

United States General Accounting Office Report to the Honorable Ike Skelton, House of <u>Representatives</u>

January 1995

# FORCE STRUCTURE

Army's Support Requirements Process Lacks Valid and Consistent Data

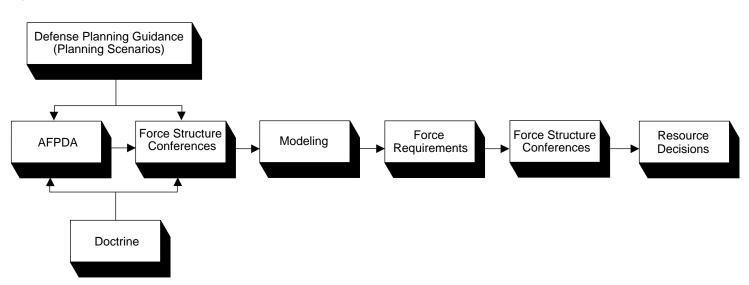


GAO	United States General Accounting Office Washington, D.C. 20548
	National Security and International Affairs Division
	B-259184
	January 30, 1995
	The Honorable Ike Skelton House of Representatives
	Dear Mr. Skelton:
	This report responds to your request as the former chairman of the Subcommittee on Military Forces and Personnel, Committee on Armed Services, that we evaluate the Army's Total Army Analysis (TAA) process to determine if its results are based on valid data and assumptions. The TAA process is used to determine the required support forces to sustain combat divisions and brigades. Support forces include units such as transportation, maintenance, military police, and quartermaster. This report focuses on logistical data and related assumptions used in the process.
Background	During Operation Desert Storm, the Army deployed all or nearly all of certain support units such as transportation and military police units. As threats to U.S. security interests evolve and defense budgets shrink, it is important that the Army accurately identify the support forces it requires. TAA is the Army's biennial process to determine required support units and recommend the type and number of support units that the Army should include in its budget. The requirements generated in this process are dependent on a variety of inputs and guidance, including scenarios derived from the Defense Planning Guidance, <sup>1</sup> wargaming assumptions, and logistical data that are developed for use in the computer modeling. For purposes of this report, logistical data include planning factors, consumption rates, and other data. Planning factors cover 9 of the Department of Defense's (DOD) 10 classes of supply; for modeling purposes, these factors are usually expressed in pounds per person per day. Consumption rates include such factors as the number of soldiers admitted to a hospital per day and the number of prisoners captured per day. An example of other logistical data would be the amount of support that allies can provide to offset U.S. requirements. While planning scenarios are largely given to the Army, logistical data must be developed by the Army. These data are compiled in the Army Force Planning Data and Assumptions document (AFPDA). Once the data are finalized—during TAA force structure conferences—the Concepts Analysis Agency conducts
	<sup>1</sup> The Defense Planning Guidance translates the President's National Military Strategy into defense planning goals. It has illustrative planning scenarios by theater.

GAO/NSIAD-95-43 Force Structure Requirements

the computer modeling, which generates unit requirements based on a set of rules that determine the number of support units needed. After requirements are determined, additional force structure conferences are held where Army officials decide which units can be filled within the projected resource levels. Figure 1 highlights key elements of the TAA process for developing requirements and making force resourcing decisions.

#### Figure 1: The TAA Process



The Army's Deputy Chief of Staff for Logistics (DCSLOG) is responsible for developing the logistics data in the AFPDA. In practice, some of this responsibility has been delegated to the Combined Arms Support Command (CASCOM), which is the Army's integrator for some combat service support issues. Biennially, DCSLOG and CASCOM update the logistics portions of the AFPDA by tasking the major commands, Army component commands,<sup>2</sup> and schools to validate the logistical data related to their areas of expertise. For example, school representatives are tasked to validate data based on their perspectives on doctrine; component commands are tasked to provide their perspectives on unique data and

<sup>&</sup>lt;sup>2</sup>Army component commands are service components of the theater Unified Commands. For example, U.S. Army, Europe, is the Army component of the European Command and U.S. Army Central Command is the component of the Central Command.

