 160 (210), all with FLOT crossing capability. The German-led and German-Netherlands corps will have a mix of about 90 anti-tank and attack helicopters. The attack helicopters will have FLOT crossing capability. All corps will have 300-360 howitzers and 50-60 MLRS. The U.S. corps will have additional ATACMS for deep operations. The Germans have planned for artillery with a deep (100+ km) capability.

The U.S.-led corps will have the best capability for deep operations at the corps level. Not only has the U.S.-led corps many attack helicopters and ATACMS, they also have an excellent intelligence and EW capability to conduct deep operations at that level. Conversely, the German-led and German-Netherlands corps will have airborne and air mobile brigades in their organization to seize deep objectives. At the divisional level, all forces can conduct deep operations up to about 30 km.

The U.S.-led corps is well built to conduct offensive operations deep into the opponent's AO. The ACR, aviation brigade and other intelligence resources will give the corps commander the necessary eyes and ears. The German-led and German-Netherlands corps have only one cavalry squadron and some special forces at corps level to provide these eyes and ears. However, in the organization of the GE/NL corps, there is a brigade available equivalent to the U.S. ACR. The Dutch ACB, part of 1.(NL)Division, could fulfill this essential role at the corps level. It would not handicap the fighting capability of the division, because it has organic four brigades, e.g., three mechanized brigades and the ACB.

Command and Control. The new operational concept asks for a versatile C² structure. This could imply the need for interchangeability of divisions between different corps. This concept seems possible, if it is trained for. Nevertheless, the initial focus on a bi-national structure will help to enhance the effectiveness of these structures in the shorter term. In the longer term, training could focus on exchange with other corps as well.

The operational concept demands quick and rapid C², supported by an highly effective RSTA system. All three corps do have the ingredient for this C² at the divisional level. At corps level, the U.S.-led corps has better RSTA capabilities than the other corps. As a result, cross-unit and cross-nation flow of information will be essential. The concept demands for extensive training to learn each others capabilities and weaknesses. Sharing JSTARS with German and Dutch corps and divisions, in an organizational model like AWACS, would enhance the deep intelligence capabilities and the cohesiveness of the forces. To enhance ground and air space management, the corps need a communication system that allows rapid cross-nation flow of secure voice and digital information. Therefore, interfaces of national communication systems should have the highest priority. To synchronize the battlefield operating systems of all different national units, an enhance communication system is not enough. To be able to comprehend information, one should speak the same language. Common terminology and harmonized doctrine should be developed, taught in staff colleges and units. Training is the only way to identify differences in terminology of doctrine; it is the only way to prepare for crisis and war.

Sustainability. The level of standardization, interoperability, interchangeability will be highest in the German-Netherlands corps. The Germans and Dutch share the same tanks, howitzers, MLRS, EW-system, air defense gun systems, jeeps, and bridges. The Armies decided to work together in some communications projects. In future acquisition, the Dutch Army will further emphasize cooperation with the German Army. This is one of the reasons why a highly integrated logistical model will have all ingredients for success. The Americans and the Germans share less common equipment: howitzers, MLRS, and the ABC reconnaissance vehicle are examples. However, interchangeability of supplies is still possible. Double LOC's to the corps rear area should be prevented, because the theater rear area is already very crowded. To prevent double effort in the theater rear, the national Armies should work on interoperable, mobile stocks, supported by further containerization, and extended use of palletized load

systems. However, to know what the different containers carry, an interoperable logistical C²/allocation system is necessary.

Affordability. This thesis will not consider affordability. This is a task left to politicians. Most likely, the multinational corps structure will be more expensive in the short term. For example, the units need more training, and in the short term it will not be possible to prevent double LOC's. In the longer term the concept will be cheaper. More importantly, by stimulating interoperability in a peacetime environment, our forces will be better capable for multinational operations in crisis and war!

Summary. This section evaluated the effectiveness of the three bi-national corps using the seven measures of effectiveness as developed by Gary L. Guertner. The corps have all the ingredients to become highly effective. They will be able to fulfill all their tactical missions; as a result, they demonstrate a credible deterrence and the political cohesion of the alliance. Not all divisions and corps have the same capabilities. Knowing their capabilities will enable operational planners in the corps staffs and in LANDCENT to employ these units effectively.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

Know your enemy and know your own allies.'
Sun Tzu

*One may support another's course but will never take it so seriously as it takes
its own.*

Carl von Clausewitz

General

This thesis investigated the challenges of three bi-national corps of the MDF, e.g., the U.S.-led U.S./GE Corps, the German-led GE/U.S. Corps and the integrated GE/NL Corps. This chapter will take note of areas where interoperability problems might occur, and it will recommend--give into consideration--solutions for some of these potential weaknesses. Furthermore, this study will identify how the new corps will best fit into the new operational concept.

There is not such a thing as right and wrong, good or bad, in combined operations. Different armies do things differently; however, all the armies reach their own goals and objectives. When making decisions for force development, the leadership of the U.S., German and Netherlands Army were each influenced each by their own cultural and historical heritage. As a result, they have chosen different solutions to ameliorate the effectiveness of their forces. That there are differences in matters like force structure, doctrine, equipment, or training, does not automatically mean that there are interoperability problems. As long as the differences are recognized, understood, and respected, and as long as forces plan for it, train for it, and learn from each other,

the differences might even make combined units more effective than purely national units.

New Environment

In the next decade, the corps of the MDF will have to change in two different ways, each way influencing the other. First, they will have to change from national corps into bi-national corps. Second, they have to adapt and further develop a new, and fundamentally different concept of operations.

The new operational environment demands two types of forces, CRF and MDF. The CRF are tailored for crisis management, inside and outside NATO territory; the MDF--the three corps constitute the bulk of these forces--form the core of the deterrence and defensive capability for the Central Region. A diminishing and less clear threat, and, as a result of this, limited resources, cause to use active units of the corps in a dual role, e.g., as CRF or as MDF. This implicates that CRF units will have multiple employment options in different force structures. The dual role of active MDF, that are also CRF, will prevent the units to focussing only on their mission in Central Europe. They will have to train for all their possible missions, with the most emphasis on the most likely ones. The concept demands versatility of the units. The new concept of operations for the Central Region is based on economy of force and the use of operational level reserves. This concept emphasizes increased mobility, versatility (flexibility), effective C², RSTA and a new enhanced form of sustainability.

Combined Corps: a Feasible Concept.

History teaches us that fighting with multi-national corps is a feasible concept, if planned, trained and organized for interoperability. Ad hoc combined corps, with limited preparation time before a conflict, will increase the risk for success.

Fighting with bi-national and multi-national units is not only a feasible concept, it is an essential concept for the future. It is the only way to create sufficient interoperability between the forces of allies, that will fight in future combined operations, in alliances and in more ad hoc coalitions. Furthermore, decreasing resources demand more cooperation and interoperability, because no country will be able to make peace in the world alone. The peacetime environment in the Central Region will help to create interoperability between some of the major contributors to future crisis management.

Areas of Concern for Interoperability.

Interoperability problems might occur at the strategic, operational and tactical level.

Strategic Areas of Concern are the goals and objectives of the different national components, structure and culture of organization, doctrine, equipment, and training.

Goals and Objectives. The goals and objectives of the different national forces, that contribute to the MDF, are principally the same. However, some emphasis is different. All three nations identify the need for the corps to provide an adequate core of force on which to build necessary warfighting capability; to contribute to the strategy of deterrence and the promotion of peace; and to permit timely reinforcement of Europe should there be a reemergence of a significant threat. All three nations also recognize that some or all of the active units will have to fight in a dual role, e.g., as MDF and CRF. This dual role employment could hamper the effectiveness of combined operations for the MDF mission, because the emphasis of training for dual role units will be on the more likely CRF mission, that might be significantly different as the MDF mission.

The different composition of national CRF units in the bi-national corps and their limited availability for combined, mission-oriented MDF training is a challenge for the corps to manage.

Structure of Organization. The new operational concept for the Central Region demands versatility. Organizational flexibility is an important condition for versatility. Organizational flexibility means that the corps commander can tailor the missions, AOs, and maneuver and supporting forces to optimally conduct his operations.

The U.S. and, conversely, German and Netherlands concepts of structuring the forces are fundamentally different. In the U.S. corps--not a fixed organization--the core of supporting forces, CS and CSS, are organized at corps level. As a result, the divisions are lean. The corps commander will support each division with a corps slice, that will be different for each mission.

The German and Dutch concept emphasize more the independence of divisions and brigades, and a firmer relationship between maneuver and supporting units. Divisions have their own CS and CSS capabilities. As a result, there is hardly any CS organized at corps level, and a significant smaller part of the CSS troops than in a U.S. corps. The German and Dutch corps are less flexible, because the corps commander cannot tailor the maneuver forces with CS. However, the independence of the units make them versatile; they can easily shift to another command structure or conduct independent tasks. Equal organizational concepts will make it easier to train the bi-national German-Dutch corps.

By cross-assigning a division (with corps slice) to the German corps, the U.S. corps surrenders part of its organizational flexibility. As a result of different organizational concepts, the German-U.S./U.S.-German corps will need more training to identify

the interoperability problems and to learn and appreciate the differences of operational concepts.

Culture of Organization. Different cultures in the national forces of the corps might result in different expectations and in misunderstandings. Awareness and sensitivity toward these cultural differences is essential for long lasting effectiveness of the bi-national corps. German and Dutch forces have cultures that are closer than the cultures of German and U.S. forces. Consequently, the former will have fewer obstacles to interoperability. To better understand each other, all three corps will exchange personnel already in peacetime. Training, however, is for all combined units the essential tool to learn, to understand, and to appreciate each others cultural peculiarities.

Doctrine. Harmonized doctrine throughout NATO is the ideal aim. It is not necessary that maneuver doctrine of the different nations is equal. Moreover, one should not attempt to create equal doctrine, because this would neglect the cultural differences of the nations. The lower level the integration of forces, the more need there is for more equal maneuver doctrine. Harmonized maneuver doctrine means that forces create, through doctrine, interoperable interfaces between maneuver units of different nations, as well as between maneuver units, their supporting units, and their higher headquarters. An updated ATP-35(A), Land Force Tactical Doctrine² would help to harmonize the doctrine of the three nations.

CS needs more equality of doctrine. The doctrine of all three nations identifies, that CS capacity will not be held in reserve. CS of units that are operational reserves and CS organized at corps level should support any forward division, if necessary. Therefore, in all the corps, there is need for cross-nation CS capability. Cross-nation CS results in the necessity of CS units to operate under control of the other nations CS C² system. Common techniques and procedures are essential. Technical limitations,

like communications, might hamper the ability of cross-nation support as least in the short term.

There is a tendency in the plans for the bi-national corps to surrender to the idea that logistics is a national responsibility. As long as the interoperability of equipment does not allow fully integrated logistic support, planners should seek for commonalities, more than for differences. The commonalities allow cross-nation logistic support, that is essential to streamline multi-national efforts toward focused combat power. More interoperable equipment, and more interchangeable combat supplies will help to make the bi-national corps more effective. However, common logistical procedures will allow quick and more active than reactive CSS.

A last major doctrinal concern is the lack of common terminology in the bi-national corps. All nations should actively respect NATO's operational terms, definitions and symbols. Where necessary, AAP-6, NATO Glossary of Terms and Definitions should be updated. Because only a few of the U.S. forces work in peacetime in the NATO AO, the U.S. forces use many non-NATO terms and definitions. However, a common understanding between all the forces of NATO countries is essential. This will help alliance warfare in NATO's AO, as well as coalition warfare outside NATO territory.

