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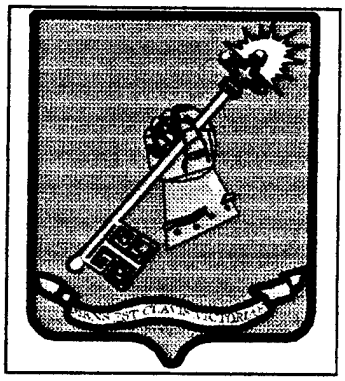
WHAT'S THE PROBLEM?

Misson Analysis in

Operations Other Than War

A Monograph
by

Major Derek Miller
Infantry



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SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

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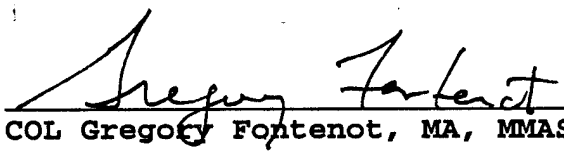

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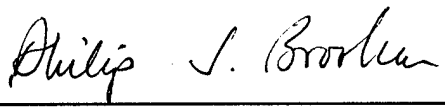

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Abstract

WHAT'S THE PROBLEM? MISSION ANALYSIS IN OPERATIONS OTHER THAN WAR by Major Derek Miller, USA, 61 Pages.

This monograph is an investigation of the mission analysis step of the Army's tactical decision-making process as it applies to operations other than war. The tactical decision-making process (TDMP) is a proven method of solving problems in combat situations, but the process focuses on military problems associated with a defined enemy. Its value in humanitarian assistance, disaster relief, and other OOTW missions is unproven.

The monograph reviews traditional problem-solving methodologies and compares them to the Army's tactical decision-making process. Next, the study analyzes the first step in traditional problem-solving -- problem analysis and definition, comparing and contrasting it with mission analysis. This analysis of the two processes establishes similarities in their role of focusing the development of solutions; however, the difference between traditional problem-solving and mission analysis is that the former defines the problem to be solved, while the later defines the mission the unit must accomplish. The next section considers each individual step in mission analysis and its application in operations other than war.

The monograph concludes that mission analysis is applicable in operations other than war, but may not focus the development of optimal problem solutions when guidance is unclear, or the situation is ambiguous. The monograph recommends that a step which includes identifying the problem be added to mission analysis, that exercises requiring students to conduct mission analysis in non-combat operations other than war be included in service schools curricula, and that examples of tactical decision-making in doctrinal references be broadened to include operations other than war.

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Part I - Introduction

The purpose of this monograph is to determine if the mission analysis step of the army's doctrinal decision-making process supports military decision-making in operations other than war. FM 100-5 states that "The Army's primary mission is to organize, train, and equip forces to conduct prompt and sustained land combat operations."[1] Our training and doctrine are focused to do this; however, the army must be prepared to conduct operations other than war missions in addition to traditional combat missions. Military officers must be able to make decisions and plan for operations other than war with the same precision as in wartime.

The Army has been involved in operations other than war since its inception. From building roads and other national infrastructure to escorting pioneers in the West and administering civil government following the American Civil War, the Army conducted numerous operations other than war in the 19th Century. In the 20th Century, major operations other than war included the Philippine Insurrection, the Boxer Rebellion, administering civil government and nation building following World War II, and operations in the Dominican Republic, Grenada and Panama. American military involvement in humanitarian assistance, disaster relief and peacekeeping missions has increased in recent years. Hurricanes in Florida, South Carolina, and Hawaii; earthquakes in California; drought, famine and civil war in Somalia, Iraq and Bosnia; and democratic reform in Haiti have all involved US military forces just in the last five years. Positive contributions by these forces in past missions increases the probability of using the military in future crisis situations.

FM 100-5, Operations, states that "The Army's primary focus is to fight and win the nation's wars. However, Army forces and soldiers operate around the world in an environment that may not involve combat."[2] The glossary defines these operations other than war as "military activities during peacetime and conflict that do not necessarily

involve armed clashes between two organized forces."[3] Different from the traditional warfighting combat role of the Army, operations other than war may involve intense combat, limited combat, occasional minor violent actions, or may be completely peaceful. At the same time, these operations may be domestic or international, unilateral or multinational, joint, combined and/or interagency. "Operations other than war can precede and/or follow a war, or occur simultaneously with war in the same theater."[4] In wartime, the mission of the Army involves the use of armed force against an organized enemy. There are no typical missions in operation other than war; they have a diverse nature. The range of missions includes noncombatant evacuation operations, arms control, support to domestic civil authority, humanitarian assistance and disaster relief, security assistance, nation assistance, support to counterdrug operations, combating terrorism, peacekeeping operations, peace enforcement, show of force, support for insurgencies and counterinsurgencies, attacks and raids.[5]

In addition to diversity of mission and environments, operations other than war are further complicated by the number and type participating organizations. Traditional wartime missions generally involve a highly structured battlefield with two or more well-defined sides representing political entities such as states or nations. Operations other than war are characterized by a much less structured environment with numerous different participants, even at the lowest tactical levels. In addition to joint and combined forces, operations other than war situations may involve federal, state, local, and foreign government agencies. Participants may include non-governmental organizations (NGOs) and private-volunteer organizations (PVOs), the media, domestic or foreign citizens and various political, social and religious organizations. Lastly, more unique actors may participate such as multi-national corporations and terrorist groups.

In addition to working with non-military participants, it is possible that in operations other than war U.S. military officers may not be in command either at highest

or intermediate levels. Army forces may respond to taskings by civil authorities, foreign military commands or other federal agencies. The complicated nature of operations other than war may result in guidance or missions that are defined in political rather than military language. A specific endstate may be difficult to determine or may not be attainable except in the long term. Operations other than war frequently arise on short notice, based on an unforeseen natural disaster or an unexpected change in strategic guidance. This time limitation may preclude a complete and thorough analysis of the situation at each level of command prior to unit deployment. Military units arriving in the mission area may know little more than the general situation. As such, military leaders may be required to assess the situation and determine what they must do based on extremely broad political guidance. Urgency of action and uniqueness of the situation may require senior commanders to decentralize decision-making to commanders at the lowest tactical levels.

The most significant difference between war and operations other than war is in the types of problems units face. In war units face predominantly military problems requiring military solutions. In war, the problem is normally the enemy and the solution usually involves the threat or application of combat power. Operations other than war, on the other hand, involve problems and solutions with military and non-military features.

Army doctrine for making decisions in combat is embodied in the tactical decision-making process (TDMP) which leaders use to plan combat missions and solve tactical problems. The TDMP has three forms, the deliberate decision-making process, the quick decision-making process and the combat decision-making process. The deliberate process is the most detailed of the three, and forms the basis for the other two. Based on available time and training level of the staff, steps of the deliberate process are abbreviated or conducted by the commander alone in the quick and combat decision-making processes.

The TDMP is a time-honored method of planning missions and solving problems in combat. It supports the Army's wartime mission, but operations other than war involve

less structured and more complex problems than those in traditional combat.[6] The situational factors in combat missions are defined by the factors of mission, enemy, terrain and weather, friendly troops and time available or METT-T. In operations other than war, the situational factors go beyond METT-T, involving numerous variables. The problems themselves may not be well defined in operations other than war. To develop a feasible solution, it may be necessary to define the problem and determine its root cause. In war, the root cause is an incidental matter to a unit planning a mission.

If problems in operations other than war are different than those in conventional combat operations, then the requirements for analyzing and solving problems may also be different. This monograph examines the question of whether the mission analysis step of the tactical decision-making process is adequate to analyze the problems posed in operations other than war. It focuses on tactical level units performing missions that involve other than traditional combat operations. The analysis begins by considering traditional civilian problem-solving methodologies and compares them to the Army's tactical decision-making process to determine the applicability of the TDMP in solving non-combat problems. This comparison establishes that the goal of both mission analysis and the first stage of traditional problem-solving is to focus the development of solutions by defining clear goals and objectives. The last portion of the analysis considers the ability of the mission analysis process to establish goals and objectives to develop courses of action for the problem faced by military units in operations other than war. This analysis reveals that the existing process is adequate to analyze assigned missions in operations other than war, but not to solve problems in the absence of clear guidance. The monograph concludes with the recommendation to add the step of problem definition to mission analysis in order to make the process more versatile in the wide range of missions posed by operations other than war.

Part II - Decision-Making and Problem-Solving Processes

Traditional Problem-Solving

Decision-making is the "selection of a course of action from among alternatives."[7] Decision-making methodologies focus on determining the best possible solution to a problem. These approaches typically involve quantitative analysis techniques to evaluate alternative choices in a systematic manner. The end result is a decision on the best course of action based on the evaluation criteria.

Problem-solving methodologies focus on identifying problems, developing possible solutions and selecting the best alternative. The majority utilize a sequence of steps to structure thoughts in a logical order. Problem-solving methodologies may generate single or multiple possible solutions to a problem. Solutions may be a simple decision of yes or no, or a plan of complex activities. Multiple possible solutions require the problem solver to employ a decision-making methodology to determine the best solution. In this way, decision-making and problem-solving methodologies are closely linked. Decision-making is actually a subset of problem-solving,[8] although the terms are frequently used interchangeably in literature and in common usage.

The origins of problem-solving theory began during the age of enlightenment with the work of Rene Descartes, Sir Isaac Newton, Francis Bacon, Robert Hooke and other 17th Century scientists.[9] Early work by these men to conduct structured analysis of scientific phenomenon set the foundation for procedures using a step by step analysis to solve problems. Descartes first postulated the four step method for isolating scientific observations. Newton, Hooke and Bacon introduced the use of a structured process to quantify observations to the European academic community by writing about their early experiments.[10]

In the later part of the 19th and the early 20th Centuries, the American

philosopher-psychologists William James and John Dewey conducted research and wrote extensively on human thought and mental processes. James conducted some of the first psychology experiments in the United States, establishing his laboratory at Harvard in 1875.[11] Dewey analyzed human thought processes and attempted to explain the formations of ideas and problem-solving.[12] Both men were leaders in the pragmatist movement, and their writings were extremely influential in the developing field of psychology.