	issues related to their theater. The logistical data are presented to workshops to gain group acceptance. They are then sent forward to the TAA force structure conference, where the data are approved.
Results in Brief	The Army lacks adequate procedures governing the development and review of logistical data used in the TAA process. Until recently, Army regulations only focused on the management and validation of one type of logistical data—planning factors. However, these regulations were not followed. As a result, some data used in TAA were outdated or unreliable. The Army has revised its regulations to require that all logistical data in the AFPDA be validated and that CASCOM centrally manage the process. Although this is a step in the right direction, we believe that further guidance is needed for ensuring the validity of all logistical data, and to ensure that there is sufficient oversight of the process.
	The data and assumptions that Army programmers use in the TAA process are sometimes different from what Army component planners use for war plans. These differences contribute to vastly different requirements. Since TAA requirements are the basis for resourcing decisions, these differences need to be identified and evaluated to ensure that there are valid reasons for the differences.
More Procedures Needed to Improve Validity of Logistical Data	Army documents describe the AFPDA update as a systematic review and validation of key data used in TAA. However, Army regulations related to TAA primarily focused on the validation and management of planning factors. Effective May 1994, the Army broadened its regulation to include additional logistical data found in the AFPDA. This change should help to improve the validity of logistical data, but additional procedures are needed to correct the problems we found with the AFPDA update process.
Regulations Governing AFPDA Update	Before May 1994, Army regulation 700-8 specified responsibilities for the development and management of logistics planning factors. The Army Logistics Center, CASCOM's predecessor, was responsible for managing the development, validation, and collection of planning factors, and was to recommend factors to DCSLOG for approval. However, DCSLOG and CASCOM officials did not believe that the development and management of other logistical data for use in the AFPDA, such as theater specific data provided by component commanders, were covered in this or any other regulation prior to May 1994.

	In 1993, the Army Audit Agency found the Army's management of planning factors to be inadequate, and recommended changes to the process. The recommended changes included tasking responsible activities to (1) update planning factors periodically and (2) validate methodologies and assumptions used to develop planning factors. In 1994, the Army revised its regulations to improve the management of planning factors. These revisions included specifying time frames for updates to take place and incorporating internal control responsibilities to guide the development of planning factors. The regulation was also changed to include other logistical data and to link the development of logistical data to the AFPDA. While the regulation gave DCSLOG the overall responsibility for logistical data management, the day-to-day management for logistical data was delegated to CASCOM.
Previous Process Did Not Ensure Valid Data	The Army's TAA process relied heavily on commands and schools to review and validate the accuracy of logistics data. Commands and schools were requested prior to the TAA workshops to review and validate logistics data. However, we found that some data had not been validated, were outdated, or were not supported by documented studies. Because the process was poorly documented, we could not determine how widespread these problems were. Further, no organization was responsible for ensuring that the data validations occurred and were derived from consistent and sound methodological studies.
	Our review of available documentation for several past TAAS showed that some data had not been validated in several years. Although some school officials believed the AFPDA contained outdated data, actions were not undertaken to validate or change the data. For instance, officials with the ordnance school, which develops doctrine for maintenance units, expressed concern in 1989 that rates for equipment that is expected to be abandoned and the rates for vehicles expected to be damaged in combat had not been updated in 4 years and, thus, were unlikely to be accurate. These rates primarily affect the number of maintenance units. In another instance, the Army engineers submitted workload factors that were outdated and had not been validated prior to the January 1992 TAA workshop. These factors measured the number of hours it takes to construct such structures as railroads, bridges, and pipelines. A new study was done only after concerns were raised about the validity of these factors during the AFPDA workshops.

	We found data that were not supported by documentation. At the U.S. Army Central Command (ARCENT), for example, officials that provided data for TAA in 1992 had not maintained documentation that would show how the data were developed. This lack of documentation reduces assurance that the data are valid and can cause problems during future updates if key personnel change. For example, U.S. Army, Korea, officials told us that they did not know how data on the Korean theater had been developed because there were no files or individuals who could explain the prior year's validation process.
	We found that while the Army sought consistency and accuracy in the logistical data update process, no organization ensured that a reasonable methodology was used by the commands and schools nor that studies or supporting models used to develop the data were valid. We found that neither CASCOM nor DCSLOG had overseen the validation process. According to a DCSLOG official, DCSLOG has not routinely reviewed the methodology used by various proponents who submit factors and data to the process. This official stated that only if a factor looked unusual would it generate an inquiry back to the proponent to ask how that factor was developed. CASCOM officials stated that they had no regulatory requirement to review the methodology of proponents who developed logistical data.
Additional Procedures Needed to Ensure Data Are Validated	The Army's revised regulation governing the development and validation of logistical data for the TAA process is an improvement. The revised regulation requires CASCOM to examine the AFPDA to ensure data consistency, adherence to doctrine, necessity, identification of sources, and rationale of methodology. It also specifies time frames for the AFPDA updates, thus putting the commands and schools on notice when the data validation will be required. CASCOM officials stated that they have not yet defined their role regarding overseeing the update of AFPDA data. Therefore, CASCOM had not told the commands and schools what will be required of them. We believe that CASCOM should establish procedures that would specify how commands and schools are to validate and maintain all logistical data in the AFPDA. Specifically, major commands, Army component commands, and schools should be directed to ensure that their data are based on sound analytical studies and assumptions and that the methodological bases for those data and assumptions are documented. Moreover, CASCOM's guidance should specify what CASCOM will require from commands and schools to exercise its oversight responsibility. According to DOD, CASCOM is already developing procedures to improve the update