Equipment. More interoperability of equipment will help to create more efficient logistics in the corps. Interoperability has different levels. At least, the supplies for the same types of equipment must be interchangeable. As much as possible, weapon systems must be capable of firing each others ammunition, and using each others fuel. A second level of interoperability is the interchangeability of major components and spare parts. A third level is equality of equipment. The last would be the most efficient, because now CSS units can supply and maintain cross-nation. The level of interoperability between the German and Dutch forces is higher than between the

U.S. and German forces. It is also more likely to increase cooperative acquisition between the European couple, because the economies and defense industries of these countries are closer related.

Creating more interoperability of equipment starts with common operational concepts for the future. Army staffs should work closely together to create more common conceptual plans, initially on a bilateral basis.³ As a result, the requirements for new equipment will be more equal, which will enable industry of different nations to work together more closely.

Training. Multi-national units require more training than national units. The lower the level of integration of forces, the more field training is required. Sufficient mission oriented training is essential to overcome the lack of interoperability. The corps commander should be able to influence the training program of units that will be assigned to him after TOA, so that combined training could be executed under his guidance; furthermore, he should be able to set training standards, to assure sufficient excellence of the forces he will command after TOA.

CS units, e.g., artillery, air-defense, and engineers, from different nations should permanently be acquainted with their tasks in a multi-national environment. Only by training together sufficiently, they will be prepared to support cross-nation. Besides, CSS units should also fulfill cross-nation support tasks whenever possible to learn to understand the problems of interoperability and to help to evolve common logistical procedures. CSS units should start to make cross-nation logistic support work in a bi-national environment, and later shift to supporting the forces of more nations.

In general, training of corps of the MDF should initially focus on the bi-national relationship in the corps. Training of CRF should focus on the employment options of different CRF units, concerning the force structure in which a CRF will fight and concerning different AOs. The intensity of training should be related to the assumed

probability of these employment options. When the basic interoperability problems are recognized and solved through this training, the combined units should train for more versatility. Training with troops of other nations, training with combined forces at lower level and training in different areas of operation, will make the forces ready for operations in an uncertain world.

Because some corps units will have both roles, CRF and MDF, the corps should coordinate conflicting requirements for these tasks. However, before TOA there is only an advising role for the corps toward foreign units. The personality of the commander, and frequent visits to the other national units and staffs might be necessary to influence the training of the corps sufficiently.

Training should not only be limited to unit training and exercises. Increased exchange of students to foreign staff colleges, cooperation of staff colleges in conducting (simulation) exercises, operational symposia, publishing articles in each others military magazines, the use of the English language in military magazines, all will help to create a more international, interdependent and more effective operational environment.

As a result of priority in training for CRF and the large percentage of reserve forces in the corps of the MDF, and the fact that peacetime training of the corps increasingly relies on CPX, the corps will not be able to train sufficiently in peacetime. Allowed by the increased reaction times, the corps will rely on further preparation during times of growing threat and during CRF operations. The corps should, of course, train as much as possible and as effectively as possible during peacetime. Furthermore, they should prepare for additional combined training during evolving crisis. To increase the effectiveness of training in peace, crisis and war, a multinational lessons learned system would be of great help. Such a system would help troops to learn from the faults of own troops and of troops of other nations made

during their training. A model of such a lessons learned system, that could be used throughout NATO, is the system of Center for Army Lessons Learned of the U.S. Army.⁴

Operational Capabilities and Areas of Concern. The bi-national corps will well demonstrate the cohesiveness of the Alliance. All the corps will be capable of executing their basic missions in the new operational concept, as guard or covering force, as defending force, or as counter-attacking force. However, the corps will have different characteristics. For example, the U.S.-led corps will have extended deep operations capability; and the German-led and German-Netherlands corps will have a capability to put brigade-size airborne and airmobile units on the ground to prevent enemy breakthrough. By creating bi-national corps, the units gain versatility through optimal use of the different characteristics of the divisions and corps troops. The lethality and tactical mobility of all the divisions involved is excellent and will support corps operations well. Other areas, like operational mobility or operational protection, demand more attention.

Flexibility is essential in uncertain operational environments. Flexibility means that the corps structure should not be rigid. The LANDCENT commander should be able to shift divisions assigned to him from one corps to the other. This is well possible with the more independent German and Dutch divisions, but also with the U.S. divisions, when a corps slice is added.

A concern is the lack of sufficient CS at the corps level in the German-led and German-Netherlands Corps. As a result, there is few CS, especially engineer support, available for operations in the corps rear area; furthermore, the corps commander lacks the ability to weigh his main effort with CS. There are sufficient CS troops available within the divisions that could be shifted to the corps level, to increase flexibility.

Lastly, flexibility, or better, versatility of a unit is not unlimited. A unit should not have to many employment options where it has to train for. The German Army allows a unit only to operate in two different organizations, as (part of) CRF or as part of MDF. The Dutch plan for multiple employment options for their airmobile brigade. On the other hand, they did not (yet) identify CRF employment options for the mechanized brigade or the ACB. Both might prevent the brigade commanders to focussing their training effort. For example, a mechanized brigade could well be employed in the 7.(GE) Panzer Division, one of the divisions that could be employed in the ARRC.

Mobility. Strategic mobility is a concern for all CRF units. For the Main Defense Corps the problem will be operational mobility. The new operational environment demands long, multi-directional movements with large units throughout the AO. In Europe, long distance movements will always have a multi-national character and need coordination with different host nations. This will be a challenge for movement control, for supporting railway, airway, waterway and motorway operators, as well as for logistical and engineer units. The main problem might not be the movement of the units themselves, but the movement of their logistics and stocks. Further containerization and extended use of palletized loading systems (PLS) could help to solve mobility problems.

Training for mobility will be difficult in Europe, because the intensity of the civilian traffic. Long movements of units to training areas all over Europe could help to maintain and to further build the proficiency of moving the force.

Command and Control. The new operational concept demands a versatile C² structure that is quick and rapid. It must be supported by a highly effective RSTA system and enhanced ground and air space management. At division level and below, all three corps have excellent capabilities. However, technical and procedural interoperability should be enhanced to let divisions operate besides each other effectively.⁵

At corps level, only the U.S.-led corps has sufficient RSTA capabilities to conduct deep operations, quick and deep maneuvers and to anticipate future operations well in advance. Sharing intelligence will be critical and has to be trained in peacetime. The German-Netherlands Corps could gain deep RSTA capability by organizing the Dutch ACB as a real cavalry brigade at corps level. Furthermore, joining the JSTARS program would enhance the RSTA capabilities of German and Dutch units.

Sustainability. To create efficient logistical operations, double LOCs to the rear areas of the corps should be prevented as much as possible. The high level of standardization, interoperability and interchangeability between German and Dutch forces will allow a large percentage of mutual support. Between German and U.S. forces, this percentage will be lower. Common logistical procedures and a multi-nationally coordinated logistical C² system, for example consisting of a type of combined logistics board at theater level should be further developed to prevent double effort.

Tactical Capabilities and Areas of Concern.

The divisions of all three nations will be capable of executing all operational tasks within the new concept of operational level defense. However, different characteristics of the divisions will give them different capabilities. This different characteristics of divisions will give corps planners a tool for creative tactical planning.

mission	U.S.	German	Netherlands
guard/cover	+	++	++
delay	++	+	++
area defense	+	++	+
mobile defense	++	+	++
urban/wooded ops	+	++	+
attack/counter atk	++	+	+

- Table 6: capabilities national heavy divisions -

Enhanced technical systems, new coordinated procedures and training, will help to solve the following tactical C² concerns. Different input and output in the command estimate processes of the three nations will increase the need for training together. Training staffs in peacetime with the use of multi-national intelligence sources is essential to create an effective corps. There is an increased need for interfaces of communication systems. First priority must have the secure voice and digital data communication systems. Furthermore, interface between the fire support C² systems, and interface between A²C² systems should be established. These technical interfaces should be rather multi than bi-national to allow more flexibility. Multi-national training of EW units is essential to avoid electronical fratricide.

Epilogue. Creating the bi-national, and multi-national units is an essential process, but not an easy one. The process will take a major effort for everyone involved in order for it to work. However, it is the only way to create an effective alliance/coalition force for future operations. The combined corps in Europe will create interoperability through interdependence; a phenomenon NATO has not been able to achieve over the past 40 years!

ENDNOTES

Endnotes to Chapter I.

¹ John Hixson and Benjamin Cooling, Combined Operations in Peace and War (Carlisle Barracks: U.S. Army Military History Institute, 1982), 349.

² "London Declaration on a Transformed North Atlantic Alliance", NATO Review, (Brussels: Office of Information and Press, August 1991), 32 - 33.

³ These developments included the collapse of the expansive communist movement, the end of the Soviet domination of Central and Eastern Europe, the democratic revolution in these countries, the dissolution of the Warsaw Pact, and the reunification of Germany. Klaus Wittmann, "Das Bündnis wandelt sich", Truppenpraxis, 1/92, 10.

⁴ "London Declaration on a Transformed North Atlantic Alliance", NATO Review, No 4, August 1990: 33.

⁵ General Galvin, then Supreme Allied Commander Europe (SACEUR), identified four basic risks. First, a large military arsenal in former Soviet countries. Second, an unstable situation stemming from severe political, economical and social problems in the countries of Central and Eastern Europe. Third, a mixture of problems and instability in the Middle East and North Africa, where some countries possess weapons of mass destruction and ballistic missiles. And fourth, the threat of sabotage and terrorism to Europe's vulnerable air and sea lines of communication, which are necessary for their access to raw materials and its economic strength. General John R. Galvin, "From immediate defence towards long-term stability", NATO Review No 6, December 1991: 15.

⁶ "The Alliance's New Strategic Concept", NATO Review, (Brussels: NATO Office of Information and Press, December 1991), 25 - 32.

⁷ Examples of cooperative structures are the Conference on Security and Cooperation in Europe (CSCE), and the North Atlantic Cooperation Council (NACC).

⁸ "The Alliance New Strategic Concept", NATO Review: 31.

⁹ *Ibid.*, 32.

¹⁰ Col. Dierk Weissleder, GE AF, "NATO's Future Force Structures - Main Defence and Augmentation Forces", NATO's Sixteen Nations, December 1991: 21.

¹¹ NATO's Defense Planning Committee (DPC) concluded during the meeting last December, that a number of national force reductions will have an effect on the future size and capabilities of the MDF. The DPC announced a review of the implications of changing force levels for the new force structure. (NATO Review, December 1992: 33.)

¹² The original plans identified six multinational corps. Unfortunately, the Dutch Army will not create a Dutch-led corps, but will contribute to a combined German-Dutch corps with a division and corps-troops. A Belgium-led tri-national corps with brigades from Belgium, Germany and the US will most likely not be created. The Delcroix Plan, in which the new Belgium force structure is announced (January 29, 1993), does not identify a corps or division staff.

¹³ Willebrord Nieuwenhuis, "[Dutch] Leger gaat nauw samen met Duitsers (Army will work together closely with Germans)", NRC Handelsblad, 19 November 1992.

¹⁴ Other corps in the central region are the ACE Rapid Reaction Corps (ARRC) and the German III Korps, stationed in the Neue Länder (former German Democratic Republic). The former belongs to the category of reaction forces; the latter is, as a result of the four-plus-two treaty, not under NATO command.

¹⁵ "The Alliance New Strategic Concept", NATO Review: 32.

¹⁶ Col. Roy M. Wilde, "Multinational Forces - Integration for National Security", NATO's Sixteen Nations, December 1991: 26.

¹⁷ General H. Hansen, Inspekteur des Heeres, Briefing to Kommandeurs Tagung Heer, Die Rolle des Heeres im Wandel, 20 Aug 1992, 13.

¹⁸ Ibid., 14.

¹⁹ Lt Col Dierk Weissleder, GE AF, "NATO's Future Force Structures - Main Defence and Augmentation Forces", NATO's Sixteen Nations, December 1991: 22.