Problem-solving has evolved into a major area of study in the modern era. Problem-solving and decision-making are major fields in the disciplines of psychology, management science, decision science, operations research, and political science. Contemporary scholars have developed numerous models describing detailed procedures for solving problems and making decisions. Despite numerous different models, virtually all are based on the theory proposed by John Dewey in 1910 (see Figure 1):[13]

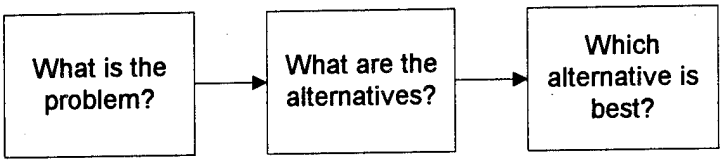

Figure 1. John Dewey's Problem-solving Stages, 1910.

Most contemporary models are generally based on Dewey's three steps. Herbert A. Simon's well-known model of intelligence, design, and choice is an example.[14] Intelligence refers to gathering information about the problem. Design means developing solutions. Choice is making a decision about the best option. Figure 2 shows an updated version of Simon's model proposed by Arthur VanGrundy. It consists of three stages: problem analysis and definition; idea generation; and idea evaluation and selection.[15]

In the VanGrundy model, the problem solver starts by analyzing available information and then narrowing this data to that which is pertinent to the problem at hand. Based on analysis of the relevant information, the problem solver redefines the problem.

In the second step the problem solver develops possible solutions to the redefined problem. The last step is for the problem solver to evaluate the possible solutions and to select the best one. [16] Each of the three steps in the model may be considered a separate process consisting of several distinct steps.

The simplified version of the VanGrundy model shown in Figure 2 below is a practical example of a general problem-solving model. This general model will be used to represent traditional problem-solving methodology in further analysis.

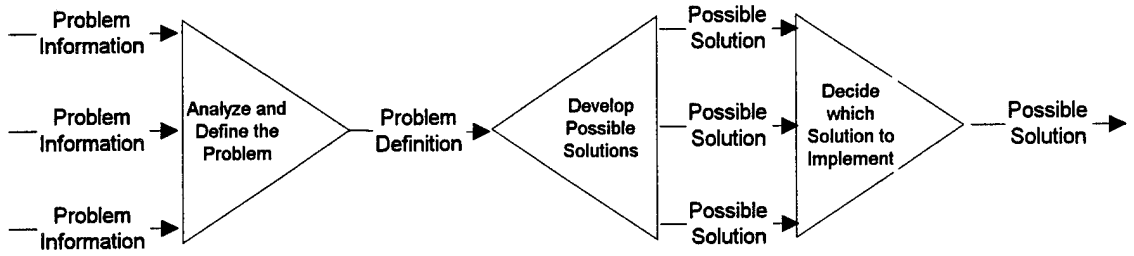

Figure 2. General Problem-solving Model.

Problem-solving models exist in many more complex forms. Most follow the same basic stages and logical progression originally stated by Dewey in 1910. Different models expand certain stages and develop them into distinctly separate processes. For example, decision-making methodologies are expansions of Dewey's third stage. Another example is a problem-solving model adapted and tailored to solve certain specific types of problems. A commonly used adaptation is Army's Tactical Decision-Making Process. The term decision-making process is a misnomer since the TDMP is actually a specialized type of problem-solving.

The Tactical Decision-Making Process

Army decision-making is founded in traditional problem-solving theory. FM 101-5(FD) discusses a general problem-solving model which consists of six steps: recognize and define the problem, gather facts and make assumptions to determine the scope of and

the solution to the problem, develop possible solutions, analyze each solution, compare the outcome of each solution, and select the best solution available.[17] Figure 3 depicts the model.

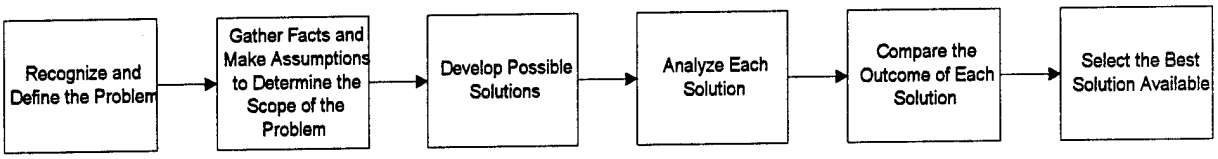

Figure 3. The FM 101-5 General Problem-solving Model.

This technique is intended to be used to solve "non-combat problems," although the manual does not discuss its use in operations other than war.[18] This methodology is the basis of tactical decision-making and closely parallels the traditional problem-solving methodology.

The military has a long tradition of using structured analysis to find solutions to the problems posed by combat. Evidence suggests that Napoleon, U.S.Grant and others used some kind of analytical process.[19] The birth of modern US Army decision-making developed following World War I in the form of the "Commander's Estimate of the Situation."[20] Although similar processes were used prior to and during World War I, the post-war version most closely resembles the modern format. Figure 4 depicts the version of the estimate taught at Fort Leavenworth in 1930.[21]

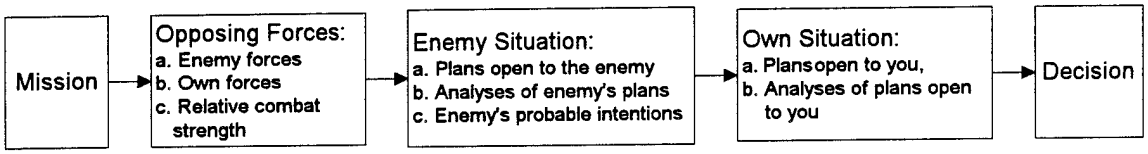

Figure 4. Estimate of the Situation, 1930.

This early version of the estimate of the situation has evolved into the Army's tactical decision-making process (TDMP) found in FM 101-5 and other manuals. It is still referred to as the "estimate of the situation" in some manuals,[22] but this discussion uses the term TDMP to avoid confusion between the "estimate of the situation" and the

"commander's estimate" or "staff estimates."

The basic steps of the TDMP are still very similar to the inter-war years "estimate of the situation," although some of the finer details in the process have changed. The current four step process is depicted in figure 5:

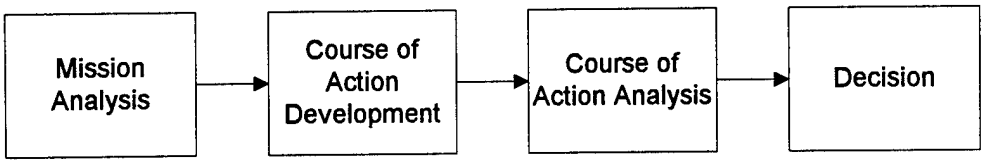

Figure 5. The Tactical Decision-Making Process.

The four steps provide a logical sequence for finding solutions to tactical problems. In the first step, mission analysis, the staff analyzes the assigned mission to determine what the unit must accomplish to achieve the higher commanders' intent. Mission analysis corresponds to analyzing and defining the problem in traditional problem-solving. In the second step, the staff develops courses of action to accomplish the mission. This step corresponds to developing possible solutions. In the third step, the staff wargames different courses of action and then compares the results. Course of action analysis generally corresponds to developing possible solutions, but it actually has a dual role; it helps us further develop our course of action, and it also helps us evaluate courses of action. In this sense, this step relates to both developing solutions, and deciding which to implement. The final step consists of a decision by the commander on which course of action to execute. This step in the TDMP compares to deciding which solution to implement.

The tactical decision-making process closely follows the basic stages of traditional problem-solving. The major difference is that the TDMP includes one additional step because course of action analysis and the decision are separate steps. Despite this difference, the similarity demonstrates that the TDMP is a traditional problem-solving methodology tailored to meet the Army's needs of solving problems in combat. As in

traditional problem-solving, each step in the TDMP is a separate process consisting of several 'sub-steps'. The next section will consider the first step in both traditional problem-solving and the TDMP as separate processes and consider their function in solving the problem.

Part III - Defining the Problem - Mission Analysis

Traditional Problem-Solving

This section discusses the first stage of problem-solving in both the traditional method and the TDMP. In traditional problem-solving, the first step is to analyze and define the problem; in the TDMP the first step is mission analysis. This section explains the purposes of each step, treating them as processes, and breaking each into its component parts for further analysis. The analysis compares the two processes and notes similarities and differences.

The first step in traditional problem-solving is the foundation of the process; it frames the problem and establishes the start point to develop solutions. This step focuses the problem-solving effort by defining the parameters of the problem and determining exactly what the problem is. Developing a feasible solution requires a full understanding of the actual problem and its root cause. Failure to properly analyze the problem frequently leads to the development of inappropriate solutions.[23] Likewise, incomplete analysis may lead to developing solutions that solve the symptoms of the problem rather than the problem itself. The natural tendency is to skip or minimize problem analysis and proceed directly to developing solutions.[24] John Dewey cautioned against shortcuts in the problem analysis and definition step,[25]

> If we assume, prematurely, that the problem involved is definite and clear, subsequent inquiry proceeds on the wrong track. Hence the question arises: How is the formation of a genuine problem so controlled that further inquiries will move toward a solution?[26]

The answer is a detailed procedure for analyzing and defining the problem.

Problem analysis and definition is both the first step of the general problem-solving model and a separate process in itself. The process follows a logical sequence. First it must determine if a problem actually exists. If so, the problem solver gathers relevant information and analyzes it. This analysis produces an understanding of the problem and

subsequent identification of the actual problem and its cause. Finally, once the problem has been specifically identified, goals and objectives can be established to solve the problem. Goals and objectives focus the development of possible solutions by providing guidance on how to attack the problem.

As an example, consider a mechanized infantry company that routinely reports twice as many deadline Bradleys on the 2406 as the other three line companies. The battalion commander's likely first reaction would be to instruct the company commander to improve his maintenance program. However, a poor maintenance program is not the problem; improving the program is a possible solution based on incomplete analysis. Only careful consideration of the situation will expose the true problem. Analyzing the available information might reveal that the company's maintenance is deficient; however, it might also find that the company goes to the field more often than the other companies and therefore breaks more equipment. Likewise, it might find that the maintenance program is actually more thorough than the other three companies and therefore identifies more deadline deficiencies, or it could even reveal that the other commanders are not accurately reporting their maintenance status. Lastly, investigation could reveal that the company's vehicles are the oldest in the division and therefore more difficult to maintain.