	process and should complete a review of the adequacy of existing data by the end of 1996.	
Inconsistencies Between TAA and Army Component Commanders' War Plans Cause Different Requirements	According to Army regulations, theater-specific data are best obtained from Army components most familiar with the region and involved in the theater war-planning process. However, we found that the current level of participation by Army component commanders does not ensure that data and assumptions used by TAA are similar to data that component commands use to develop their war plans. The result is that the required force structure developed in TAA does not agree with theater war plans.	
Army Component Planners Role in TAA	Army component commands should have an important role in the TAA process. During development of the AFPDA, Army regulations instruct the Army components to review, revalidate, and submit theater-unique logistics data. Specifically, they are to provide data such as support provided by allies, theater stockage policies, and theater consumption factors. Also, as part of the TAA process, Army components identify theater-unique requirements that may be different from current doctrinal rules. This identification is required because the Army recognizes that each theater is unique and that the Army component commands are the most familiar with their area.	
	In practice, however, Army components sometimes believe that their role in the process is insufficient to affect the process. Thus, Army component officials said they don't always consider developing data for TAA as a priority. Therefore, some commands do not always send representatives to workshops where data are discussed and adopted. In other instances, component command representatives at the workshops have not challenged data that is inconsistent with their plans.	
TAA Does Not Always Reflect Same Requirements as Theater War Plans	TAA requirements for military theaters sometimes differ from those in theater war plans. Some differences can be attributed to the fact that TAA provides a longer-term force structure outlook than theater war plans. <sup>3</sup> Other differences, however, result from TAA and war plans being derived from different assumptions, logistical data, and computing methods.	

<sup>&</sup>lt;sup>3</sup>Army components develop their war plans for the next few years based on Joint Chiefs of Staff guidance. TAA develops the Army's future program force structure based on the Defense Planning Guidance. For example, the current TAA is developing requirements extending out to fiscal year 2003.

For example, according to U.S. Army, Europe, officials, TAA requirements developed in 1992 did not match planning efforts in the European theater because the two processes used different scenarios. TAA modeled a northern region scenario for Europe, whereas U.S. Army, Europe, used a southern region scenario in its war plans. The TAA's northern region scenario was based on the Defense Planning Guidance. U.S. Army, Europe, officials believe that TAA-generated requirements are based on an unrealistic scenario. U.S. Army, Europe, officials told us that conflicts in the southern region are more probable than the northern region; and thus, believe establishing requirements for that region is prudent. Further, force structure requirements for the southern region are more challenging than for the northern region because of the more mountainous terrain, lack of infrastructure, and the lack of host nation capability. As a result, U.S. Army, Europe's, requirements and the TAA requirements for Europe differed greatly. U.S. Army, Europe, officials stated that these difference still exist in the current TAA update cycle.

In another example, we compared TAA support requirements developed in 1992 for Southwest Asia with ARCENT's operational requirements. The analysis showed that some support areas, such as medical, maintenance, and military police differed significantly. Table 1 summarizes some of the differences between ARCENT requirements based on TAA and war plans.

Unit type	ARCENT requirement based on TAA	ARCENT requirement from war plans	Comparison of TAA's requirement to war plans (in percent)
Combat support hospitals	18	31	58
Maintenance positions	8,260	2,767	299
Military police companies	77	107	72
Prisoner of war battalions	3	17	18
Escort guard companies	1	24	4
Guard companies	7	28	25

As shown in the table, ARCENT plans require 31 combat support hospitals, which would require 18,817 positions, and TAA requires 18 hospitals, which would require 10,908 positions—a difference of 13 hospitals and 7,909 positions. The ARCENT medical planner believes TAA uses disease and