²⁰ AAP-6. NATO Glossary of Terms and Definitions, (Brussels: NATO, Military Agency for Standardization, 1988), 2-C-6.

²¹ Ibid., 2-I-6.

Endnotes to Chapter II

¹ FM 100-5, Operations (draft), (Washington, D.C.: HQ, Department of the Army, 21 August 1992), 14-1.

² D/HQDT/18/35/97, Operation Granby. An Account of the Gulf Crisis 1990-91 and the British Army's Contribution to the Liberation of Kuwait, (London: Ministry of Defence, Inspector General Doctrine and Training, 1991), C-1.

³ HDv 100/100 VS-NfD, Truppenführung (Command and Control of Armed Forces), (Bonn: Führungsstab des Heeres, 7 September 1987). This Army Regulation is the German equivalent of the US FM 100-5, Operations.

⁴ Ibid., 2-2. According to NATO definitions, 'joint' (action of more Armed Services) is used wrong. In stead 'combined' (more than one country) should have been used.

⁵ VS 2-1386, Gevechtshandleiding, (Den Haag: Landmachtstaf, 1988), 1-4. This field manual is the equivalent of FM 100-5, Operations.

⁶ ATP 35(A), Land Force Tactical Doctrine (NATO unclassified), (Brussels: North Atlantic Treaty Organization, Military Agency for Standardization, March 1984).

⁷ Ibid., 1-3.

⁸ FM 100-5, Operations, (Washington, D.C.: HQ Department of the Army, 1992), 164-168.

⁹ JCS PUB 3-0 Doctrine for Unified and Joint Operations (Test Pub), (Washington, D.C.: Joint Chiefs of Staff, January 1990), chapter IV, "Combined Operations in Peace and War", IV-1 - IV-9.

¹⁰ FM 100-5, Operations (final draft), (Washington, D.C.: HQ Department of the Army, 1992), chapter 6, 6-1.

¹¹ FM 100-8 Combined Army Operations (preliminary draft), (Ft Monroe: Cdr TRADOC, 29 January 1992)

¹² Similar in culture, doctrine, training, and equipment.

¹³ Within NATO there are agreements to exchange intelligence information between countries.

¹⁴ Problems like differences in logistical doctrine, stockage levels, logistics mobility interoperability, infrastructure and national resource limitations.

¹⁶ FM 100-8, Combined Army Operations, (preliminary draft), (Ft Monroe: HQ TRADOC, 29 January 1992).

¹⁸ John Hixson, Ltc US Army, and Dr. Benjamin Franklin Cooling, Combined Operations in Peace and War, (Carlisle Barracks: U.S. Army Military History Institute, revised edition 1982).

¹⁷ Ibid., 365.

¹⁸ General Jacob L. Devers, Commanding General, Army Ground Forces, "Major Problems Confronting a Theater Commander in Combined Operations", Military Review, October 1947: 3 - 15.

¹⁹ William J. Mullen III, Brigadier General US Army, and George A. Higgins, Ltc US Army, "Four Pillars of Interoperability", Military Review, Januari 1992: 46 - 53.

²⁰ In chapter VI, we will identify whether the structures of the US, German and Dutch forces are compatible enough.

²¹ Major General Waldo D. Freeman, US Army, Commander Randall J. Hess, and Lieutenant Colonel Manuel Faria, Portuguese Army, "The Challenges of Combined Operations", Military Review, November 1992: 2 - 11.

²² Ibid., 6.

²³ Richard Seitz, Colonel, US Army Fellow Center for International Affairs Harvard University, NATO's New Troops: Overcoming Obstacles to Multinational Ground Forces, (Carlisle Barracks: Strategic Studies Institute, July 1992).

²⁴ Ibid, 30.

²⁵ This thesis will go into more detail. In the analysis, the thesis will investigate, what the differences in capabilities of the divisions are, and whether this jeopardizes interoperable operations.

Endnotes to Chapter III

¹ The original MoU focused on the cross-assignment of a division between the German and Dutch corps. Because the Dutch will not have their own Corps any more, they will contribute to a integrated German-Dutch Corps. This is a fundamentally different approach toward multi-nationality in the corps.

Endnotes to Chapter IV

¹ George Blanchard, General US Army, Army Magazine, January 1979.

² Alex Bürgener, Colonel German Army, and Norbert Stier, Lieutenant Colonel German Army, "Operations 2000. Future Employment of the German Army," Military Review (July 1991): 40.

³ Thomas-Durell Young and William T. Johnson, Reforming NATO's Command and Control Structures: Progress and Problems, SSI Special Report (Carlisle Barracks: US Army War College, 1992), 5.

⁴ As well the US, Germany as the Netherlands have already identified this requirement. The US wants to have 'a capable [V] Corps' in Europe, among others to support out-of-area contingencies (Department of Defense, Defense Strategy for the 1990s: The Regional Defense Strategy, January 1993); Germany identified, among other troops, two armored Divisions, with in total three active and one partly active mechanized brigades for crisis management (Volker Rühle, "Entscheidungen zur Zukunft der Bundeswehr," Soldat und Technik, January 1993: 14); the Netherlands want to be capable to support an out-of-area contingency in a coalition with a mechanized or a reconnaissance brigade (Ministry of Defense, Defense Priorities Review, January 1993).

⁵ Prioriteitennota: een andere wereld; een andere Defensie (Defense Priorities Review; An Other World; an Other Defense) (Den Haag: Ministerie van Defensie (Ministry of Defense), 12 January 1993), 8-10.

⁶ William T. Johnson and Thomas-Durell Young, Defining US Forward Presence in Europe: Getting Past the Numbers, SSI study (Carlisle Barracks: US Army War College, 1992), 4.

⁷ Gary L. Guenter, "NATO Strategy in a New World Order," Alternative Defense Postures in the European Theater, Volume 2: The Impact of Political Change on Strategy, Technology, and Arms Control, H.G.Brauch and R. Kennedy, ed. (New York: Crane Russak, 1992), 115.

⁸ The overall quality of an opponent would not reach the level of technical quality--integrated high-tech weapons and operational mobility to strike anywhere on the battlefield--Western/NATO Armies have. However, through proliferation of conventional arms, the technical quality of individual weapon systems can be equal.

⁹ As a result of the CFE treaty, NATO forces and former Warsaw Pact forces will have an equal strength in numbers. The, over all, higher technical quality of NATO forces provides an other element for deterrence.

¹⁰ Alex Bürgener, Oberst i.G., "Operationsführung 2000; Gedanken zum künftigen Einsatz des Heeres," Soldat und Technik, 4/1990: 233-234.

¹¹ This term is introduced by the German Army: Krisenreaktionkräfte. The term very well identifies the distinction between units tasked for the traditional role as defender of the Central Region and units, possibly the same, tasked for the new role, to be executed as well in as out-of-area.

¹² This extension of the AFCENT territory is a result of the reforming of NATO's Command and Control Structures. Denmark is transferred from AFNORTH to AFCENT; Under the provisions of the 2 + 4 Treaty, the territory of the previous German Democratic Republic must remain outside of NATO command structures until 1995. For planning purposes, however, this thesis identifies it as part of the AFCENT area of operations. An interesting discussion about the changes in NATO's C2 structures is published in: Thomas-Durell Young and William T. Johnson, Reforming NATO's Command and Operational Control Structures: Progress and Problems, SSI Special Report (Carlisle Barracks: US Army War College, 1992).

¹³ A thorough analysis of the terrain in the new area of operation in the Central Region is published in: William T. Johnson and Thomas-Durell Young, Planning Considerations for a Future Operational Campaign in NATO's Central Region, SSI Report (Carlisle Barracks: US Army War College, 1992), 14-18.

¹⁴ Thomas-Durell Young and William T. Johnson, Reforming NATO's Command and Operational Control Structures: Progress and Problems, 11.

¹⁵ "Defense Planning Committee Communique, 10-11th December 1992, Brussels," NATO's Review, December 1992: 33.

¹⁶ Ibid., 33.

¹⁷ Michael Mecham, "NATO's New Strategy Stresses Mobility for Crises Management," Aviation Week and Space Technology. June 3, 1991: 23.

¹⁸ Gary L. Guertner, 117.

¹⁹ Monika Wohlfeld, Poland's Draft Defence Doctrine, Paper adopted by Special Adviser for Central and Eastern European Affairs. (Washington, D.C.: Department of Defense, Dec 1992), 2.

²⁰ William T. Johnson and Thomas-Durell Young, Planning Considerations for a Future Operational Campaign in NATO's Central Region, SSI study (Carlisle Barracks: US Army War College, 1992), Oberst i.G. Alex Bürgener has also published extensively about the concept of concentration defense; see bibliography.

²¹ FM 100-5, Operations (final draft), (Washington, D.C.: January 1993), p. 2-16.

²² William G. Pagonis, LTG US Army, and Harold E. Raugh Jr., Maj US Army, "Good Logistics is Combat Power; The Logistic Sustainment of Operations Desert Storm," Military Review, September 1991: 35.

²³ Interview with Dutch Deputy Minister of Defense, Mr B.J. baron van Voorst tot Voorst, "Investeren in Kwaliteit (Invest in Quality)," Defensiekrant, (equivalent of Army Times), January 12, 1993.

²⁴ In the new manual, the terms Airland Operations, or Airland Battle are no longer used. The manual concludes that any future operation will be an joint operation, where Army, Airforce, NAVY and Marines are integrated. Therefore, it is useless to qualify these operations with the term "airland," because this would suggest, that there are operations that are not "airland."

²⁵ Gary L. Guertner, p. 113.

²⁶ See: Alex Bürgener, "Operationsführung 2000."

²⁷ Ibid., 115.

²⁸ Charles A. Homer, LTG US Air Force, "The Air Campaign," Military Review, September 1991: 27.

²⁹ William T. Johnson and Thomas-Durell Young, Planning Considerations, 19.

³⁰ William T. Johnson and Thomas-Durell Young, Planning considerations, 31.

³¹ Mark K. Wells, LTC, US Air Force, "Multinational Command: Lessons from Waterloo," Military Review, July 1991: 73.

³² Hixson and Cooling, 197.

³³ Ibid., 267-268.

³⁴ Seitz, 2-3.

³⁵ Ralf Koch, Manfred Rosenberger, Jörgen Poesze, "Multinationalität von Streitkräften," TRUPPENPRAXIS, 2/1991: 116-120.

³⁶ Only having liaison officers during exercises and in wartime, "quid pro quo", may not meet the intent of the London Declaration.

³⁷ This concept is stated in the LANDJUT study; in Seitz' study; and in the AFCENT study on multinational forces.

³⁸ For example: HQ Allied Land Forces Schleswig Holstein and Jutland, Study on Command, Control and Exploitation of NATO-integrated Forces (Rendsburg: LANDJUT, July 1990), 3.

³⁹ Franks and Carver, 31.

⁴⁰ The Central Region Multinational Land Forces Study (NATO CONFIDENTIAL), identifies two options for the structure of the bi-national corps. In option 1, the majority of CS/CSS is provided by the nation providing the bulk of the forces, but assisted by the other nation where necessary. In option 2, the study introduces the role specialization model. The study does not identify a fully integrated model as the LANDJUT model. Interestingly enough, in both models, the study identifies the necessity of a Corps headquarters manned by personnel from both nations. AFCENT, The Central Region Multinational Land Forces Study (Brunssum, February 1991), ANNEX B, DEFINITIONS (NATO UNCLASSIFIED), B-1.

⁴¹ HQ Allied Land Forces Schleswig Holstein and Jutland, Study on Command, Control, and Exploitation of NATO-integrated Forces. (NATO RESTRICTED)

⁴² An evaluation of the multilateral relation and the resulting challenges in VII Corps is published in: Frederick M. Franks, LTG, US Army and Alan T. Carver, Major, US Army, "Building a NATO Corps," Military Review, July 1991: 26-38.