This example illustrates that once a possible problem is detected, there may be several possible problem definitions, each requiring different types of solutions. To start with solutions before we have specifically defined the problem is to develop an inappropriate solution.

Traditional problem-solving theorists propose numerous models for problem analysis and definition. Each is slightly different, but each progresses from noting that a problem exists, to gathering and analyzing information, to some type of problem redefinition. Figure 6 shows a five step model for problem analysis and definition summarized from several different theories.[27]

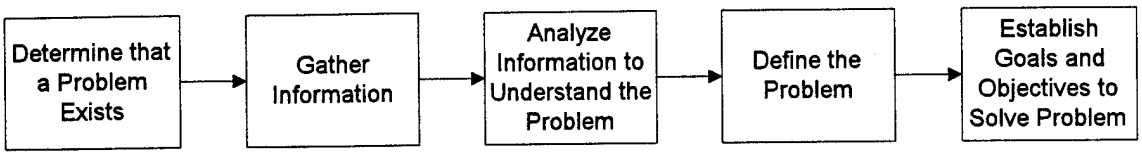

Figure 6. Problem Analysis and Definition.

In the first step, the problem solver determines that there is a problem, something that differs between the actual and desired circumstance. The second step is a research phase designed to gather available information on the situation. The problem solver analyzes this information to develop a thorough understanding of problem in the third step. During this analysis, the problem solver seeks to discover what the actual problem is and determine its possible root causes. Establishing a causal relationship makes the problem easier to identify and solve. The end product of this analysis is possible problem definitions. The fourth step is actually a decision process that evaluates and decides which problem definition is correct. The last step is to establish goals and objectives to solve the problem. This may be both a statement of desired outcome and a statement of required action(s). The established goals and objectives serve as the focus for development of possible solutions in the next stage of problem-solving.

To illustrate this point, consider the example of the company maintenance program discussed earlier. Thorough investigation of the suspected problem might reveal that the company has an excellent maintenance program and is actively involved. The deadline rate is higher because the company accurately reports maintenance status based on changes to mission capable reporting standards in the new operator's manual. Further investigation reveals the other companies are not as thorough and are using outdated versions of the operator's manual. This analysis divulges that the actual problem does not involve the commander, the company or the maintenance program, but rather the maintenance programs of the other companies. A definition of the actual problem is that maintenance programs across the battalion are not uniform and three companies do not meet the required standards. The root causes are that the maintenance programs in some

companies are not thorough and the soldiers use outdated references for determining reporting criteria. The goal to solve the problem might be to establish a maintenance program in each company that accurately identifies and expeditiously repairs all maintenance shortcomings in accordance with current standards. Objectives to fix the problem might include ensuring each company's maintenance procedures are thorough, and that the current operator's manual standards are used by all units.

This example demonstrates the dilemma of developing solutions before understanding the problem. Such solutions are likely to be ineffective. Only a thorough problem analysis and definition can assists in focusing the problem-solving effort to develop solutions to the actual problem. The model above serves as a tool to do this. In military missions proper problem analysis and definition is equally important. The first step in the TDMP is intended to do this.

Analyzing the Problem in Military Missions

The first step in the TDMP is mission analysis. The purpose of this step is to analyze and redefine the mission, much the same as analyzing and defining the problem in traditional problem-solving. The mission analysis performs at least three functions. First it familiarizes the commander with the situation and provides him the information he needs to understand his assigned mission. It also helps both the commander and members of the staff gain a similar understanding of the situation in terms of the assigned mission, the enemy situation, terrain, weather, friendly troops, time available and any limitations on the command, essentially a cross-fertilization of the factors of METT-T. Lastly, it allows the commander to analyze this information so he can give the staff guidance prior to developing courses of action (possible solutions).

The mission analysis step is itself a separate process, as is the problem analysis and definition step in traditional problem-solving. According to FM 101-5 (FD), mission

analysis consists of eleven separate sub-steps,[28] as shown in Figure 7. These eleven steps are additions to the new FM 101-5(FD) and ST 101-5 which do not appear in previous versions of these references, FM 101-5(1984) and ST 100-9 respectively. The previous references provided no formal steps; however, they provided guidance for the process. ST 100-9 advised that:

> Mission analysis is the first step of the TDP [TDMP]. It consists of command and staff actions related to -
>
> a. Gathering facts (current status or conditions).
>
> b. Making assumptions (a substitute for facts if information is not known).
>
> c. Analyzing higher mission and intent (what tasks are required to accomplish the mission).
>
> d. Issuing commander's guidance (focus for subsequent staff planning).[29]

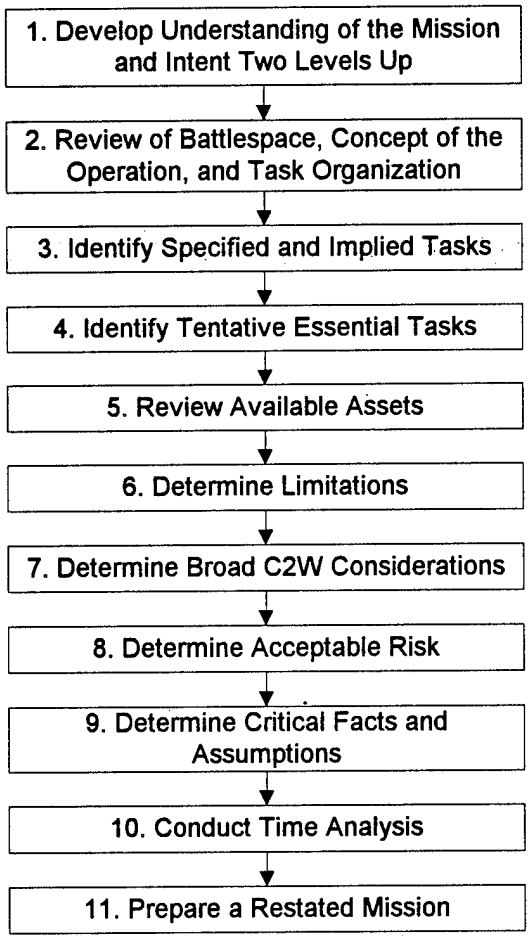

Figure 7. Mission Analysis Steps.

ST 100-9 then continued to describe the actions of each staff section to gather facts, make assumptions, perform analysis, and receive commander's guidance. FM 101-5, Staff Organization and Operation, [1984] states:

> The mission analysis is the means through which the commander obtains an understanding of the mission. It involves identifying -
> - The tasks that must be performed.
> - The purpose to be achieved through accomplishing the assigned tasks.
> - The constraints on the units' actions.[30]

All four manuals include detailed discussions of how to analyze the purpose of the operation, tasks, and limitations; each manual concludes the process with a restated mission followed by commander's guidance.

The 11 step process in FM 101-5(FD) is only a portion the complete mission analysis process. The assertion by the new version of the manual that mission analysis consists of 11 steps is misleading and a departure from the previous references. It is also

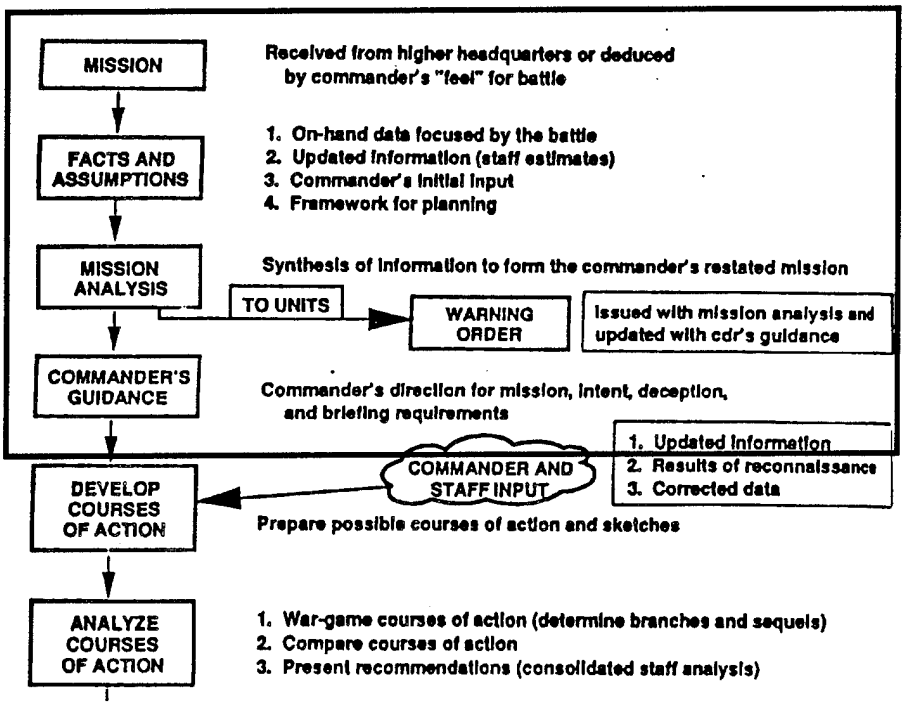

Figure 8. Mission Analysis as Part of the Tactical Decision-Making Process.

inconsistent throughout the manual. The eleven-step approach excludes receiving the mission and gathering facts and assumptions from the mission analysis process. In actuality, the mission analysis process begins when the mission is "Received from higher headquarters or deduced by commander's 'feel' for battle."[31] Although FM 101-5(FD) does not explain this well in the description of the process, figure 8 illustrates this point. As depicted by the boxed portion of the diagram, the mission analysis process actually begins with the receipt of the mission and follows through to the commander's approval of a restated mission and guidance. Figure 9 depicts a simplified diagram showing the major steps in mission analysis.

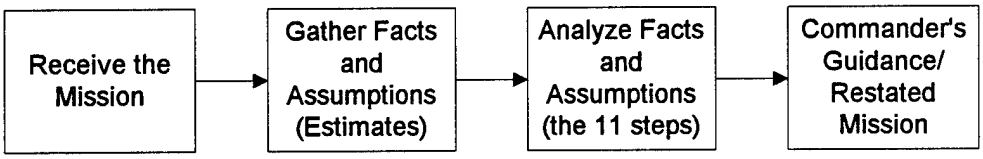

Figure 9. Actual Mission Analysis Steps.

Receipt of the mission begins the process and is equivalent to determining that a problem exists in traditional problem-solving. It is neither the problem itself, nor is it the unit's mission. The problem and the mission must be determined by a thorough analysis during the process.