### Table 1: Comparison of ARCENT's TAA and War Plans Requirements

	non-battle injury rate much below what the Command believes are likely in its region, resulting in lower patient estimates and fewer hospitals. A CASCOM official responsible for medical units was unaware that ARCENT used a different method to determine requirements for combat support hospitals. However, this official believes that the TAA method is more precise.
	The table also shows that TAA has about 8,260 general support maintenance positions, while ARCENT plans envision 2,767 positions—a difference of 5,493 positions. TAA requirements were developed in response to a protracted Central European scenario that involves equipment overhaul in theater. Because ARCENT does not envision a protracted conflict in the Southwest Asia region, ARCENT plans to perform most major repairs in U.S. depots. ARCENT officials said that they have not yet been successful in convincing TAA decisionmakers to adopt the ARCENT concept. However, a CASCOM official familiar with maintenance unit issues said that ARCENT has not surfaced this issue in TAA workshops or conferences.
	The table also shows differences between TAA and ARCENT war plans for combat support military police companies. ARCENT plans require 107 of these companies, whereas TAA requires 77 companies—a difference of 30 companies and 5,280 positions. The ARCENT Military Police planner stated that requirements are different because TAA modeling does not adequately reflect theater geography and concentration of troops in determining requirements for these police companies. CASCOM officials stated that TAA has not addressed these issues because ARCENT has not raised them at workshops and conferences.
Recommendations	commands, Army component commands and schools should validate and maintain data for the AFPDA and (2) what CASCOM will require to exercise its oversight responsibility.
	for differences or make adjustments to requirements.

Agency Comments and Our Evaluation	DOD generally concurred with our findings and our recommendation that procedures are needed to ensure that data are valid. DOD noted that CASCOM is in the process of establishing procedures to improve the validation of data used in TAA. DOD disagreed with our recommendation that the Army identify differences between theater planning and TAA requirements to ensure that the reasons for the differences are valid. DOD believes that the two processes were designed for different purposes and yield different but consistent results.
	We recognize that there are differences between the process used to compute requirements for the TAA and theater commands. These differences largely result because TAA computes requirements further in the future than do theater commands, which may result in different assumptions such as the level of unit modernization, threat, and budget levels. However, the examples we have cited are not related to these factors. Rather, the differences result from fundamentally different views about how certain functions will be performed or at what rate events will occur. Thus, we continue to believe that differences between the two processes should be identified to determine if they are valid.
	We conducted this review from July 1993 to September 1994 in accordance with generally accepted government auditing standards.
	We are sending copies of this report to the Secretary of the Defense; the Secretary of the Army; the Director, Office of Management and Budget; and interested congressional committees and individuals. Copies will be sent to other interested parties upon request. Please contact me at (202) 512-3504, if you or your staff have any questions concerning this report. Major contributors to this report are Robert Pelletier, Rodell Anderson, and Blake Ainsworth.
	Sincerely yours,
	Richard Davis
	Richard Davis

Richard Davis Director, National Security Analysis

### Appendix I Scope and Methodology

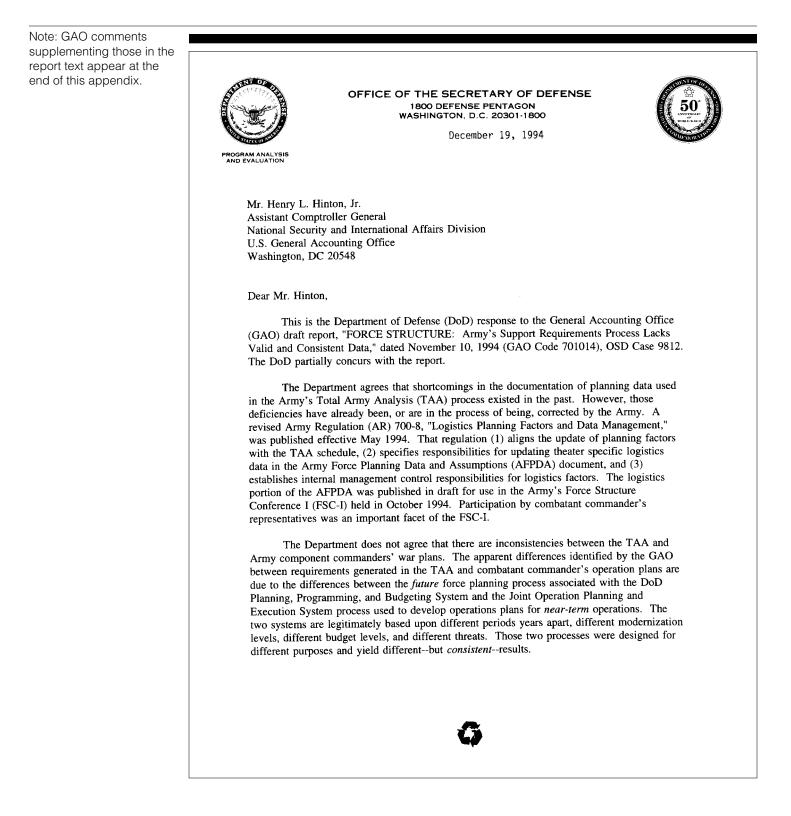
To determine how Army assumptions and data used in the TAA process were developed, we reviewed available documentation from past TAAS and interviewed officials at the Department of the Army Headquarters, Washington D.C; Concepts Analysis Agency, Bethesda, Maryland; U.S. Forces Command, Fort McPherson, Georgia; Combined Arms Support Command and Quartermaster School, Fort Lee, Virginia; Transportation School, Fort Eustis, Virginia; Engineer School and Center, Fort Leonard Wood, Missouri; and the Medical School and Center, Fort Sam Houston, Texas.