⁴³ Defense Strategy for the 1990s: The Regional Defense Strategy, Secretary of Defense, Dick Cheney (Washington, D.C.: Department of Defense, January 1993), 19.

⁴⁴ This was a major argument of the Dutch Secretary of Defense, Ter Beek, to shift from a lead nation model to an integrated model with Germany. "Nederland en Duitsland zetten één gezamenlijk legerkorps op (The Netherlands and Germany build a combined Corps)," Volkskrant, 20 November 1992.

⁴⁵ TRADOC Pamphlet 11-9, Blueprint of the Battlefield. (Ft Monroe, VA, 10 May 1991)

⁴⁶ Crosbie E. Saint, General, US Army, "A CINC's View of Operational Art," Military Review, September 1990: 74.

⁴⁷ Dennis Cox, LTC, US Army, Coalition Interoperability during operation Desert Shield/Desert Storm, a briefing of Center for Army Lessons Learned (Ft Leavenworth, CALL, 1992), 23.

⁴⁸ Hixson and Cooling, 361.

⁴⁹ Karl-Heinz Dissberger, Torsten Verhülsdonk, "Schnelle Eingreiftruppen; Fragen und Antworten (Crisis Reaction Forces: Questions and Answers)," interview with Major General von Kielmannsegg, BARETT, 3/1992, 15.

⁵⁰ CALL-briefing, 33 - 34.

⁵¹ LANDCENT study, 13.

⁵² P.A.J. Cordingley, DSO, Brigadier, Royal Army UK, "The Gulf War: Operating with Allies," The RUSI Journal, April 1992, Volume 137, No. 2: 17.

⁵³ Nikolaus Schmeja, Oberst i.G., German Army, "Mehrfamilienhaus; Am Beispiel LANDJUT: Multinationale Korps--Anspruch und Wirklichkeit (A House for many families; about the example LANDJUT: Multinational Corps--Request and Reality)," Truppenpraxis, 4/1992: 361.

⁵⁴ FM 6-20-2, Division Artillery, Field Artillery Brigade, and Field Artillery Section (Corps) (Washington, D.C.: HQ DOD, 1980), 9-2.

⁵⁵ CALL briefing, 35.

⁵⁶ The British added the satellite navigation system to their tanks and Warrior infantry fighting vehicles. Cordingley, 19.

⁵⁷ Saint, 74.

⁵⁸ CALL briefing, 44.

⁵⁹ Hixson and Cooling, 355.

⁶⁰ Smith provided HQ VII Corps with staff officers in their G2, G3, G4, Army and Air Cells. The officers reported to their American Chiefs and not to Smith.

⁶¹ Peter Messner, "Europa-Armee. Die Deutsch-Französische Brigade--ein Vorbild für zukünftige internationale Verbände? (European Army. The German-French Brigade--an example for future international units?)," Wehrausbildung, 1/1992: 52.

⁶² Rupert Smith, Major General, Royal Army UK, "The Gulf War: The Land Battle," RUSI Journal, Februari 1992, Volume 137, No.1: 4.

⁶³ CALL briefing, 36.

⁶⁴ TRADOC Combined Arms Assessment Team (CAAT) REFORGER 1992, Initial Impressions Report (Ft Leavenworth, CAC, 16 October 1992), pt. 3.b.(4)(b).

⁶⁵ Franks and Carver, 35.

⁶⁶ LANDCENT report, 25.

⁶⁷ Rupert Smith, MG, Royal Army UK, 1.

⁶⁸ Brigadier Richard Oliver Obe, Deputy Chief of Staff,, G1/G4, HQ Allied Command Europe Rapid Reaction Corps (ARRC), "Logistic Support for the ARRC," RUSI Journal, December 1992, Volume 137, No. 6: 45.

⁶⁹ Ibid., 48.

⁷⁰ Antonio Milani, Lieutenant General, Deputy Chief of Staff, Support, SHAPE, "Future Support of Multinational Forces", NATO's Sixteen Nations, 2/1992: 45 - 48.

Endnotes to Chapter V

¹ Taken from: Training briefing major v.d. Haar of NL/GE Sub-Workinggroup "Training and Exercises" of 21 January 1992.

² Secretary Cheney, Defense Strategy for the 1990s: The Regional Defense Strategy (Washington, D.C.: DOD, January 1993), 20.

³ William T. Johnson and Thomas-Durell Young, Defining US Forward Presence in Europe: Getting Past the Numbers (Carlisle Barracks: Strategic Studies Institute, July 1992), 16.

⁴ Don M. Snider, Residual US Military Forces in Europe, Land Warfare Paper No. 11 (Arlington, VA: The Institute of Land Warfare, August 1992), 17.

⁵ Ibid., 16.

⁶ The Regional Strategy, 20.

⁷ Johnson, Young, Defining US Forward Presence, 18.

⁸ Sources used:

* FB030, Fundamentals of Tactical Operations (Ft Leavenworth: USACGSC, December 1991;

* C320, Corps and Division Operations (Ft Leavenworth: USACGSC, September 1992; the Troop List of 10th(US)Corps, appendix 1 to Advance Sheet, Lesson 5 is used for structuring Division and Corps troops.

* Student Text 101-1, Organizational and Tactical Reference Data for the Army in the Field (Ft Leavenworth: USACGSC, June 1989;

* Student Text 101-3, Selected Tables of Organization, (Ft Leavenworth: USA-CGSC, June 1989);

* Structure and Organization of Divisions and Engineer Units (Ft Leonard Wood: USA Engr School, July 1992).

⁹ FM 100-5, Operations (final draft), 5-1 to 5-4.

¹⁰ FM 100-5, Operations, chapter 10.

¹¹ FM 100-5, Operations, chapter 12.

¹² Corps Deep Operations Handbook. Tactics, Techniques and Procedures (Washington, D.C.: DOD, April 1990), 1-5.

¹³ Battle Book Center of Army Tactics (Ft Leavenworth: USACGCS, April 1992), 5-1 - 5-5.

¹⁴ Heinz Schulte, "Rühe cuts more from Germany's budget," Jane's Defense Weekly, 13 February 1993: 7.

¹⁵ Unterrichtung über die Ergebnisse der Planungskonferenz am 15. Dezember 1992 (Briefing about the Results of the Planning Conference of December 15, 1992), (Bundesministerium der Verteidigung, December 1992), 2.

¹⁶ Momentarily, the Constitution of Germany does not allow out-of-area deployment of forces. However, the subject is one, high on the political agenda of Bundeskanzler Kohl. Therefore, we can expect, that German forces will be able to deploy out-of-area shortly. The integration of German forces in multinational Crisis Reaction Forces support rapid change of the restrictions in Germany.

¹⁷ Planungshandbuch Heeresstruktur 5 (Planning Manual Army Structure 5), (Bonn: Department of Defense, 15 July 1991), 9.

¹⁸ Schulte, 7.

¹⁹ Ibid., 7.

²⁰ Sources used:

* Planungshandbuch Heeresstruktur 5 (Planning Manual Army Structure 5) (Bonn: Bundesministerium der Verteidigung, July 1991);

* Unterrichtung über die Ergebnisse der Planungskonferenz am 15. Dezember 1992 (Briefing about the Planning Conference of December 15, 1992) (Bonn: Bundesministerium der Verteidigung, December 1992).

²¹ HDv 100/100 VS-NfD, Truppenführung (Command and Control of Armed Forces), 2-2.

²² My underlining.

²³ My underlining.

²⁴ Ibid., several pages.

²⁵ Peter Streubel, Oberst i.G. and Peter Haeffner, OTL Dipl-Phys., "Der Aufklärungsverband im Heer (The STAR system of the Army)," Soldat und Technik 8/1992: 524-531.

²⁶ Peter Streubel, Oberst i.G., Gerhard Langrehr, OTL i.G., Klaus Buch, OTL, "Die Verbesserung der Führungsfähigkeit des Heeres mit modernen Führungsmitteln (The amelioration of the C2 of the Army with modern C2 systems), Soldat und Technik, 9/1992: 609-618.

²⁷ Defense White Paper, The Netherlands armed forces in a changing world (abridged version) (The Hague: Ministry of Defense, March 1991), 18.

²⁸ Defense Priorities Review: an other World, an other Defense (abridged version) (The Hague: Ministry of Defense, January 1993), 2.

²⁹ This brigade is about the most heavy brigade of the Dutch armed forces. It has four heavy battalions, e.g. a cavalry squadron, two mechanized infantry and one tank battalion. A better name would be a 'armored cavalry brigade (ACB)'. The mission of the brigade is comparable with the ACR.

³⁰ The brigade will after 1994 consist of a growing number of transport and attack helicopters. In 2000 13 Chinooks, 17 medium transport helicopters and 40 attack helicopters will be fielded. The Dutch army calls is a airmobile brigade; however, its task are air assault operations.

³¹ Sources used:

- * Defense White Paper 1991 (abridged version)
- * Defense Priorities Review (abridged version)
- * Prioriteiten Nota (Defense Priorities Review) (The Hague: Ministry of Defense, January 1993)
- * Internal Memorandum Dutch Army Staff nr 90/0040, January 12, 1993 (unclassified)

³² Gevechtshandleiding (Field Manual Operations), I-2 and I-3.

³³ My underlining.

³⁴ Ibid., Parts IV, V, and VI.

³⁵ The sources used for this section are internal memoranda of the German and Dutch army staff, as well as the draft Memoranda of Understanding between the USA and Germany, as well as between Germany and the Netherlands concerning the establishing of the bi-national Corps. Some of these documents were classified; however, only that information was used that was confirmed in unclassified sources.

³⁶ Some of these ideas are the result of German-Dutch negotiations for the German-led and Dutch-led Corps. Others are tentative concepts developed by the Dutch Army staff. The ideas present not more than the direction in which the concept of the integrated corps will develop. Nevertheless, we can compare these ideas with the framework of reference.

Endnotes to Chapter VI

¹ Statement during interview with two officers of Combined Doctrine Directorate, ADCSCD, HQ TRADOC, October 4, 1991.

² NATO still does not allow her forces to operate out-of-area, which means out of the NATO treaty territory. This could, however, change for peacekeeping/peace-enforcing missions, if NATO is invited by either the UN or the CSCE.

³ My comment; the Dutch do not intent to fight their own operations with the limited capabilities they have.

⁴ For this kind of operations, there is a need for capabilities that are only available at divisional level or even higher. One could think of intelligence capabilities, deep strike capabilities and logistical endurance, that are insufficiently available at the brigade level, even if these units have their own CS and CSS.

⁵ Unterrichtung über die Ergebnisse der Planungskonferenz am 15. Dezember 1992, annex Gliederung Heer 1995.

⁶ The only CS units at corps level are a SHORAD rocket regiment (ROLAND) for air defense in the corps rear area, and in the future, an attack drone battalion for corps deep operations.

⁷ tentative; at least until 1998, 1.(NL)Division will consist of four brigades.

⁸ This will occur, when the division will get her Corps Support Group, Medical Group and 33% of the direct supporting CS corps troops (artillery, engineers and air defense) and C2 (communications, MP and MI).

⁹ FM 100-5, Operations, (Final Draft), 12-1.

¹⁰ HDv 100/100, Command and Control of Armed Forces, 26-1.

¹¹ VS 2-1386, Gevechtshandleiding, IV-1.

¹² Arbitrarily we supported the US division in the German corps with a corps slice, consisting of 33% of the corps direct support artillery.

¹³ In the heavy brigades, that are part of CRF. (Two brigades of I. Corps, two brigades of II. Corps, and the Franco-German brigade [not confirmed]).

¹⁴ The minimum requirement should be that a foreign howitzer or MLRS unit could operate in the fire support C2 system of a division.