In traditional decision-making, the second step of problem analysis and definition is to collect information concerning the problem. In mission analysis, the second step is to gather facts and assumptions. In military problem-solving the commander's and staff estimates are a formalized process for gathering this information. Although FM 101-5(FD) does not list gathering information as a specific step in the process, the chapter dealing with estimates states: "The estimate process [TDMP] begins with this gathering of information to support the commander. It is part of mission analysis--the first step in the decision-making process."[32] For purposes of this discussion, we will consider that gathering facts and assumptions is the second step of mission analysis. The purpose of

gathering facts and assumptions is the same in tactical decision-making as it is in traditional problem-solving. It both fosters a better understanding of the problem, and allows access to the information required during later phases of the TDMP.

Figure 10, modified from FM 101-5(FD), illustrates the relationship between the commander's and staff estimates and gathering facts and information to support mission analysis:[33]

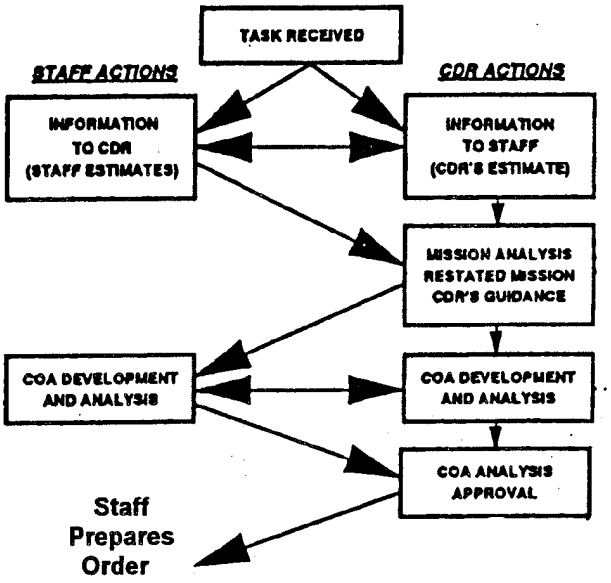

Figure 10. Relationship Between Gathering Facts and Assumptions and the Commander's and Staff Estimates.

Each estimate is both a process of collecting relevant information about the situation and performing analysis in the specific staff area to examine how this information affects the mission. Additionally, each staff section develops assumptions to replace missing facts and allow the planning process to continue. Although the estimates are critical to a good mission analysis, they are not solely part of mission analysis. They are separate processes that continue throughout the operation. They contribute to mission analysis in the initial stages of the operation by providing the commander and staff the information needed to analyze the mission.[34]

Once the necessary information is available, either in the form of facts or assumptions, the commander and staff analyze it using the eleven-step procedure from FM 101-5(FD) (see Figure 8). The purpose of this effort is for the commander and staff to understand the situation, their assigned mission as it relates to overall success, their resources, available time, limitations, and any other parameters important to the situation.

The product of this analysis is the restated mission which is a statement of what the unit must achieve to complete its mission. The restated mission is an expression of a task or tasks that the command must achieve and for what purpose. The purpose is a statement of why the unit must perform the tasks defined in terms of how it allows the higher command to achieve its mission.

The last step of the mission analysis process is the commander's guidance. FM 101-5 states that "Mission analysis ends when the unit commander approves the restated mission."[35] The commander does this when he gives his guidance.[36] Only when the commander's guidance is issued and planners can begin working on solutions to the problem is mission analysis complete. Ultimately, the commander's guidance is the output or product of mission analysis; the process exists to inform the commander so he can provide guidance and focus the staff prior to developing courses of action. The commander's guidance is equivalent to establishing goals and objectives to solve the problem in traditional problem-solving.

According to FM 101-5(FD), the commander's guidance should contain the following nine elements: enemy courses of action; the restated mission; intent; the concept of the operation; the deception objective; priorities; the time plan; the type of order to issue; and the type of rehearsal to conduct.[37] At the conclusion of this guidance, the staff transitions to the second step of the TDMP, course of action development. Their courses of action are possible solutions to the tactical problem, and should be specifically designed to accomplish the restated mission approved by the commander and attain the endstate

provided in the commander's intent.

Although the commander and staff may change the focus of their effort on developing courses of action, they must constantly analyze new information to ensure they are developing solutions to solve the correct problem. Any major changes in facts or assumptions on which the initial analysis was based should trigger the mission analysis process again. Such changes could include a new mission, an assumption that proved invalid, or a fact that actually changes, such as introduction of new enemy forces.

Comparison of Mission Analysis and Traditional Problem Analysis

There is a very close parallel between traditional problem analysis and mission analysis. Each consists of a series of sequential steps designed to identify that a problem exists, collect information on the problem, analyze the information, and provide a defined goal to focus problem solutions. Although the processes are similar, there are two major differences between them. The first is that while the problem analysis and definition model is applicable to any problem, mission analysis is a specific process tailored to deal with military situations. The eleven-step process analyzes factors peculiar to military missions. The second difference is that the traditional procedure seeks to define the problem while mission analysis identifies the mission, but bypasses a specific identification of the problem. The reason for this difference is that the TDMP developed out of wartime experience specifically to make decisions in combat situations.

For tactical units, the problem relates to the enemy, the terrain and the mission the unit has been assigned. It is defined in the order from higher headquarters and further analysis of the problem is unnecessary. Attempting to determine a root cause is an unnecessary step. Military forces are generally the only major participant in the tactical solution, and they are usually an autonomous actor. Ultimately, in traditional combat missions, the assigned mission from higher headquarters defines the problem the unit must

solve. The Mission analysis concentrates on determining what the unit has been told to accomplish, what the obstacles to that mission are, and what it has to work with.

In operations other than war, problems are not as clearly defined. Missions may be broader and less clearly defined. Situations may or may not involve an enemy. The military may be the only participant, or one of many. The application of combat power may or may not be the solution, and rarely will it be the only solution. The next section considers the application of mission analysis in operations other than war to determine if the procedure is adequate to analyze missions and establish the foundation for developing courses of action.

Part IV - The Problem - Mission Analysis in Operations Other Than War

The tactical decision-making process grew out of combat and is designed for use in combat; however, the comparison in the previous section demonstrated the close similarity between traditional problem-solving methods, and both the tactical decision-making process and mission analysis. FM 101-5 states that the process is "designed for combat operations.... However, the process suits a variety of operations and satisfies general principles of effective organizational leadership in any environment."[38] This section considers the application of mission analysis in operations other than war to determine if the procedure is adequate to analyze missions and establish the foundation for developing courses of action.

Operations other than war differ from traditional wartime combat missions. Each poses different problems and challenges to military units. In traditional combat operations it is critical to determine exactly what a unit must do to accomplish its mission, and for what purpose. In operations other than war it is equally important; however, it may be more difficult. The problems in operations other than war are more complex because they are less clearly defined, have more participants, and more possible causes. Due to the greater complexity of operations other than war, unit leaders must gain a thorough understanding of the problem before attempting to solve it.

Traditional methods apply to solving virtually any problem. Mission analysis closely parallels problem analysis and definition, the first step in traditional problem-solving. A step by step comparison of mission analysis against the model of traditional problem analysis and definition will determine its validity in analyzing problems other than traditional combat missions. Figure 11 outlines this comparison:

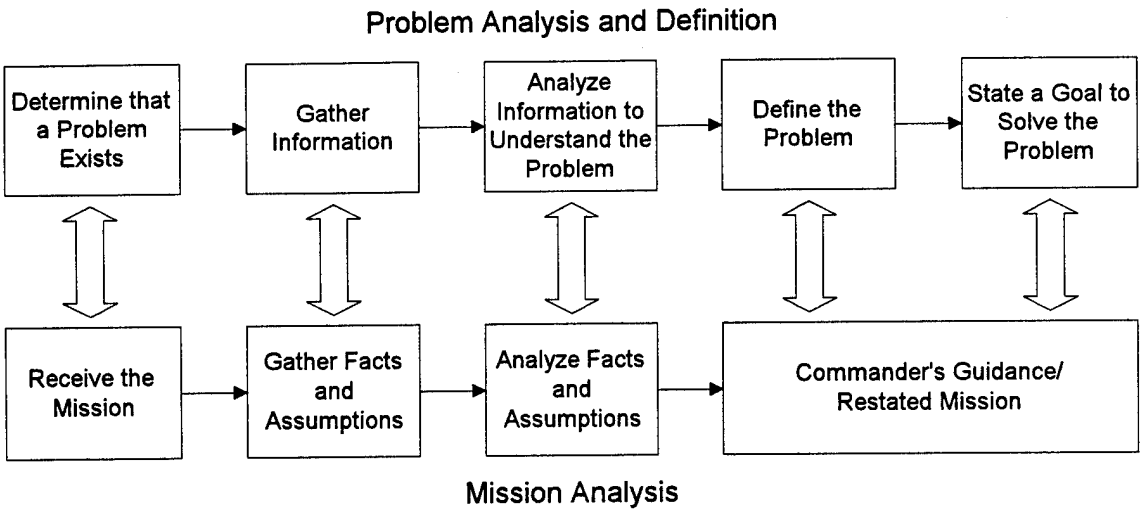

Figure 11. Mission Analysis and Problem Analysis and Definition.

This diagram illustrates the relationship between each step in mission analysis and problem analysis and definition. There are some differences in the steps; however, the ultimate goal of each approach is to provide a clear statement of goals and objectives. In traditional problem-solving, the goal of the first step is to understand the problem, define the problem, and establish an objective to solve the problem, so the process can proceed to developing possible solutions. In the tactical decision-making process the goal is essentially the same; it is to advise the commander on the situation so he fully understands the problem, approves the tentative restated mission, and can provide planning guidance so the staff can develop possible solutions.