To gain a perspective on Army component commands' participation in TAA and the relationship between TAA and operational planning, we interviewed personnel and reviewed related documents at the U.S. Central Command at MacDill Air Force Base, Florida; U.S. Army, Central Command at Fort McPherson, Georgia; the U.S. European Command at Stuttgart, Germany; U.S. Army, Europe, at Heidelberg, Germany; and Forces Command at Fort McPherson, Georgia. We also discussed 8th U.S. Army's role in TAA with logistics planners in Seoul, Korea.

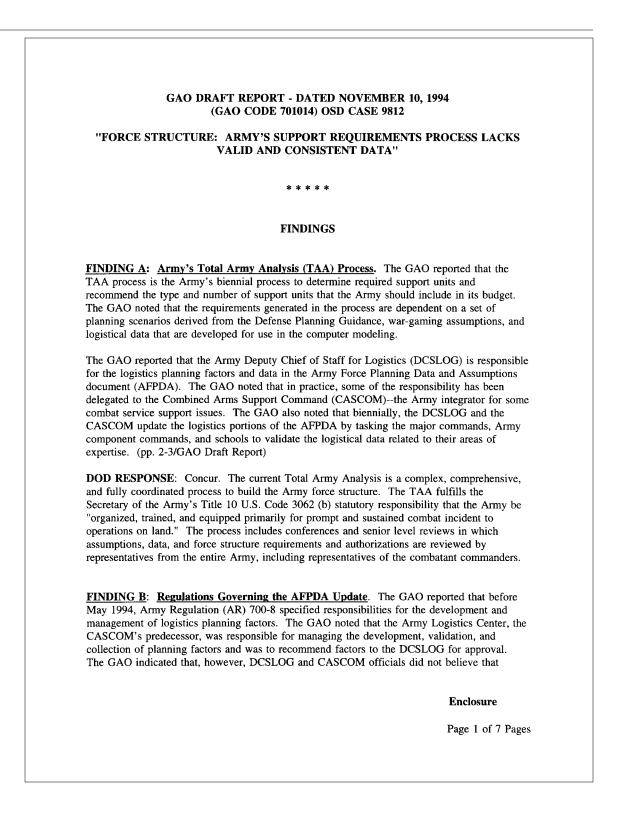
To assess TAA and theater requirements for Southwest Asia, we reviewed ARCENT'S major operations plan and troop list for the region and compared it with TAA modeling results and other TAA-related requirements and resourcing documents.