¹⁶ QIP, Quadrilateral Interoperability Program, QTIDP, Quadrilateral Technical Interface Design Plan. All four countries join the QACISIG, Quadrilateral Army Communication- and Information systems Interoperability Group. This group aims for short, middle and long term interoperability of C2 means.

¹⁸ Conform the illustrative corps for an established theater (annex A).

¹⁷ Arbitrarily we supported the US division in the German corps with a corps slice, consisting of 33% of the corps direct support engineers. This will mean that about 33% of the engineer support remains available for corps level operations.

¹⁸ FM 100-5, Operations, (Final Draft), 9-9.

¹⁹ Arbitrarily we supported the US division in the German corps with a corps slice, consisting of 33% of the corps CS, CSS and C2 troops.

²⁰ The number between brackets is the number of equipment, if one adds an Armored Division, to be deployed from the US.

Endnotes to Chapter VII

¹ Taken from: Freeman, Hess and Faria, "The Challenges of Combined Operations." Military Review, November 1992, 10.

² The present manual is issued March 1984; it does discuss the principles and fundamentals of land combat operations. However, there is an increased need to expand new areas, like deep operations, the use of combat aviation, joint and combined operations, and operations in unestablished theaters.

³ The Dutch and the German Army staff, for example, work already together in the FINABEL working group. This working group consists of eight Western European nations; the mission is to create common operational concepts for the different battlefield functions. Unfortunately, the large number of participants prevent creation of very effective documents. Therefore, the Netherlands and Germany started to exchange conceptual ideas on a bilateral basis. Furthermore, for specific projects they will harmonize the requirements for new equipment.

⁴ Center for Army Lessons Learned (CALL), Ft Leavenworth, KS, identifies lessons about battlefield functions and submits these lessons in, mostly unclassified, documents. The lessons are a result of numerous observations--stored in databases--during training and exercises, as well as during crisis and conflicts. The lessons can not be traced to a specific unit. This enables CALL to be critical. Furthermore, CALL helps to prepare units that will be sent on a contingency operation by providing them specific information related to their performance.

⁵ JCS-PUB 25 established Message Text Formats (MTF) to increase the operational interoperability (communications) between the services; these MTFs are already accepted as a norm in many countries in the Pacific Rim; some NATO countries did accept the MTFs too. However, it is not (yet) a NATO procedure. The system, that could be used in hardcopy, as well as with digital data transmission, could help our corps communicate together more effectively with each other, as well as with other services.

APPENDIX A

US CORPS AND DIVISIONAL ORGANIZATION

The US Corps' organization is not fixed. For each contingency Corps will be adapted to the situation. Therefore, it is difficult to show a reference corps, that could be used for our evaluation. However this appendix presents an illustrative corps for an established theater. This corps is used during the Command and General Staff College tactical course for the European theater.

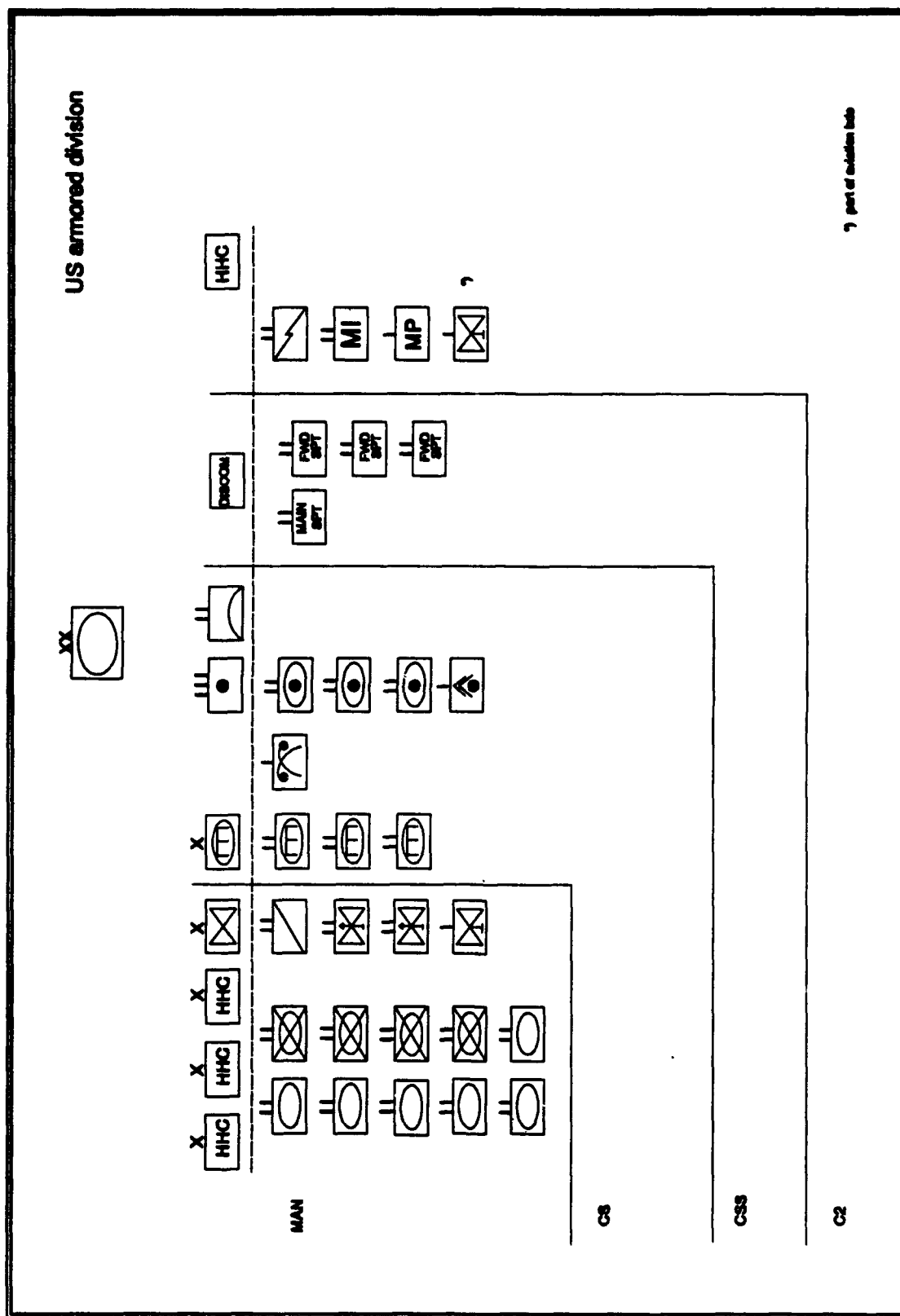
Moreover, it depicts the organization of an armored and a mechanized division. Lastly, a capabilities matrix gives an overview of the equipment and personnel strength in the corps. The appendix distinguishes maneuver, CS, CSS and C2 units.

All the data reflect the wartime organization of the units, after activation of reserve components.

* Organization corps	124
* Organization armored division	125
* Organization mechanized division	126
* Capabilities matrix	127



Figure 3: Organogram U.S. Illustrative Corps



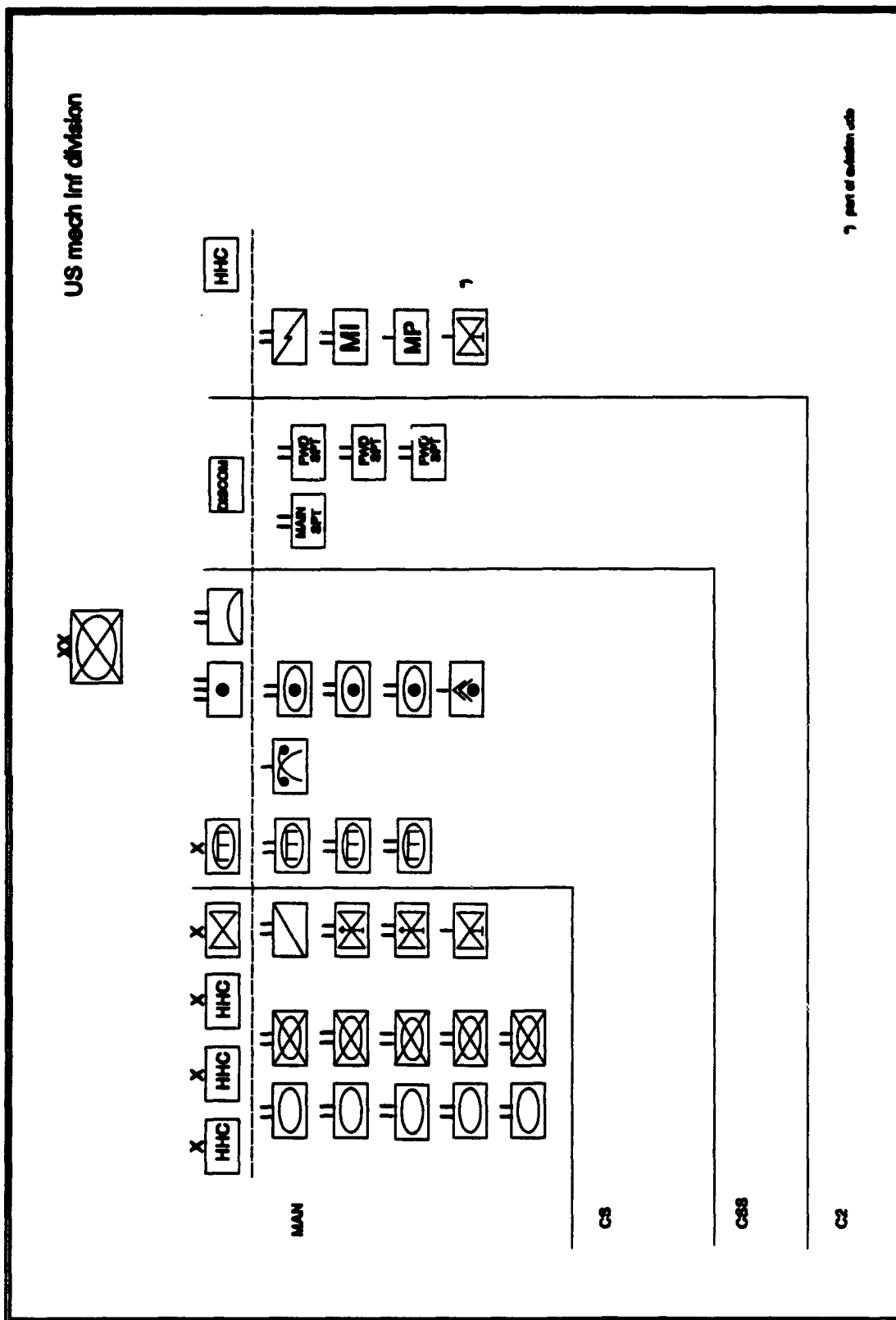


Figure 5: Organogram U.S. Mechanized Division

CAPABILITIES MATRIX **USA** **ILLUSTRATIVE CORPS FOR ESTABLISHED THEATER; 2 ARMOR/1 MECHANIZED DIVISION (wartime strength)**

DIVISION	Wt/Type	MBT	FV	CFV	ATPV	ATH	AMH	Ko/Har	SS-MR	SS-LR	Aqun	Airctd	HMMAD	CH	LTH	2ndTH	Personnel
MANEUVER	type	M1A2	M2	M3	M601-TOW		AH11 AH64	M109 M108	MLPS	ATA- CAS	Pvt	Chap- paral	HAWK Patriot	CH- 53	UH1 UH60	CH47	straight
	Bde	116	106	24	24												2830
	2d Lt. Bde																
	Bde	116	54	18	12												2004
	2d Lt. Bde																
	Bde	58	106	18	24												2287
CS	Aviation Bde			40			50							38	22		1486
	Total Man	280	270	100	60		50							38	22		8607
	Eng Bde																1395
	Com Co																160
	Div Arty							72	9								2492
	AD Bn										27						626
CSS	total CS							72	9		27						4673
	DISCOM																2860
	total CSS																2860
C2	Signal Bn																676
	MI Bn																313
	MP Co																153
	PMC																286
	total C2																1428
		280	270	100	60		50	72	9		27			38	22		17568
TOTAL MECH DIV																	
TOTAL ARMOR DIV		348	216	100	48		50	72	9		27			38	22		17265