Discussion - Mission Analysis

Mission analysis is critical because it determines the focus for the rest of the tactical decision-making process. Indeed, all problems must be defined first. Failure to properly analyze and define the problem may lead to the development of inappropriate solutions. As an example, after President Clinton ordered military forces to assist relief operations in Rwanda (Operation Support Hope), the first publicized event was an airdrop of food by three C130s in and around Goma, Zaire on 24 July 94. The media and non-

governmental relief agencies labeled the airdrop as a catastrophe, stating that the pallets narrowly missed hitting refugees, who thought they were being bombed. Additionally, the NGOs had to divert transportation assets to recover the pallets. Most importantly, the NGOs stated that the people had plenty of food. What was needed was clean water, medical supplies and transportation.[39]

This example illustrates the dilemma of developing a solution to the wrong problem. Although the decision to drop food was well intended and met the NCA guidance for quick action, it was an inappropriate solution to the problem. Thorough mission analysis followed by a correct determination of the problem might have prevented this embarrassing incident. Following that rocky start, EUCOM formed a JTF to run the operation.[40] The JTF conducted an extremely thorough mission analysis, and organized a highly successful relief operation.

Determine that a Problem Exists

The first step in traditional problem analysis and definition is to determine that a problem exists. In military operations, this step usually follows the receipt of a mission. FM 101-5(FD) states that "Deliberate decision-making procedures usually begin with either receipt or deduction of a mission by the commander...At times, a commander, on his own, may determine that his unit must perform certain battlefield tasks."[41] This event is the start of the tactical decision-making process and mission analysis.

In military operations, either in war or operations other than war, units usually receive a mission, at least initially. Standard orders contain information about the situation and may specify the fact that there is a problem. In most traditional wartime combat missions, units can identify that there is a problem *a priori*, because war normally includes clearly defined combatants. War also normally involves a clear definition of the overall goals of the military action. As such, on receipt of the mission, the main tasks are to

understand the higher commander's purpose and proposed solution, only then can the unit determine its role in the solution.

Not all missions are assigned. Often the command deduces the need to do something based on its understanding of the situation, or a change in the situation. Missions deduced from a changed situation may serve as branches or sequels to an existing plan. Additionally, the command may generate new missions based on an understanding of the purpose of the current mission.

In operations other than war the existence of a problem will normally be obvious, just as in conventional missions. The first indication of a problem is usually an assigned mission or a change in the situation. In operations other than war missions are more likely to develop from the ever changing and ambiguous situation than in traditional missions. In a traditional mission, a change in the enemy situation will usually precipitate a branch or sequel to the original plan, but ultimately the new mission is a variation on the same problem. In operations other than war changes in the situation may be the same problem enlarged, or may be an entirely new problem. New outbreaks of fighting, a greater influx of refugees, or flood waters continuing to rise are all examples of enlargement of the original problem. The presence of a new rival faction, the outbreak of disease, or diminished support of military operations by the local populous are all examples of new problems. Whether an enlarged or a new problem, the military unit would probably not receive a new mission, but would need to generate its own mission under the guidance of the initial commander's intent.

The development of a new problem, or generation of a new mission, requires a fresh mission analysis to analyze and redefine the problem. As an example, the change in the local population's support of US military operations may lead the commander to determine whether a new problem exists. Only further analysis will determine if the change in support is the problem, or just an indicator of a problem.

Gather Information About the Problem

Once a problem is determined to exist, the requirement to analyze it further demands a gathering of information about the problem. Gathering information is the second step in both problem analysis and definition, and mission analysis. There is little difference in the conceptual basis for this step between traditional problem-solving in wartime operations and in operations other than war. In both types of operations, this step exists to collect available information in order to better understand and analyze the problem.

Decisions are only as good as the information on which they are based. The facts and assumptions that must be gathered are those that have a direct bearing on the problem and will aid in understanding and defining it. Understanding the problem usually requires information from a wide variety of areas. In military missions these areas traditionally fall in the area of responsibility of one or more staff sections. The primary means for gathering facts and assumptions is the estimate conducted by each staff section.

The purpose of the operations other than war staff estimate is the same as for wartime missions, only the specifics of information gathered change. FM 101-5(FD) states:

> The estimates focus is on answering CCIR [commander's critical information requirements] so the commander can make informed decisions. Intrinsic to this process is the gathering and development of facts by each coordinating and special staff officer in his functional area. Assumptions replace missing but necessary facts until such time as those facts become known.[42]

In an operations other than war mission this is just as true. Each staff estimate needs to focus on gathering facts and assumptions the commander [and the rest of the staff] needs to understand and plan the assigned mission. This may require the staff to consider different areas in operations other than war than in war.

The personnel estimate is performed by the G-1. This estimate concentrates on the personnel in the command, considering information which ranges from unit strength to

soldier morale.[43] Of particular importance in wartime missions are casualty estimates and replacement projections.

In operations other than war that involve heavy causalities, the personnel estimate serves the same purpose as in conventional wartime missions. For many operations other than war missions, such as humanitarian assistance or disaster relief, combat losses will be minimal or non-existent. In such cases, the personnel estimate may concentrate in other areas, considering personnel issues beyond the immediate command. As an example, although casualties within the command may be reduced, part of the unit's mission (specified or implied) may include providing medical support to the indigenous population, NGOs, various combative factions, or others in the area of operations.

With assistance from the G-5, the personnel estimate should make an effort to project the number and location of possible casualties from other than U.S. forces. For example, military forces providing disaster relief after Hurricane Andrew treated nearly 24,000 civilians.[44] In addition to quantity, the estimate should identify any special training or equipment required for treating the casualties in accordance with the assigned mission and Title X, US Code.[45] With this information, the commander and staff can determine the legality and magnitude of the medical treatment mission and determine if outside assets are required. Failure to identify possible casualties may result in an unplanned requirement later in the mission. This is not an example of mission creep; it is a failure to properly analyze the situation. Providing medical treatment to the suffering is always an implied task, just as it is in treating enemy wounded in combat operations. If medical requirements exceed the capacity of available military and non-military resources for adequate medical care, then this fact must be identified as early as possible to plan additional support.

Another major part of the personnel estimate that may have a greater importance in operations other than war than in combat operations is discipline, law and order. In

conjunction with the PMO, the G-1 should include any key law and order information in this estimate. In some cases, particularly civil-disturbance missions, the PMO may produce a separate estimate.

Although many of the products in the intelligence estimate are the result of coordination with other staff sections, the estimate is the responsibility of the G-2. In the intelligence estimate, the G-2 describes is concerned with describing the environment of the battlefield including information on terrain, weather, enemy forces, capabilities and vulnerabilities, and friendly intelligence considerations.[46] There is a specific process for generating the information on terrain, weather and enemy known as intelligence preparation of the battlefield or IPB. In addition to the traditional role of the G-2 in combat operations, in operations other than war the staff section must plan for other areas. Some operations other than war missions, like Operation Restore Hope, may require both planning traditional IPB with traditional threat evaluation and integration as well as IPB products to support other missions like humanitarian assistance. Other types of operations, for example domestic disaster relief, will probably not have an enemy in the conventional sense, and require products more geared to the relief mission.[47] Products of this nature may require close coordination between the G-2 and other staff sections like the G-5.

In a combat situation IPB defines the battlefield environment, its effects, the threat, and threat courses of action.[48] The information provided by IPB in operations other than war does the same things that it does in conventional operations. IPB helps the commander understand the environment of the battlefield, the battlefield's effects, and the threat. These areas are no less important in humanitarian assistance or disaster relief than in more conventional combat missions, however, the approach to it is different.[49] Although IPB for these missions does not fit the standard mold, the process still applies:

> "The four steps of the IPB process remain constant regardless of the mission, unit, staff section, or echelon. The art of applying IPB to operations other than war is in the

> proper application of the steps to specific situations. The primary difference between IPB for conventional war and operations other than war is focus - the degree of detail required - and the demand for demographic analysis required to support the decision-making process."[50]

In Somalia, the 10th Mountain Division found that IPB defining the demographics of Somali society was vitally important. Knowing the demographics allowed leaders to analyze events and assign missions based on divisions between groups rather than arbitrary military boundaries. The Division also found that lack of knowledge on enemy doctrine and tactics made it difficult to perform threat integration, requiring them to construct a threat evaluation database from scratch while the mission was in progress. In the end, the IPB process was invaluable to support their missions.[51] In Operation Sea Angel, the Marines used video tapes taken by reconnaissance assets to help battalion leadership understand the environment of the disaster area prior to conducting humanitarian assistance inside Bangladesh.[52]

The G-3 prepares the operations estimate, the focus of which is to provide status of friendly units and their ability to perform the mission.[53] For a conventional mission, the operations estimate includes maneuver, fire support, air defense, chemical, engineer, electronic warfare, general aviation, military police and signal units. This estimate includes initial time analysis, and in conjunction with the G-2, the G-3 also defines the commander's battle space.

In an operations other than war mission, the concept of the operations estimate is the same. The operations estimate must still provide information about friendly forces, and their capabilities. This may include determining the capabilities of allied or joint forces, governmental agencies, and NGOs, and defining the role of each, particularly in accordance with historic or statutory constructs. Determining capabilities and defining roles are important tasks in operations other than war because of the number of players in addition to military forces, and the potential overlap in missions. Properly identifying the relationships and responsibilities of each organization assists in defining the specific

military role and enhances later coordination between the organizations. The operations estimate may also identify critical training or equipment requirements based on the available resources and anticipated mission requirements.

The logistics estimate "analyzes logistics factors affecting mission accomplishment,"[54] and is completed by the G-4. The purpose of the estimate is the same whether in traditional combat missions, or operations other than war. In some operations other than war missions, the estimate may include consumption requirements for non-military personnel. Estimates on logistics capabilities may include military and other government organizations, NGOs, PVOs, allies, and contractors. In humanitarian assistance and disaster relief missions, the logistics estimate is normally the focus of the entire operation, defining the magnitude of the assigned task.

The civil-military operations estimate provides the commander with information on civil-military cooperation, civil affairs unit capabilities, and the political, economic and social situation. Because operations other than war frequently involve the civilian populace and government, this estimate is crucial to description of the mission environment. Understanding the nature and operation of local governments, local customs and other civil-military information are key to determining the nature of the problem and developing its solutions. During Operation Provide Comfort, units distributing water found that cultural mores dictated the operation of issue points. Initially, concerns for proper rationing led to a requirement for Kurd males to draw water for their families. This procedure led to fights and knifings among the men waiting in the issue line. Á discussion with civil leaders revealed that drawing water was traditionally done by women in their society, and the men objected to assuming this new role. A change in policy to have women draw the water alleviated the problem and provided them an opportunity to talk and socialize.[55]

The civil-military affairs estimate should also include a detailed analysis of civil

government, including its functionality. In Somalia the lack of a functional government required the 10th Mountain Division to perform more tasks then expected. "With the absence of a legitimate government, and the number of warring factions, military forces were involved in every aspect of the restoration of order from limited combat operations to political negotiations and reconstruction of the national infrastructure."[56]

The five estimates above are not the only ones. Since the goal of the estimate process is to gather information so the commander and staff can understand, define and develop possible solutions to the problem, they should consider any information bearing the problem. Staff sections will frequently combine their efforts to collect this information. They may also work with other agencies such as special staff, government and non-government organizations to collect information. Based on the mission, civil affairs, PSYOPS, JAG, medical and other special staff officers may produce separate estimates.