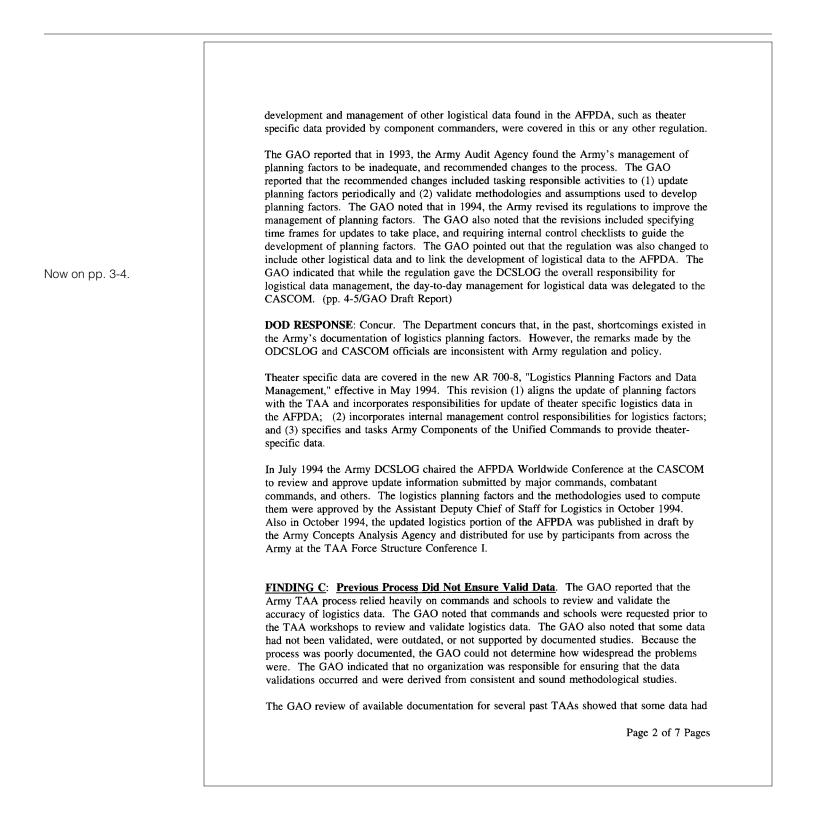
### Appendix II

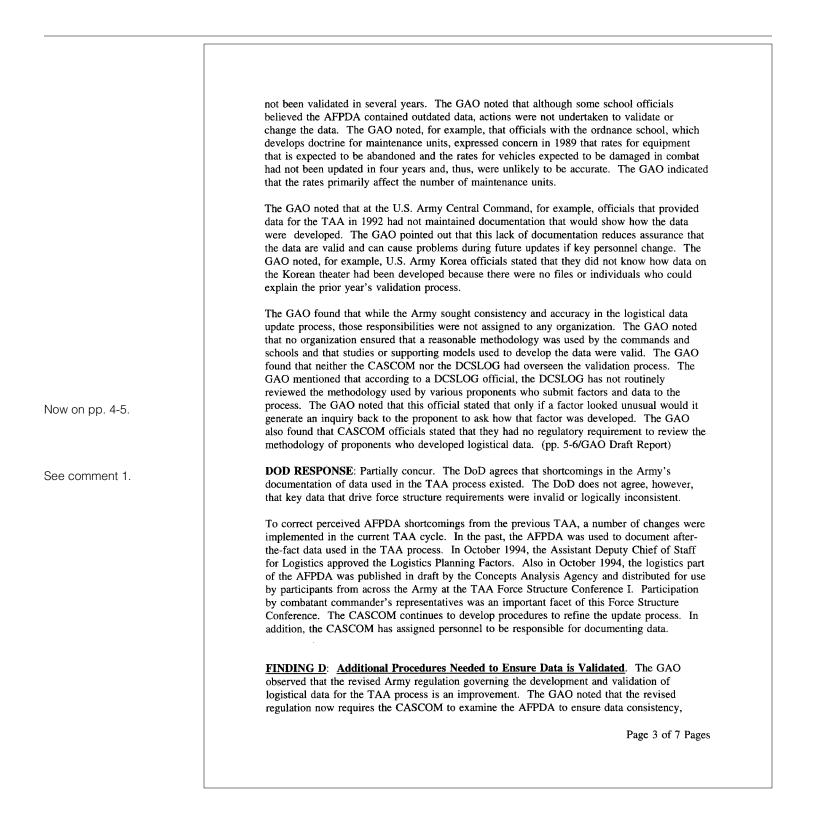
## Comments From the Department of Defense