Table 7A

CAPABILITIES MATRIX **USA** **ILLUSTRATIVE CORPS FOR ESTABLISHED THEATER; 2 ARMORY MECHANIZED DIVISION (wartime strength)**

	Weapons	MBT	FV	CFV	ATPV	ATH	AMH	KatHw	SS-MR	SS-LR	A/Agun	A/Artd	H/MAD	CH	LTH	2wTH	Personnel
CORPS TROOPS																	
	Sepl Bde Heavy	124	108	36	24			24									4880
	ACR	123		116			18										4581
	Arm Bde						90						104	115	32		3755
	CA Bde																711
CS	Psych B																521
	Total Man	247	108	162	24		108	24									14458
	Coms Atty							168	36	37							7443
	ADA Bde										108		24				1931
	Com Bde																2140
	Eng Bde																8816
	Total CS							168	36	37	108		24				20330
	DDSCOM																22064
CSS	Finance Gp																583
	Plan Gp																2808
	Total CSS																25545
	Sign Bde																2888
C2	MI Bde																1416
	MP Bde																2278
	Total C2																6594
CORPS TROOPS		247	108	162	24		108	192	36	27	108		24	104	115	32	68917

Table 7B

CAPABILITIES MATRIX **USA** **ILLUSTRATIVE CORPS FOR ESTABLISHED THEATER; 2 ARMORY MECHANIZED DIVISION (wartime strength)**

	Wpays	MBT	FV	CFV	ATFV	ATH	AMH	Kthw	SS-MR	SS-LR	Aqun	Arctd	HMAID	CH	LTH	ZuTH	Personel
TOTAL CORPS DIV		1233	810	452	180		258	408	63	27	81	108	24	218	181	32	118055
EVALUATION MANPOWER	DIV LEVEL	CORPS LEVEL	TOTAL	% DIV LEVEL	CORPS LEVEL			% BOS DIV	% BOS CORPS								
MANEUVER	28821	14458	40279	64.11	35.89		MAN	48.99	33.83								
CS	14019	20330	34349	40.81	59.19		CS	28.60	28.65								
CSS	8580	25545	34125	25.14	74.86		CSS	16.28	28.66								
C2	4284	6584	10868	39.42	60.58		C2	8.13	9.13								
TOTAL	52704	68817	118821	44.06	55.94	TOTAL		100.00	100.00								

Table 7C

APPENDIX B
GERMAN DIVISIONAL AND CORPS ORGANIZATION


The German Corps have a fixed organization. However, the three Corps differ in the number of divisions attached. The Corps presented in this appendix is an illustrative Corps for employment as MDF. The territorial organization is excluded. The Corps depicted is conform the Heeresstruktur V (Army Structure no. 5).

Furthermore, the appendix shows the organization of the mechanized division. Lastly, a capabilities matrix with equipment and personnel strength is added.

All figures reflect the wartime organization of the units, after mobilization of reserves.

* Organization corps	131
* Organization mechanized division	132
* Capabilities matrix	133

Territorial organization excluded (TK/WBK/VBK)

XXX


corps have an equal base structure; number of divisions vary

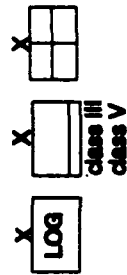
MAN



CS



CSS



C2



Figure 6: Organogram German Illustrative Corps

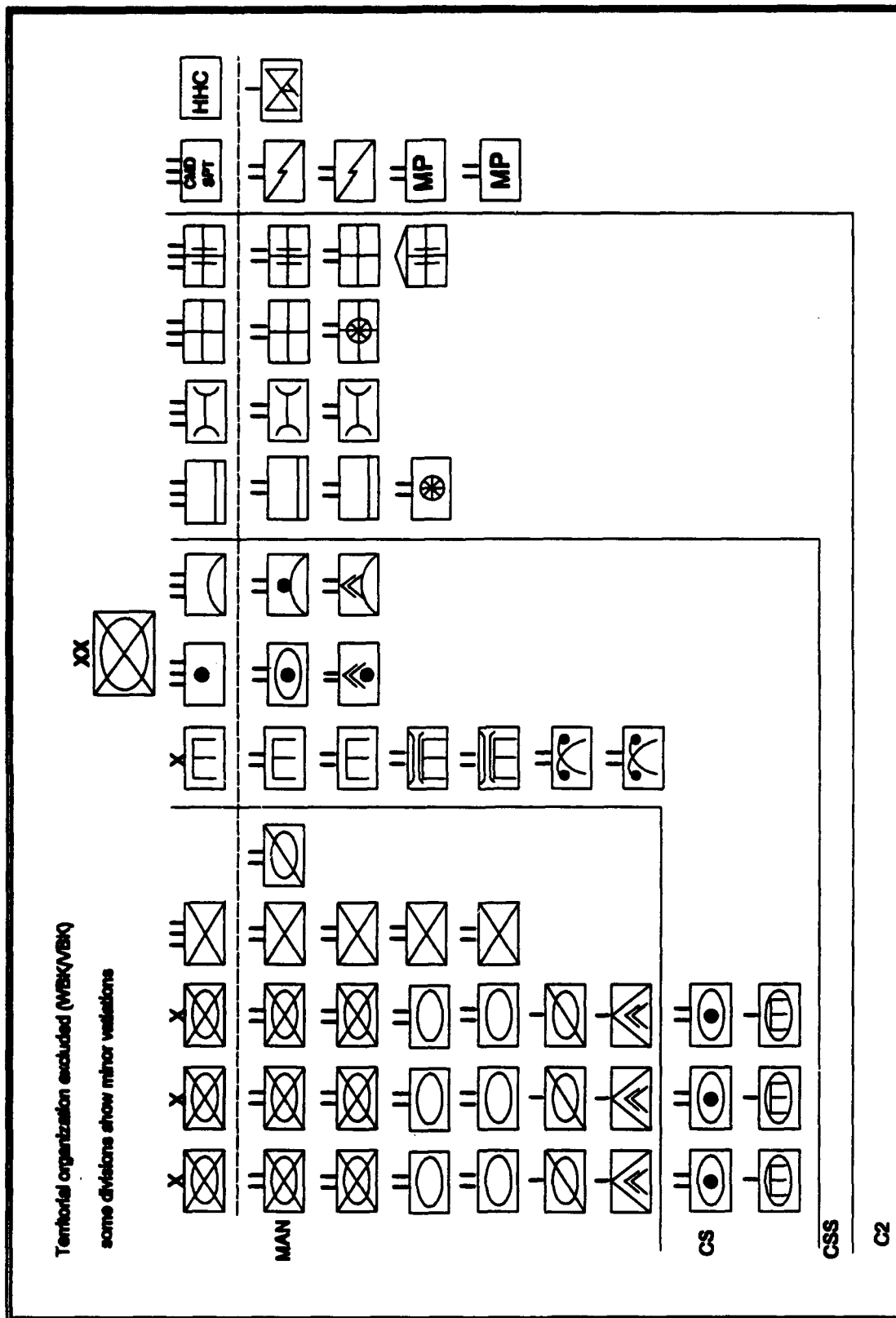


Figure 7: Organogram German Mechanized Division

CAPABILITIES MATRIX

GERMANY ILLUSTRATIVE CORPS; MECHANIZED DIVISION (wartime strength)

DIVISION	Weapons	MBT	IFV	CFV	ATFV	ATH	AMH	Kofher	SS-MR	SS-LR	Agun	Arcid	HMAO	CH	LTH	ZuTH	Personnel
	Type	Leopard 2	Marider	Zobel	Jagd-panzer	BO-105		M100-2000	MLRS	alt-drone	Ge-pard	Roland	HAWK Patriot	BO-105	UH-1	CH-53	strength
MANEUVER	MachBde (Main part)	106	106	12	15			24									3416
	MachBde (Main part)	106	106	12	15			24									3416
	MachBde (Main part)	59	106	12	15			24									3416
	Inf Rgt																3779
	Car Bn	27		31													816
	Total Man	345	316	67	45			72									14843
CS (including CS organic to maneuver brigades)	Eng Bde																6759
	Art Rgt							24	18								3756
	ADA Rgt										42						1131
	total CS							24	18		42						11646
	SpyRgt																3492
CSS	Main Rgt																2901
	Med Rgt																87
	Heavy Rgt																1780
	Total CSS																8260
C2	Comd SpRgt																4871
	Comd/Info Coy													8			185
	Total C2													8			5056
TOTAL MECH DIV		345	316	67	45			96	18		42			8			39805

Table 8A

CAPABILITIES MATRIX **GERMANY ILLUSTRATIVE CORPS; MECHANIZED DIVISION (wartime strength)**

	Wpys	MEI	IFV	CFV	ATFV	ATH	AMH	KoHw	SS-MR	SS-LR	AAgun	AAcld	HMAD	CH	LTH	ZuTH	Personnel
3 divisions		1035	964	201	135			288	54		128			24			119415
CORPS TROOPS																	
MANEUVER																	
Armored Bde			24	6	37												3128
AAHq						45								15			1015
Cav Bn				54													668
LRPF Coy																	216
Total Man			24	60	37	45								15			5927
CS										8							411
ATGrove Bn																	
ADA Rgt												42					1376
Total CS										8		42					1787
CSS																	14839
LogBde																	5153
MedBde																	3837
SpecBde																	
HSPArmy															52	32	3707
Total CSS															52	32	27536
C2																	5356
CndSp Bde																	
PRCoy																	119
Total C2																	5484
CORPS TROOPS			24	60	37	45				8		42		15	52	32	40734

Table 88

CAPABILITIES MATRIX **GERMANY ILLUSTRATIVE CORPS; MECHANIZED DIVISION (wartime strength)**

	Wpays	MBT	FPV	CFV	ATPV	ATH	AMH	KatHw	SS-MR	SS-LR	Aqun	Ackt	HMAD	CH	LTH	ZwTH	Personnel
TOTAL CORPS DIV		1035	987	261	172	45		288	54	8	126	42		38	52	32	180149
EVALUATION MANPOWER																	
	DIV LEVEL	CORPS LEVEL	TOTAL	% DIV LEVEL	CORPS LEVEL			% BOS DIV	% BOS CORPS								
MANEUVER	44529	5927	50456	88.25	11.75	MAN		37.29	31.51								
CS	34936	1787	36725	95.13	4.87	CS		29.26	22.93								
CSS	24780	27536	52316	47.37	52.63	CSS		20.75	32.67								
C2	15168	5484	20652	73.45	26.55	C2		12.70	12.90								
TOTAL	118415	40734	160149	74.56	25.44			100.00	100.00								

Table 8C

APPENDIX C
NETHERLANDS DIVISION AND CORPS LEVEL ORGANIZATION

The Netherlands will no longer have its own Corps. Therefore, this appendix depicts the division organization and the Dutch contribution to the GE/NL Corps. The contribution of corps level units is still under discussion. The units depicted are mentioned in the Defense Priorities Review.

The detailed planning of units is not finished yet. Consequently, the figures showed in the capabilities matrix are tentative. The Dutch Army Staff contributed to the estimates, but changes are possible, especially in the wartime strength. Decision making is expected later this year.

One mechanized brigade will be kept in the wartime organization up to 1998. If allowed by the security situation at that moment, the brigade could be deleted from the organization.

The figures depict the wartime organization of the units, after mobilization.