Although facts and assumptions are gathered early in the mission analysis, they remain critical throughout the entire decision-making process. FM 101-5(FD) cautions us that "The staff prepares estimates before the onset of the initial operation. They continue throughout the execution of future branches and sequels. They are not a series of discrete steps relevant only to mission analysis, although preparation of formal written estimates may occur at discrete times."[57] The tactical decision-making process is actually continuous. Although it may initially focus on delivering a single plan, as facts or assumptions change, the staff and commander must ensure the old plan is still valid given in the current situation. If not, they must change the existing plan, or make a new oneFor this reason, gathering facts and assumptions is also an ongoing task that must continually feed into the decision-making process.

Analyze the Information to Understand the Problem

In traditional problem-solving, the analysis step of problem analysis and definition is where the information gathered is organized and studied in an effort to understand and describe the problem. This step is different in mission analysis. Rather than analyzing the information to understand the problem, mission analysis uses the eleven-step procedure to analyze the assigned mission. The process considers assigned tasks and purpose, available assets, and limitations. From analysis of these facts, the staff produces a proposed restated mission.

The first step of the analysis is to "gain a thorough understanding of the mission and intent of the two higher echelon commanders."[58] In traditional combat missions this step focuses on determining purpose of the operation from the standpoint of the higher level command, allowing the staff to determine what the higher command is trying to achieve. In operations other than war this step is the same and is equally important.

Understanding the purpose and desired outcome of the mission allows units to "fill in the gaps" where other guidance may not be clear. Tactical experience leads officers to expect a clearly defined mission and endstate, but this may not be a realistic expectation in operations other than war. The nature of operations other than war may lead the missions to be less concrete, and the endstate to be couched in political rather than military language. Neither operations other than war or the absence of concrete guidance are new phenomenon; they are just new for the current generation of leaders in the army. The Marine Corps Small Wars Manual, 1940, provides some perspective on this issue:

> Frequently the commander of a force operation in a small wars theater of operations is not given a specific mission as such in his written orders or directives, and it then becomes necessary for him to deduce his mission from the general intent of the higher authority, or even from the foreign policy of the United States. In any event, the mission should be accomplished with a minimum loss of life and property and by methods that leave no aftermath of bitterness or render the return to peace unnecessarily difficult.[59]

The higher mission and intent are key pieces of information that the staff gathers

prior to beginning analysis; however, if this information is not available, then it may have to be "deduced" from available information. For a lower level tactical unit with two levels of military command above it, this will seldom be a problem. However, it is possible for tactical units to work the at the operational level of war as in the case of an army division serving as a JTF HQ. In this case, two levels up may be the national command authorities (NCA). In such cases the unit may have to perform far greater analysis to determine the intent two levels up, and translate it into military language. The staff of JTF Support Hope found it necessary to analyze not only guidance from EUCOM, but statements made by President Clinton to news agencies as the mission continued to develop in Rwanda.[60] This allowed the JTF to better determine the purpose of their mission in terms of what both the CINC and the President envisioned it to be.

The next step of mission analysis is to review the area of operations, concept of the operation and task organization. There is little difference between these tasks in operations other than war and conventional missions with the exception of reviewing the area of operation. In conventional missions, this area is usually defined by operational graphics. In operations other than war, the area may be clearly assigned with graphically portrayed boundaries, or unit's area of operation may not be defined at all. It may be non-linear and without boundaries. This may require the unit to determine their own area of operation given their mission, or to utilize existing social or political boundaries. Additionally, it is possible that the area of operation may continue to change with new conditions or missions.

The third step is to identify specified and implied tasks. In concept, this step is not greatly different from a standard combat mission with the exception that tasks in operations other than war situations may not be as clearly defined as combat tasks, and specific tasks may not be assigned. Conventional missions have a host of references to define tasks and establish standards for conventional tasks, among them, FM 101-5-1 and

ARTEP manuals. Tasks in operations other than war are not as well defined. For example, the ARTEP task 'perform relief in place' is clearly defined in FM 101-5-1, and has standards in the appropriate ARTEP manuals, the task 'conduct disaster relief' has neither. This does not invalidate the step. Lacking clear definition of doctrinal terms places a burden on the military staff officer. The step still serves the same purpose, but requires a greater effort to identify the tasks.

The staff must determine both the specified tasks -- tasks that the unit has been specifically directed to accomplish, and the implied tasks -- those things that although not specified must be accomplished to achieve the purpose of the operation. Specified tasks may be clearly defined, or they may be extremely broad and defined in non-military language, or both. It is the responsibility of the staff to understand the intent of the task regardless of the language used to describe it. This determination of tasks requires a clear understanding of the purpose of the operation; purpose always takes precedence over tasks. Purpose also helps the staff determine the implied tasks. A detailed analysis of the situation may yield a significant number of implied tasks required to achieve the overall purpose of the operation. Determining implied tasks requires more careful analysis in operations other than war than in conventional missions.

Early identification of implied tasks prevents them from being specified by higher headquarters once the mission is ongoing, an occurrence frequently confused with mission creep. The term mission creep refers to a change in the purpose of the operation, an event which requires a new series of tasks to achieve that purpose. It is incorrect to refer to mission creep when new tasks are identified to satisfy the original intent. The 10th Mountain Division leaders experienced both an increase in tasks and "mission creep" in Somalia, but found that careful analysis of implied tasks mitigated some of the effects.

> In Somalia, the absence of governmental infrastructure frequently compelled U.S. commanders to become deeply engaged in a number of areas beyond the initial understanding of the security mission, to include coordination and various nation building functions. Competing priorities, external pressures and various

> interpretations of the mission resulted in a phenomenon known as 'mission creep,' which seemed frequently to take the participants beyond the strict interpretation of the security mission, in essence 'moving the goal posts.' Leaders need to be prepared for this phenomenon, and anticipate it in their vision statements, in analysis of implied missions, as well as in execution.[61]

Step four in the mission analysis is to identify tentative mission essential tasks, those tasks that a unit must accomplish to achieve its mission. Mission essential tasks can only be selected after a thorough understanding of the situation, the higher commanders' intent, and purpose of the operation. This step is the same in war and operations other than war; it is crucial, because it identifies the tasks the unit must accomplish to successfully achieve its part of the higher unit mission. Proper identification of mission essential tasks requires a true understanding of the purpose of the operation and the intent of the higher commanders. It is very possible that after close scrutiny, the implied tasks may comprise the bulk of the unit's mission essential tasks. These would be tasks that the higher command has not specified, but the unit must accomplish to achieve the desired endstate.

The fifth step in mission analysis, review available assets, is similar in both operations other than war and combat operations. Reviewing available assets is essentially the same as the friendly troops step of METT-T. However, in operations other than war the analysis of available assets involves far more than just friendly troops. Building on the initial information collected in the operations, logistics and civil-military estimates, this step includes analysis of the resources and assets available from the numerous non-military participants. In many operations other than war, mission analysis must go beyond simply considering military units, to include the resources and assets represented by the capabilities of NGOs, allies, local governments and private contractors, and other sources of equipment and supply. Although the military headquarters may not have direct control over other than military assets, these organizations are valuable resources for information, supplies, and assistance, particularly in humanitarian assistance and disaster relief missions. Additionally, contractual limitations may specify that organizations, both governmental

and private, will provide labor, transportation and supply resources. The analysis should include capabilities of these organizations to include assets, resources, timeliness, location, cost and other factors. Failure to carefully review all available resources may lead to wasting resources, duplicating effort, or developing too narrow a course of action.

The sixth step of mission analysis is to determine limitations; these include restrictions and constraints. The types of limitations in operations other than war may be different than those in traditional combat missions, but they are just as important. Operations other than war may have far greater restrictions on freedom of action for a military force because of civil-military considerations. Rules of engagement (ROE) may place restrictions on the way a unit can approach a problem or constrain the amount and type of force it can use. Civil laws such as the Posse Comitatus Act, anti-competition statutes, and fiscal and contract law may pose other limitations.[62] Different restrictions apply to international missions than for domestic missions. Military lawyers become essential members of the planning staff for their expertise in determining the extent of these limitations.

The seventh step in mission analysis is to take into account broad command and control warfare (C^2W) considerations. Though this step is the same for war and operations other than war, it is more applicable to combat missions. At the same time, command and control protection is a priority for friendly units even in the most benign environments. Counter command and control procedures are applicable in any mission where friendly forces gain an advantage by disrupting enemy command and control. For example, in operations other than war this step might include identifying an insurgent group's command and control mechanism, and determining available means to weaken it.

Step eight in mission analysis, determine acceptable risk, applies equally in war and operations other than war. In this step the unit analyzes the higher commander's mission and desired outcome to determine appropriate level of risk. Traditional combat risks may

involve an economy of force in one area to mass in another. Operations other than war may involve combat risks and also include risks which may potentially cause adverse reactions by the local populace, the spread of disease, or the outbreak of new violence between warring factions. Based on the analysis of the staff and understanding of higher mission, the commander must determine the level of risk he is willing to accept.

Step nine in mission analysis, determine critical facts and assumptions, applies to operations other than war, and serves virtually the same purpose as in combat operations. The commander determines the critical facts to focus the staff out of consideration for time, or an estimate of importance, or both. In operations other than war, changing facts and assumptions that may have a critical effect on the mission must be identified. For instance, during the course of the mission analysis the staff identifies a town which sits astride a major route through that region. Current intelligence identifies this town as friendly. The staff may assume the town will remain as friendly. If free passage through this town on the major route is critical to the success of the mission, then the assumption that the town will remain friendly is also critical. If circumstances develop which change the attitude of the populace toward the US mission, then mission failure could be the result. Identifying these critical facts and assumptions up front is important for two reasons. First, the commander and staff are able to recognize indicators of change in the facts and assumptions on which the plan is based, and determine when the plan is no longer valid. Secondly, by knowing circumstances which may change these facts and assumptions, they can take appropriate steps to discourage change in advance. Critical facts and assumptions form the basis of the commander's critical information requirements (CCIR).