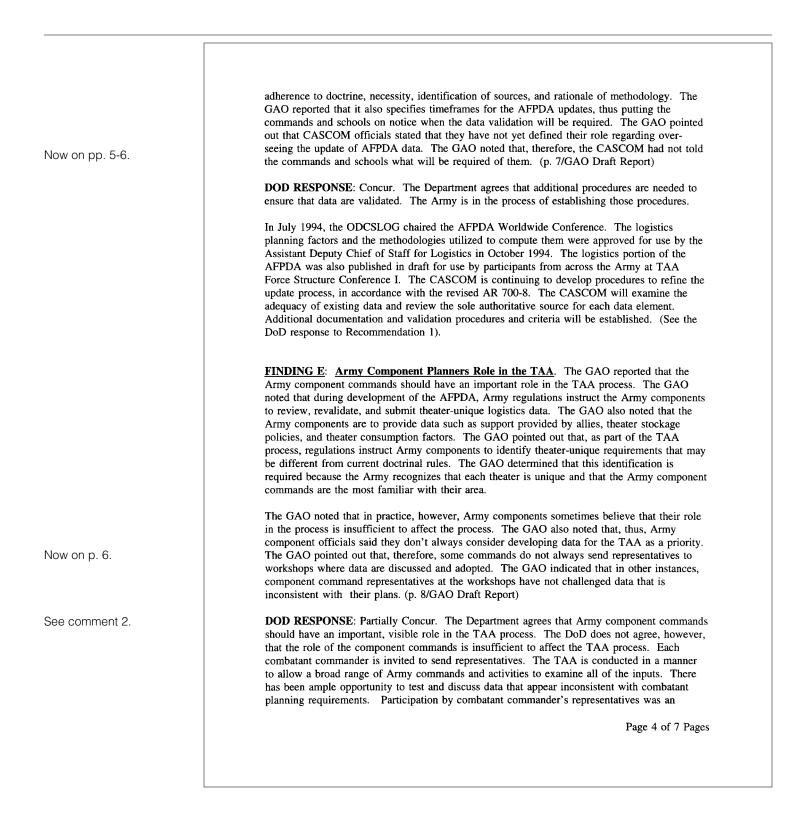


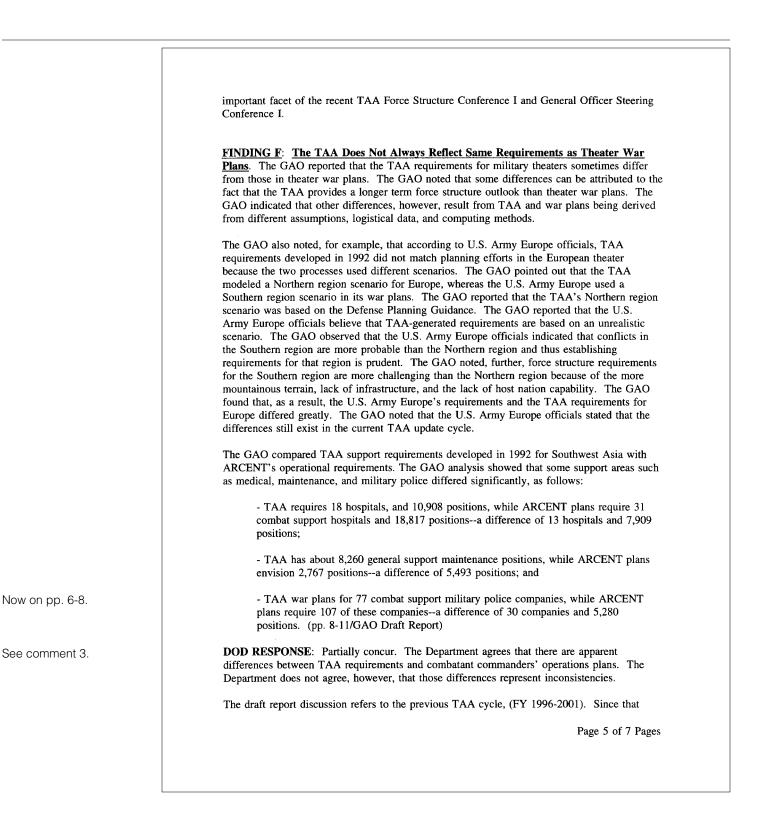
The detailed DoD comments on the draft report findings and recommendations are provided in the enclosure. The DoD appreciates the opportunity to comment on the draft report. Sincerely, William J. Lynn Director Program Analysis and Evaluation Enclosure