* Organization contribution to NL/GE Corps	137
* Organization mechanized division	138
* Capabilities matrix	139

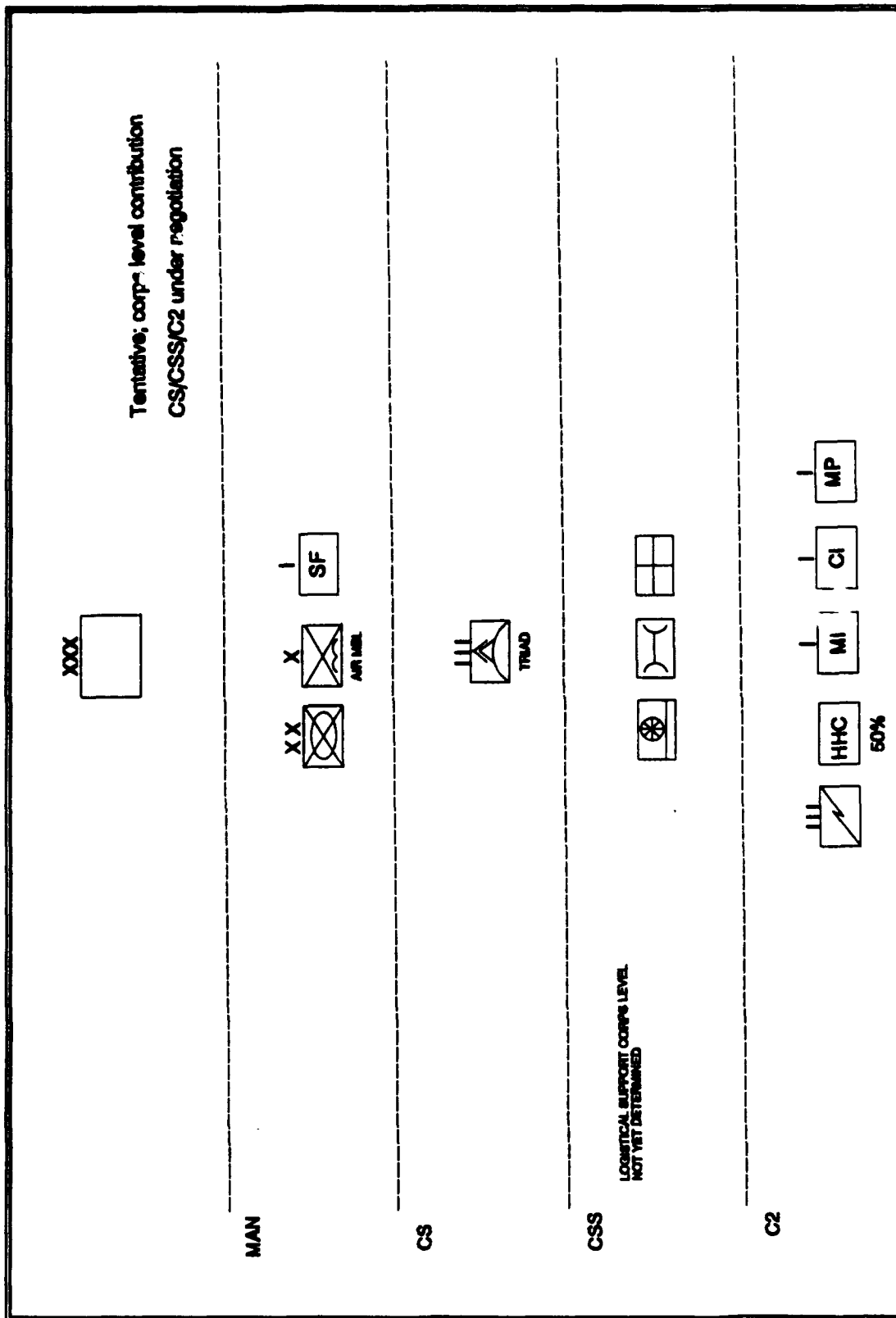


Figure 8: Organogram Netherlands Contribution to Corps

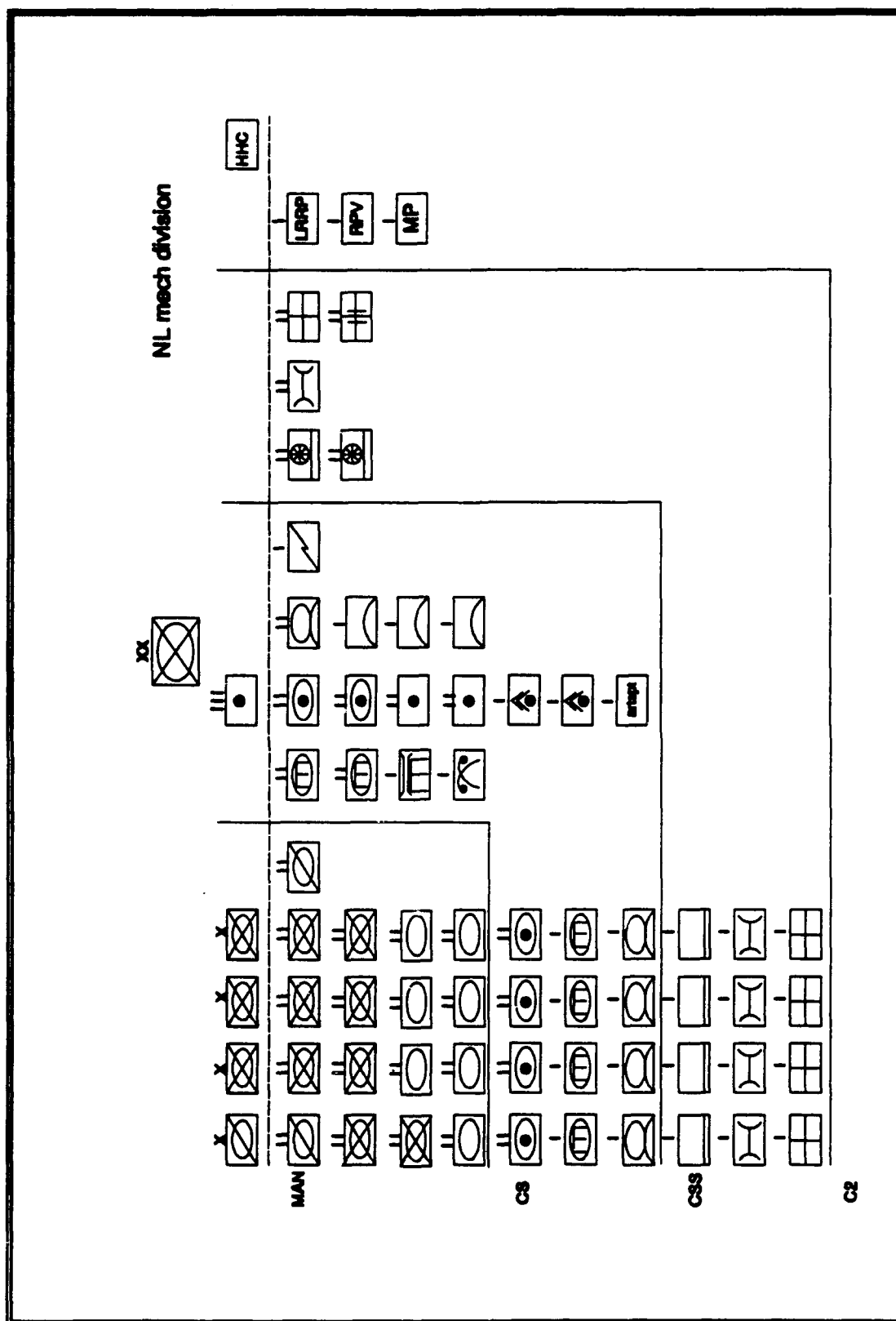


Figure 9: Organogram Netherlands Mechanized Division

CAPABILITIES MATRIX NETHERLANDS CONTRIBUTION TO CORPS; ILLUSTRATIVE MECHANIZED DIVISION (indication of wartime strength)

DIVISION	Wpnsys type	MBT Leopard 2	IFV YPR765	CFV	ATFV YPR- TCW	ATH	ABH	KvHw M109	SS-MR MLRS	SS-LR	Aqun Leo- pard 40L70	Airck Singer plat- form	HMAO HAWK Patrol	CH BO- 105	LTH	2xTH CH7	Personnel strength
MANEUVER	ArmCar- Bde	67	96	80	24			20			10						2200
	MechBde	108	84	40	24			20			10						2200
	MechBde	108	84	40	24			20			10						2200
	MechBde	108	84	40	24			20			10						2200
	Car Bn	13	14	50													600
CS (including CS organic to maneuver brigades)	Total Man	404	364	250	96			80			40						9400
	DivEng																2500
	DivArty							88	20								4400
	DivADA										40	yes					1800
	total CS							88	20		40						6700
CSS	DivLog																7200
	total CSS																7200
	SignBn																
	LRRPCo																
	EWCo																
C2	RPVCo																
	MPCo																
	bnl C2																
TOTAL MECH DIV		404	364	250	96			168	20		80	yes					26700

Table 9A

CAPABILITIES MATRIX **NETHERLANDS** **CONTRIBUTION TO CORPS; ILLUSTRATIVE MECHANIZED DIVISION (indication of wartime strength)**

	Wpnspt	MBT	IFV	CFV	ATFV	ATH	AMH	Kofhr	SS-MR	SS-LR	ALgun	AArtd	MMAD	CH	LTH	ZuTH	Personnel
CORPS TROOPS			LSV		LSV-TOW												
MANEUVER	AMobile Bde		180		90		40								17	13	4000
	SF Co																200
	Total Man		180		90		40								17	13	4200
	ADA-Train											yes	yes				500
CS	Total CS																500
	LogSpt																3000
	Total CSS																3000
C2	SigSpt																
	MFG																
	MPCo																
	CndSpt Hqs													18			
	Total C2													18			3200
CORPS TROOPS			180		90		40							18	17	13	10800

Table 98

CAPABILITIES MATRIX **NETHERLANDS** **CONTRIBUTION TO CORPS; ILLUSTRATIVE MECHANIZED DIVISION** (indication of wartime strength)

TOTAL CONTRIBUTION		404	544	250	186		40	186	20	80	yes	yes	18	17	13	37600
EVALUATION MANPOWER	DIV LEVEL	CORPS LEVEL	TOTAL	% DIV LEVEL	CORPS LEVEL			% BOS DIV	% BOS CORPS							
MANEUVER	8200	4200	13000	67.69	32.31	MAN		32.96	34.57							
CS	8700	500	9200	94.57	5.43	CS		32.58	24.47							
CSS	7200	3000	10200	70.59	29.41	CSS		28.97	27.13							
C2	2000	3200	5200	38.46	61.54	C2		7.49	13.83							
TOTAL	26700	10800	37600	71.01	28.99			100.00	100.00							

Table 9C

APPENDIX D
US-LED BI-NATIONAL CORPS

The US-led Corps' organization is will consist of two forward present divisions, e.g., a German mechanized division and an US armored division. In wartime the Corps can receive additional (US) divisions, depending on the threat assessment.

The data used in the capabilities matrix are derived from appendices A and B. The US infantry division, that will be assigned to the German II.Corps, will be supported by a corps slice. Arbitrarily, the study used 33% of the corps troops (CS, CSS and C²) that normally support divisions, for this corps slice. All the data reflect the wartime organization of the units, after activation of reserve components.