Time analysis, the tenth step in mission analysis, may be significantly different between traditional combat missions and operations other than war. In traditional combat operations, units may accomplish the mission in as few as 3-5 days, and receive new

missions. In operations other than war, units may not complete missions in weeks, months or even years. Indeed, perseverance is one of the principles of operations other than war. In traditional combat missions leaders are concerned with the amount of time available until the operation begins, and developing a time schedule to prepare for the operation. In an operations other than war mission, leaders may be more concerned with amount of time required to restore services or reduce suffering. Traditional combat missions usually have a start time and an anticipated end time. Operations other than war may be more continuous in nature requiring a different type of time analysis. Instead of planning timelines for single missions, some operations other than war may require developing timelines for recurring missions such as food and water delivery or security missions.

Define/Quantify the Problem

In mission analysis, the step which follows analysis of purpose, tasks, resources and the other areas discussed in the previous section is to develop a restated mission. This is a concise statement of what the unit must achieve to be successful in its mission. The restated mission proposed by the staff is only tentative until approved by the commander. In traditional problem-solving, a concise statement of the problem follows the analysis phase. This step is significantly different between the tactical decision-making process and traditional problem-solving. In mission analysis, this step identifies the mission, while problem analysis and definition, it defines the problem. A mission is not the same as a problem; a mission is a possible solution to a problem. A problem statement is a description of what is not working and perhaps an explanation of why. The statement articulates the difference between the current situation and the desired outcome.

In a conventional mission, the problem is normally clear and does not require an extensive analysis for a root cause. It is given that the enemy is the problem, and some action to compel them to do our will is the solution. War by its nature is "an act of force

to compel the enemy to do our will."[63] This makes problem definition simpler in conventional missions allowing us to focus on the solution. Different situations require defining the problem to greater or lesser degrees. For a tactical level unit, such as a battalion subordinate to another army unit, defining the problem may be unnecessary. The situation may be well enough understood, and instructions from higher headquarters may be so clear that defining the problem is superfluous. For other units, as an example, the division headquarters minus or reinforced brigade headquarters, first to arrive on site, and performing as the senior army headquarters in an operation, this task may not be as easy. The guidance may not be clear, quantified or well defined, requiring the unit to determine and define the problem. Analysis of the higher task and purpose does not answer the question of what the problem is; it only answers the question of what the higher command thinks must be done to fix the problem, a question they may or may not be in a position to answer.

Operations other than war are more likely to require problem definition than conventional wartime missions. Higher levels of command may not be in the position to analyze the problem to the same degree they can in conventional combat missions. Operations other than war missions develop rapidly before higher commands can complete a thorough assessment. This means the unit on the ground may have to figure out and quantify the exact problem after they have actually started the mission. The 10th Mountain Division received a warning order for Somalia on 1 December 1992 and the execution order on 3 December. Marine forces landed 6 days later (D-day) followed by the 10th Mountain Division advance party on D+4. The 10th Mountain Division began staging their equipment within four days of the execution order. Much of the critical information required by the division was unavailable which made deployment and planning decisions very difficult.[64] The division understood that they were going to provide security to relief agencies. This was their assigned mission, however the problem was not the

security mission. Once in country, 10th Mountain Division and MARFOR began to understand that there were far greater problems in Somalia than starvation, many of which originated in the absence of any effective central government. Other problems became tasks as the mission continued.[65]

As another example of identifying the problem versus the mission, consider the earlier example of the town where the local population is becoming increasingly hostile to US forces. This change leads the commander to determine there is a problem. Only further analysis will determine if the change in support is the problem, or just an indicator of a problem. The real problem lies in why the support of US operations changed. Investigation of the issue may reveal that a group displeased with US military presence has begun spreading rumors of human rights abuses by military personnel. Analysis leads us to a definition of the problem and development of an appropriate solution. Simple analysis of assigned tasks does not.

Establish Goals and Objectives to Fix the Problem

The last step of problem analysis and definition is to establish goals and objectives to fix the problem. This focuses the effort to develop possible solutions in the next stage of problem-solving. In mission analysis, this step is the commander's guidance. This step is the same for both traditional combat missions and operations other than war. The commander's guidance establishes the goals and objectives to fix the problem. This guidance is a decision by the commander following a thorough analysis and briefing by the staff. The key factors of the commander's guidance which define goals and objectives are his approved restated mission, intent and concept of the operation. FM 100-5 states the intent includes the desired endstate and the purpose of the operation. "Its utility is to focus subordinates on what has to be accomplished in order to achieve success, even when the plan and concept of operations no longer apply, and to discipline their efforts toward

that end."[66] This guidance provides the entire staff with an understanding of what the mission must achieve, and therefore serves as the basis for developing solutions.

With the conclusion of the commander's guidance, the commander and staff transition to the next stage of the TDMP, course of action development. In this stage the staff develops possible solutions to the problem based on the commander's guidance.

Summary

The mission analysis process is equivalent to problem analysis and definition in traditional problem-solving. It follows a logical series of steps that proceed through identifying there is a problem, gathering information on the problem, analyzing the information, and producing goals and objectives to fix the problem. Mission analysis differs from traditional methods in that it does not seek to specifically identify the problem, but rather the unit's role in solving the problem. Bypassing problem identification relies on the assumption that the problem is obvious or has been adequately identified by higher headquarters. This assumption may be less valid in operations other than war than in traditional wartime missions.

Part V - Conclusions and Recommendations

Conclusions

The analysis of the previous three sections reveals that the TDMP is a logical approach to decision-making that closely follows traditional problem-solving methodologies. Mission analysis, the first step of the TDMP, is the equivalent of problem analysis and definition, the first step in traditional problem-solving. The purpose of each is to establish the foundation for developing possible solutions by analyzing information about the situation, and determining goals and objectives to solve the problem.

Although developed for conventional combat use, mission analysis applies to military missions in non-combat operations. The similarity of the mission analysis process to problem analysis and definition demonstrates a logical way to analyze any mission whether it involves combat or not. Many different types of information are collected and analyzed in operations other than war. The majority of doctrinal references concentrate on traditional combat missions and give minimal guidance on how to collect or analyze information for mission analysis in non-combat missions. Application of mission analysis in operations other than war missions requires an understanding of the intent of each step in the process. By understanding how each step contributes to the overall output of the process, staffs can adapt it to any situation. Diversified missions require a slightly different application of the process. Members of the staff may have to collect and analyze information which are within the purview of their staff area of responsibility, but fall outside the realm of their traditional combat mission responsibilities.

Mission analysis is a synthesis procedure designed to help the unit fully understand its mission and role in helping the higher command achieve its purpose. It is not a rote drill of identifying specified and implied tasks and then fitting the essential tasks into one sentence with who, what, when, where, and why. The product of mission analysis is not

merely a restated mission, but an understanding of what the unit must accomplish to achieve the purpose of the operation. This understanding is stated concisely by the commander in his guidance at the conclusion of mission analysis in order to focus staff efforts to develop possible solutions. This is the purpose of mission analysis in any operation whether it is a traditional combat mission or humanitarian relief. To adapt the process to different situations, the staff must ensure the products of their analysis allow the commander to fully understand the situation in order to make informed decisions and focus further planning.

The primary difference between mission analysis and problem analysis and definition is that former focuses on determining what the unit has been told to do while the later focuses on identifying the problem. An assigned mission does not equate to a statement of a problem. Rather, the mission is the best guess of higher headquarters on how to fix the problem based on its analysis. Focusing on the assigned mission is not sufficient in cases where understanding the problem is necessary to develop solutions, particularly if the analysis by the higher staff is incomplete or inadequate.

In doctrine as currently written, the mission analysis process does not lead the staff to identify the specific problem or its root cause. Some units may identify the problem in staff estimates or during mission analysis; however, a requirement to identify the problem before developing solutions is not explicitly stated in doctrinal references. Failing to identify the problem may not affect mission accomplishment in traditional combat operations; however, many operations other than war are less structured problems requiring a broader and more traditional approach to problem-solving. Failure to fully understand the problem in such operations may lead to developing solutions to correct symptoms of the problem rather than the root cause. The current mission analysis process is adequate to focus planning in structured missions with clear guidance from higher headquarters. The process is less appropriate in unclear and unstructured situations where

the unit must identify the problem and its root cause to develop solutions.

Recommendations

Based on the preceding analysis, several changes will make mission analysis better suited to the wider range of missions in operations other than war. These changes fall into three basic areas: changes to the mission analysis structure, changes to training, and changes to doctrinal references.

The current mission analysis process as described in doctrinal references does not require the staff to analyze or define the problem specifically. Adding two steps to the process that require the staff to analyze the problem and its causes, and to define the problem, will make mission analysis better suited to the broad problems posed by operations other than war. A step to analyze the problem and its causes should be added to the mission analysis process immediately following the step where the staff identifies the intent of the higher two commanders. By considering the purpose and endstate in the higher commanders' intent, the staff can gain a clear understanding of the desired outcome. By comparing the desired outcome to the current situation described in the estimates, the staff can begin analysis of the problem it is their mission to solve. Once they understand the problem and the purpose of the operation, they can better generate implied tasks and identify mission essential tasks to solve the problem.

The second structural change should be to add the step of identify the problem prior to developing a restated mission. The staff should attempt to formulate a concise definition of the problem it is their mission to solve and present it to the commander preceding the restated mission. The commander should either approve or disapprove the problem statement along with the restated mission. When the commander issues his guidance, it should include the problem definition when applicable.

These additions to the mission analysis will more closely align the process with

traditional problem solving methodologies, and make it applicable to a broader range of situations. It will help staffs better identify required tasks that are framed within the overall purpose of the operation. Predicting these tasks early will circumvent the surprise of being told to do them latter.

These expanded steps may not be necessary in every operation. In traditional combat missions, identifying the problem maybe a superfluous step. But rather than develop two problem-solving processes, one for war, and one for operations other than war, the steps should be added and skipped when they do not apply. This will aid the second area requiring change, training.