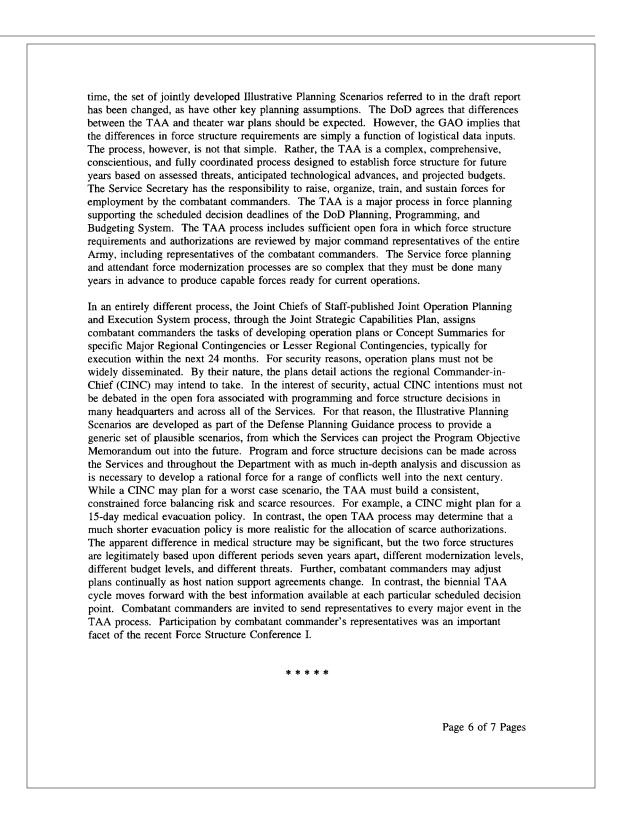


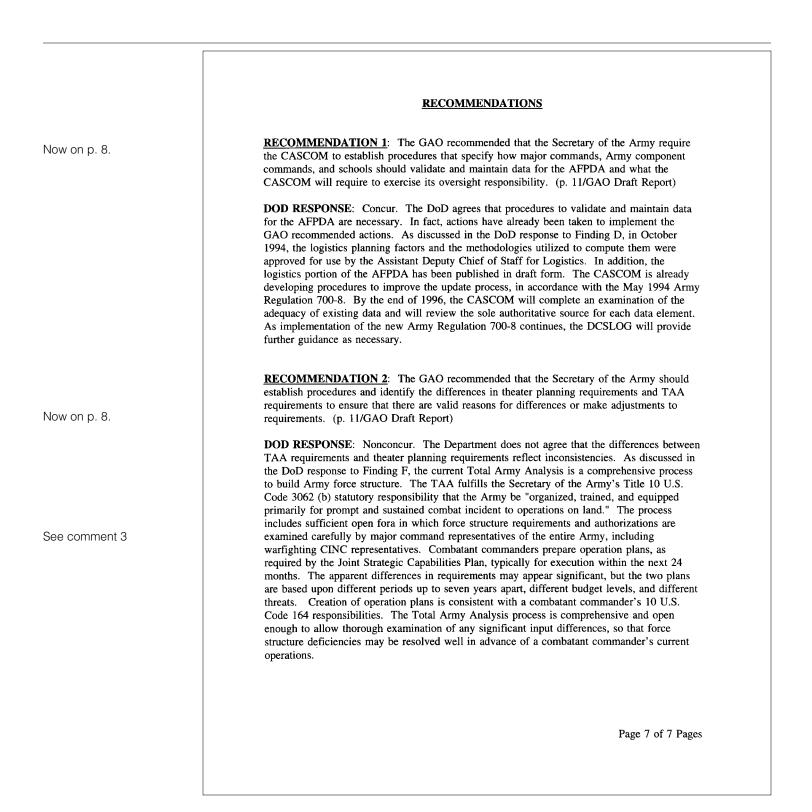












	The following are GAO's comments on the Department of Defense's (DOD) letter dated December 19, 1994.
GAO Comments	1. We continue to believe that the Army's Total Army Analysis (TAA) process did not ensure valid data, based on the problems we found with the process. DOD describes improvements made during the current TAA; we did not review the improvements, and thus, we cannot comment on them. However, as DOD acknowledges in its response, additional procedures are needed to ensure that data are validated.
	2. Our information is based on numerous discussions with theater command representatives at Army Central Command and U.S. Army, Europe. These individuals indicated that theater command participation is not comprehensive and conscientious enough to ensure that theater perspectives are considered in the process.
	3. We recognize that there are differences between the process used to compute requirements for the TAA and theater commands. These differences largely result because TAA computes requirements further in the future than do theater commands, which may result in different assumptions, such as the level of unit modernization, threat, and budget levels. However, the examples we have cited are not related to these factors. While DOD believes that the TAA process includes sufficient open forums in which force requirements are reviewed by representatives of theater commanders, many theater representatives believe their perspectives are not always included in the TAA process. Because we did not have access to these debates, we could not ascertain to what degree theater perspectives are raised or how differences are resolved. Therefore, we continue to believe that differences between the two processes should be identified to determine if they are valid.

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