* Capabilities matrix	143
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CAPABILITIES MATRIX

ILLUSTRATIVE US-LED BI-NATIONAL CORPS (US/GE)

(Indication of wartime strength)

	Weapons	MBT	IFV	CFV	ATPV	ATH	AMH	KoHar	SS-MR	SS-LR	Aqun	Ambt	HMAAD	CH	LTH	2wTH	Personnel strength
TOTAL GE MECH DIV		345	318	67	45			96	18		42			8			39805
TOTAL U.S. ARMOR DIV		348	216	100	48		50	72	9		27			38	22		17285
1 st GE/1 st U.S. DIVISION		683	534	167	936		50	168	27		69			46	22		57090
US CORPS TROOPS																	
MANEUVER	US Sept Heavy Bde	124	106	36	24			24									4890
	US ACR	123		116			18										4581
	US Arm Bde						90							104	116	32	3755
	US CA Bde																711
	US Psy opat Bn																521
	Total Man	247	108	152	24		108	24						104	115	32	14458
CS (2/3 of total strength; 1/3 with US Mech Inf Div/GE-led Corps)	US Corps Any							168	36	27							5000
	US ADA Bde												108	24			1300
	US Cmt Bde																1400
	US Engr Bde																6000
	Total CS							168	36	27			108	24			13700

Table 10A

CAPABILITIES MATRIX

ILLUSTRATIVE US-LED BINATIONAL CORPS (US/GE)

(indication of wartime strength)

	Wpns	MBT	IFV	CPV	ATPV	ATH	AMH	KoHw	SS-MR	SS-LR	Aqun	Arcdt	HMAD	CH	LTH	ZwTH	Personnel strength
CSS (2/3 of total strength; 1/3 with US Mech Inf Div/GE-led Corps)	US COS-OCM																15000
	US FmGp																450
	US Para-Gp																2200
	Total CSS																17650
C2 (2/3 of total strength)	US Bgn Bde																2300
	US MI Bde																1200
	US MP Bde																2000
	Total C2																5500
US CORPS TROOPS		247	108	152	24	108		132	24	27		108	24	104	115	32	51379
TOTAL US/GE BINATIONAL CORPS		940	642	319	117	158		300	51	27	69	108	24	150	137	32	108398
EVALUATION MANPOWER	DIV LEVEL	CORPS LEVEL	TOTAL	% DIV LEVEL	CORPS LEVEL			% BOS DIV	% BOS CORPS			CE DIV	US DIV				
MANEUVER	23450	14458	37908	61.86	38.14	MAN	MAN	40.87	34.97		MAN	4843	8807				
CS	16319	13700	30019	54.36	45.64	CS	CS	28.44	27.69		CS	1646	4673				
CSS	11120	17650	28770	38.65	61.35	CSS	CSS	19.38	26.54		CSS	8280	2880				
C2	6484	5500	11984	54.11	45.89	C2	C2	11.30	11.06		C2	5056	1428				
TOTAL	57373	51308	108681	52.79	47.21			100.00	100.00			39805	17285				

Table 108

APPENDIX E
GERMAN-LED BI-NATIONAL CORPS

The German-led Corps' organization will consist of three forward present divisions, e.g., two German mechanized division and an US infantry division.

The data used in the capabilities matrix are derived from appendices A and B. The US infantry division, that will be assigned to the Corps, will be supported by a corps slice. Arbitrarily, the study used 33% of the US corps troops (CS, CSS and C²) that normally support divisions, for this corps slice. All the data reflect the wartime organization of the units, after activation of reserve components.

* Capabilities matrix 146

CAPABILITIES MATRIX

ILLUSTRATIVE GERMAN-LED BINATIONAL CORPS (GE/US)

(indication of wartime strength)

	Wings	MBT	IFV	CFV	ATFV	ATH	KvHw	SS-MR	SSLR	AAgun	AAmt	HMAD	CH	LTH	ZwTH	Personnel strength
TOTAL GE MECH DIV		345	318	67	45		96	18		42			8			39805
TOTAL US MECH DIV, w/spl abcs		290	270	100	60	50	132	21		27	35		38	22		33177
2 nd GE/1 st US DIVISION		980	906	234	150	50	324	57		111	35		54	22		112767
GE CORPS TROOPS																
MANEUVER	GE Airborne Bde		24	6	37											3128
	GE AT Helo Bgt			54		45							15			1915
	GE Cav Bn															688
	GE LRRP Co															216
	Total Man		204	60	127	45	40						16	17	13	10127
CS	GE AT drone Bn									6						411
	GE ADA Bgt										42					1376
	Total CS									6	42+	yes				2287

Table 11A

CAPABILITIES MATRIX

ILLUSTRATIVE GERMAN-LED BILATERAL CORPS (GEAB)

(indication of wartime strength)

	Weapons	MBT	FV	CFV	ATFV	ATH	AMH	KoFtr	SS-MR	SS-LR	Aguin	Aknd	HMAO	CH	LTH	ZuTH	Personnel strength
CSS	GE Log Bde																14839
	GE Med Bde																5153
	GE Spt Bde																3837
	GE Hqs Spt Army														52	32	3707
	Total CSS														52	32	30536
C2	GE Cndt Spt Bde																5365
	GE FN Co																119
	Total C2																8684
GE CORPS TROOPS			24	60	3727	45				8		42		15	52	32	40734
TOTAL GE-LED BILATERAL CORPS		980	930	294	187	45	50	324	57	8	111	77		89	74	32	153521
EVALUATION MANPOWER	DIV LEVEL	CORPS LEVEL	TOTAL	% DIV LEVEL	CORPS LEVEL			% BOS DIV	% BOS CORPS			GE DIV	US DIV		Spt also US Division assumed 1/3 of CS/CSS/C2 of US Corps		
MANEUVER	38293	5927	44220	86.60	13.40		MAN	33.95	28.80		MAN	14843	8607				
CS	34595	1787	36382	95.09	4.91		CS	30.67	23.70		CS	1646	1303				
CSS	27275	27536	54811	49.76	50.24		CSS	24.18	35.70		CSS	8260	4755				
C2	12624	5484	18108	69.72	30.28		C2	11.19	11.80		C2	5056	5056				
TOTAL	112787	40734	153521	73.47	26.53			100.00	100.00			38805	3177				

Table 11B

APPENDIX F
GERMAN-NETHERLANDS BI-NATIONAL CORPS

The German-Netherlands Corps' organization will consist of three divisions, e.g., two German mechanized division and a Dutch mechanized division.

The data used in the capabilities matrix are derived from appendices B and C. All the data reflect the wartime organization of the units, after activation of reserve components.

* Capabilities matrix	149
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CAPABILITIES MATRIX

ILLUSTRATIVE GERMAN/NETHERLANDS BI-NATIONAL CORPS

(indication of wartime strength)

	Wpns	MBT	IFV	CFV	ATFV	ATH	AMH	KvHw	SS-MR	SS-LR	AAgun	Airctd	HMAD	CH	LTH	ZuTH	Personnel strength
TOTAL GER-MAN MECH DIV		345	318	67	45			96	18		42			8			38805
TOTAL DUTCH MECH DIV		404	362	250	96			168	20		80	yes					26700
2 nd GE/1 st NL DIVISION		1094	998	384	186			360	56		164	yes		16			108310
CORPS TROOPS																	
MANEUVER	NL Armd-Inf Bde		180		90		40								17	13	4000
	GE Air-borne Bde		24	6	37												3128
	GE AT-Helo Rgt			54		45								15			1915
	GE Cav Bn																668
	GE LRPP Co																216
	NL SF Co																200
	Total Man		204	60	127	45	40							15	17	13	10127
CS	NL ADA Trnd Bn											yes	yes				500
	GE AT drone Bn																411
	GE ADA Rgt											42					1376
	Total CS									8		42+	yes				2287

Table 12A

CAPABILITIES MATRIX

ILLUSTRATIVE GERMAN/NETHERLANDS BI-NATIONAL CORPS

(indication of wartime strength)

	Weapons	MBT	IFV	CFV	ATFV	ATH	AMH	Kofahr	SS-MR	SS-LR	Asgun	AArctd	HMAO	CH	LTH	2nd TH	Personnel
CSS	GE Log Bde																14839
	GE Main Bde																5153
	GE Spt Bde																3837
	GE Hq Bde														52	32	3707
	ML Log Spt																3000
Cz	Total CSS														52	32	30536
	GE Coad-Spt Bde																5365
	GE FN Co																119
	ML Coad-Spt													18			3200
	Total Cz													18			8694
CORPS TROOPS			204	60	127	45	40			8		42	yes	33	68	45	51634
TOTAL GENL CORPS		1084	1202	444	313	45	40	380	56	8	164	42+	yes	49	68	45	157944
EVALUATION MANPOWER	DIV LEVEL	CORPS LEVEL	TOTAL	% DIV LEVEL	CORPS LEVEL			% BOS DIV	% BOS CORPS			GE DIV	ML DIV				
MANUEVER	38486	10127	48613	79.17	20.83		MAN	38.20	30.78		MAN	4843	9300				
CS	31992	2287	34279	93.33	6.67		CS	30.08	21.70		CS	1646	9700				
CSS	23720	30636	64256	43.72	56.28		CSS	22.31	34.35		CSS	8280	7200				
C2	12112	8684	20796	58.24	41.76		C2	11.39	13.17		C2	5056	2000				
TOTAL	106310	51634	157944	67.31	32.68			100.00	100.00			9805	26700				

Table 12B

APPENDIX G

GLOSSARY

Assign	To place units or personnel in an organization where such a placement is relatively permanent, and/or where such organization controls and administers the units or personnel for the primary function, or greater portion of the functions, of the unit or personnel (AAP-6).
Combined operation	An operation conducted by forces of two or more allied nations acting together for the accomplishment of a single mission (AAP-6).
Cross-assignment	Exchange of subordinate units of equal size by two formations/units; the exchanged units will be placed under operational control of the receiving commander after TOA, for a longer period. The units will have a peacetime planning and training relationship.
Interchangeability	A condition which exists when two or more items possess such functional and physical characteristics as to be equivalent in performance and durability, and are capable of being exchanged one for the other without alteration of the items themselves, or of adjoining items, except for adjustment, and without selection for fit and performance (compatibility)(AAP-6).
Interoperability	The ability of systems, units or forces to provide services to and accept services from other systems, units or forces and to use the exchanged services to enable them to operate effectively together (AAP-6).
Joint operation	An operation conducted by forces of two or more services of the same nation acting together for the accomplishment of a single mission (AAP-6).

Operational command	The authority granted to a commander to assign missions or tasks to subordinate commanders, to deploy units, to re-assign forces and to retain or delegate operational and/or tactical control as may be deemed necessary. It does not of itself include responsibility for administration or logistics. May also be used to denote the forces assigned to a commander (ATP-35(A)).
Operational control	The authority delegated to a commander to direct forces assigned so that the commander may accomplish specific missions or tasks which are usually limited by function, time, or location; to deploy units concerned and to retain or assign tactical control of those units. It does not include authority to assign separate employment of components of the units concerned. Neither does it, of itself, include administrative or logistic control.
Standardization	Within NATO, the process of developing concepts, doctrines, procedures and designs to achieve and maintain the most effective levels of compatibility, interoperability, interchangeability and commonality in the fields of operations, administration and material (AAP-6).
Tactical control	The detailed and, usually local, direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned.
Transfer of Authority (TOA)	The formal transfer of a specified degree of authority over designated forces between a nation and SACEUR or between any two NATO commanders. TOA between nations and SACEUR is the transfer of OPCOM (which includes OPCON) or OPCON itself. TOA between NATO commanders may be taken as a result of pre-planned arrangements (OPCOM), the need to operate forces of one commander in the area of another (OPCON), contingency operational requirements (OPCON), or reallocation of forces by a nation (ACE Directive 80-20).
Versatility	The ability to shift focus, to tailor forces, and to move from one mission to an other rapidly and efficiently. It implies a capacity to be multifunctional, to operate across regions throughout a full range of military operations, and to perform at the tactical, operational, and strategic levels (FM 100-5).

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