Service schools teach the TDMP, but the focus is on combat oriented missions. Curriculum should be expanded to include applying the TDMP in operations other than war missions that require the staff to deal with broad and complex problems. This would introduce students to applying the process in situations other than traditional combat missions. Additionally, units should conduct staff training exercises geared to plan missions and solve the broad problems posed by operations other than war.

Training of this nature would not detract from training for war; it would enhance it. Commanders us the orders drill to train staff officers to exercise the TDMP including mission analysis. The more they exercise it and the more varied the application, the better the officer understands and can apply the process in any situation. Training the staff to solve the same problem repeatedly leads to shortcuts in the analysis process and results in unimaginative solutions. Exercising the process in an unfamiliar set of circumstances trains officers to solve problems by thorough analysis, not by applying familiar solutions. To further enhance staff skills and application of the TDMP, service schools should include traditional problem-solving methods as part of the curriculum. This would help officers better understand the TDMP, and better prepare them to solve varied types of problems.

Doctrinal references are the third area requiring change; they should support plan-

ning in operations other than war. Manuals should include examples from both war and operations other than war. FM 34-130 outlines explanations the IPB process for both types of missions. Manuals such as FM 101-5, 100-15, 71-100, 71-3, 71-2 and others give little or no attention to planning operations other than war. The FM 101-10-1 series does includes consumption factors for traditional wartime missions, but not operations other than war. Although some estimates may be the same, others are not, making it difficult to produce administrative and logistics estimates in some operations other than war situations. FM 101-5-1 should include definitions of common tasks in operations other than war; this will allow units to use more concise language when describing tasks than is currently available. Lacking common definitions, each unit and level of command invents its own operational terms which leads to confusion about the exact meaning of a word and what must be accomplished to successfully complete a task. Enhancing the definitions of operations other than war tasks will make the specified tasks step of mission analysis easier and more precise. Lastly, FM 101-5(FD) should be changed to include explanation of mission analysis as an all inclusive process that begins with receiving the mission and terminates with the commander's guidance. This change will resolve the differences between diagrams and explanation in various sections of the manual. It will also aid in aligning the mission analysis process with the problem analysis and definition step of traditional problem-solving, making it a more versatile technique for solving problems.

Ultimately, adoption of the recommended changes will enhance the ability of military units to solve problems and plan missions in operations other than war using existing doctrine. Staff officers are trained to use the TDMP to plan wartime combat missions. Expanding this capability to include thorough analysis in operations other than war will enhance the versatility of the force and make tactical units more capable of solving problems in any situation.

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Primary Source archival material from the Center for Army Lessons Learned (CALL), and the Automated Historical Archives includes original documents and lessons learned from the following operations:

Bosnia/Former Yugoslavia (British)
Desert Shield/Storm
Exxon Valdez
Guantanemo (Cuban Refugee Assistance)
Hurricane Hugo
JTF Andrew
LA Riots
Provide Comfort
Restore Hope
Sea Angel
Sharp Knife
Support Hope (Rwanda)

Endnotes

[1] US Army, FM 100-5, Operations, (Washington DC: USGPO, 1993), p. 1-4.

[2] Ibid., p. 13-0.

[3] Ibid., p Glossary-6.

[4] Ibid., p. 13-1.

[5] Ibid., Chapter 13.

[6] Explanatory note: More complex problems does not mean more difficult problems. The problems faced by units in combat are among the most difficult imaginable; however, a combat problem with a defined enemy and battlefield has far fewer variables to consider and a far better defined mission and endstate than in the majority of operations other than war.

[7] Harold Koontz and Heinz Weihrich, Essentials of Management, Fifth Edition, (New York: McGraw-Hill, 1990), p. 108.

[8] Kenneth C. Laudon and Jane Price Laudon, Business Information Systems, A Problem-Solving Approach, (Chicago: Dryden Press, 1991), pp. 297, 317-321.

[9] Michael Roberts and E.R.Thomas, A Study of One of the Earliest Examples of Scientific Method, (London: Bell and Sons, LTD, 1934), pp. 53-61. See also Rene Descartes, Discourse on the Method of Rightly Conducting the Reason, and Seeking Truth in the Sciences, Translated by John Veitch, (Chicago: Open Court, 1924), p. 19.

[10] Roberts, and Thomas, pp. 1-57.

[11] William James, The Principles of Psychology, (Chicago: Encyclopedia Britannica, 1952), p. V.

[12] John Dewey, How We Think, (Boston: D.C.Heath and Co, 1910), pp. 68-79.

[13] Herbert A. Simon, The New Science of Management Decision, (New York: Harper and Row, 1960), p. 3. See also Dewey, How We Think, pp. 102-107.

[14] Arthur B. VanGrundy, Techniques of Structured Problem Solving, (New York: Van Nostrand Teinhold Company, 1981), p. 5-6. See also Simon, The New Science of Management Decision, p. 1-8.

[15] VanGrundy, p 6.

[16] Ibid., p 6.

[17] US Army, FM 101-5, Command and Control for Commanders and Staff, (Final Draft), (Washington DC: USGPO, August 1993), pp. 4-1 to 4-2, J-1 - J-9.

[18] Ibid., p J-1.

[19] T.R.Phillips, "Solving the Tactical Equation," Review of Military Literature, (Volume XVII, Number 66, 1937), pp. 1-8.

[20] Ibid., p 8

[21] Ibid., p 23.

[22] FM 101-5(FD), p. 4-2.

[23] Roger Kaufman, Identifying and Solving Problems: A System Approach, (La Jolla, California: University Associates, Inc. 1976), p. 3-21.

[24] John D.Arnold, Make Up Your Mind, The 7 Building Blocks to Better Decisions, (New York: AMACOM, 1978), p. 53.

[25] Russel Ackoff, The Decision Science Process, Integrating the Quantitative and Behavioral, Thad B.Green, Sang M. Lee and Walter B. Newsom Editors, (New York: Petrocelli Books, 1978), p. 36.

[26] Irwin Edman, John Dewey, His Contribution to the American Tradition, (Indianapolis: Bobbs-Merrill, 1955), p. 223.

[27] VanGrundy, Techniques of Structured Problem Solving, pp. 6-32, See also: Arnold, Make Up Your Mind, The 7 Building Blocks to Better Decisions, pp. 25-58, Laudon, Business Information Systems, pp. 301-304. Dewey, How We Think, pp. 101-102. Robert R.Carkhuff, The Art of Problem-Solving, A Guide for Developing Problem Solving Skills for Parents, Teachers, Counselors and Administrators, (Amherst, Massachusetts: Human Resource Development Press, 1973). pp. 16-45. and Charles H. Kepner and Benjamin B. Tregoe, The Rational Manager, A Systematic Approach to Problem Solving and Decision Making, (New York: McGraw Hill, 1964), pp. 7-23, 57-87.

[28] FM 101-5(FD), p 4-11 to 4-15.

[29] US Army, Command and General Staff College, CGSC Student Text 100-9, The Tactical Decisionmaking Process, (Fort Leavenworth, KS: US Army Command and General Staff College, July 1993), p. 2-1.

30 US Army, FM 101-5, Staff Organization and Operations, (Washington DC:

USGPO, May 1984), p. 5-8.

[31] FM 101-5(FD), 1993, p. 4-74, figure 4-5.

[32] Ibid., p. C-5.

[33] Ibid., p. 4-73, figure 4-4.

[34] Ibid., p. C-2.

[35] Ibid., p. 4-11.

[36] Ibid., p .4-18.

[37] Ibid., p. 4-17.

[38] Ibid., p. J-1.

[39] Reuters, "US Halts Rwanda Airlift," (Prodigy Interactive Personal Service, 25 July 1994).

[40] From and interview with LTC Jerry Pownall, Military Intelligence, on 27 October 1994; LTC Pownall served as a member of JTF Support Hope J-5 Staff.

[41] FM 101-5(FD), p. 4-9.

[42] Ibid., p. C-4, C-5.

[43] Ibid., p. C-5.

[44] Gordon R.Sullivan, "Hurricane Andrew: An After Action Report," Army, (January 1993), p. 19.

[45] U.S.Marine Corps, Marine Corps Lessons Learned (MCLL) 50753-22499, Operation Restore Hope, 18 August 1993. Title X restricts the use of medical supplies for treatment of non-military personnel. What restrictions apply must also be carefully considered in the estimate based on the assigned missions.

[46] FM 101-5(FD), pp. C-10, C-11.

[47] US Army, FM 34-130, Intelligence Preparation of the Battlefield, (Washington DC: USGPO, July 1994), chapter 3.

[48] Ibid., pp. 1-1 to 1-4.

[49] US Army, Combined Arms Center, Operations Other Than War, Volume II: Disaster Assistance, (Fort Leavenworth, KS: Center for Army Lessons Learned (CALL), No. 93-6, October 1993), p. I-8.

[50] FM 34-130, p. 6-1.

[51] JULLS Long Report, 12543-96835 (00113), Operation Restore Hope, 24 January, 1993.

[52] MCLL 61050-20893, Operation Sea Angel, 11 May 91.

[53] FM 101-5 (FD), p. C-12.

[54] Ibid., pp. 4-5, C-9.

[55] From an interview with Major Gary Coleman, Veterinary Corps, 8 April 1994.

[56] "Executive Summary Operation Restore Hope," JULLS Long Report, (22 March, 1993), p. 9.

[57] FM 101-5(FD), p. C-2.

[58] Ibid., p. 4-11.

[59] US Marine Corps, Small Wars Manual, US Marine Corps 1940, (Manhattan, Kansas: Sunflower University Press, 1991), chapter II, page 2.

[60] Interview with LTC Pownall. LTC Pownall related that as Operation Support Hope continued to develop, the JTF planners routinely watched news broadcasts and made notes of any major annoucements by the President and other key leaders concerning the mission. Planners used this information to help determine the commander's intent and the desired endstate for the operation.

[61] "Executive Summary Operation Restore Hope," p. 13.

[62] "JTF Andrew U.S.Army Forces After Action Report Executive Summary," (9 October 1992), p. 10.

[63] Carl von Clausewitz, On War, Edited and translated by Michael Howard and Peter Paret, (New Jersey: Princeton University Press, 1986), p. 75.

[64] "Executive Summary Operation Restore Hope," pp. 9-12.

[65] Ibid., p. 13.

[66] FM 100-5, p. 6-6.