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Joint Pub 4-04



Joint Doctrine
for
Civil Engineering Support



26 September 1995

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PREFACE

1. Scope

This publication describes joint civil engineering mission planning, coordination responsibilities, capabilities, and limitations. It is written for those commanders and staffs planning, coordinating, and executing joint civil engineering operations.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff. It sets forth doctrine to govern the joint activities and performance of the Armed Forces of the United States in joint operations as well as the doctrinal basis for US military involvement in multinational and interagency operations. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders and prescribes doctrine for joint operations and training. It provides military guidance for use by the Armed Forces in preparing their appropriate plans. It is not the intent of this publication to restrict the authority of the joint force commander (JFC) from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall mission.

3. Application

a. Doctrine and guidance established in this publication apply to the commanders of combatant commands, subunified commands, joint task forces, and subordinate components of these commands. These principles and guidance also may apply when significant forces of one Service are attached to forces of another Service, or when significant forces of one Service support forces of another Service.

b. The guidance in this publication is authoritative; as such, this doctrine will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence for the activities of joint forces unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable.

For the Chairman of the Joint Chiefs of Staff:



WALTER KROSS
Lieutenant General, USAF
Director, Joint Staff

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- **Describes Responsibilities for Joint Civil Engineering**
- **Discusses Civil Engineering Planning for Joint Operations**
- **Outlines Joint Civil Engineering Coordination Responsibilities**

Responsibilities

Joint civil engineering support requires coordination of responsibilities.

The **Chairman of the Joint Chiefs of Staff** is responsible for the **preparation of joint logistic plans, to include plans for civil engineering support**. In this capacity, the Chairman manages the development of operational planning and execution tools, recommends assignment of civil engineering responsibilities to the Military Services, and recommends to the Secretary of Defense appropriate civil engineering guidance for the Military Services. The Chairman **advises the Secretary of Defense on** critical deficiencies and the relative priority of competing **civil engineering support** requirements of the commanders of a combatant command (CINCs).

The **CINCs prepare Civil Engineering Support Plans (CESPs)** as an integral part of their joint operations planning process. They develop **training and exercise programs** to evaluate and improve preparedness for **civil engineering missions** and are responsible for **prioritizing, planning, and coordinating civil engineering support requirements** for their area of operations.

The **Military Services staff, organize, train, and equip civil engineering resources** to perform tasks required by their assigned roles and missions. They provide, through Service components, input to each CINC's CESP development process regarding Service component requirements.

Civil Engineering Support Plan

Civil engineering support planning is an integral part of the joint operation planning process.

The CESP is an integral part of joint operation plans and should identify minimum essential facilities and civil engineering capabilities needed to support the commitment of military forces. The Joint Engineer Planning and Execution System (JEPES) is a planning tool to assist CINC and Service component staffs in determining civil engineering support requirements and documenting their CESP.

Facilities

The commanders of combatant commands are responsible for coordination of planning, programming, and construction of facilities within their areas of operation.

Facility requirements are optimized consistent with expected operational requirements, duration of need, and forces to be supported based on standard designs and planning factors.

Environment

Civil engineering support must consider the effect on the environment.

Environmental planning is essential to ensure that all appropriate environmental reviews have been completed in accordance with applicable US and host-nation agreements, environmental laws, policies, and regulations.

Command and Control

Commanders of combatant commands may exercise directive authority over civil engineering.

The exercise of **directive authority** over civil engineering will **ensure the effective utilization of civil engineering resources** and consistent support.

CINCs have the **authority to transfer civil engineering functions between Service components** within their area of responsibility during war or military operations other than war. **The execution of civil engineering support remains the responsibility of the Services.**

CONCLUSION

This publication describes **joint civil engineering mission planning, coordination responsibilities, capabilities, and limitations**. It is written for those commanders and staffs planning, coordinating, and executing operations involving civil engineering support.

CHAPTER I RESPONSIBILITIES

"Take the responsibility and act, and call on me for assistance."

**Abraham Lincoln
(To U.S. Grant on his appointment
to command the Union Armies), 1864**

1. Chairman of the Joint Chiefs of Staff

The Chairman of the Joint Chiefs of Staff is the principal military advisor to the President, the National Security Council, and the Secretary of Defense. Additional responsibilities are outlined in DOD Directive 5100.1 and Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)," which include the preparation of joint logistic plans, to include civil engineering support. The Chairman normally:

a. **Manages the development of operation planning and execution tools**, such as the Joint Engineer Planning and Execution System (JEPES), for the joint community.

b. **Prepares strategic plans**, including supporting joint logistic and mobility plans, **and recommends assignment of civil engineering responsibilities** to the Military Services in accordance with those plans.

c. **Prepares logistic plans** to support joint operation plans and **assigns civil engineering responsibilities to the Military Services and appropriate Defense agencies** in accordance with those plans.

d. **Reviews and recommends to the Secretary of Defense appropriate civil engineering guidance for the Military Services** that, if implemented, will result in civil engineering readiness consistent with approved plans.

e. **Advises the Secretary of Defense on critical deficiencies and strengths in civil engineering support capabilities** based on review of joint operation plans.

f. **Advises the Secretary of Defense on the relative priority of competing civil engineering support requirements of the commanders of combatant commands (CINCs).**

g. **Reviews engineering deployments for training** to ensure that such activities are in accordance with the law.

2. Commanders of Combatant Commands

Additional responsibilities are outlined in DOD Directive 5100.1 and Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)," to include civil engineering support. The commanders of combatant commands:

a. **Are responsible for the development of operation plans (OPLANs), campaign plans, and the execution of operation orders (OPORDs).** During peacetime, they act to deter war and prepare for war by planning for the transition to war and military operations other than war (MOOTW). During war, they plan and conduct campaigns and major operations to accomplish strategic and operational objectives. Civil engineering support plays an integral role in planning and execution during war and military operations other than war.

b. Prepare a Civil Engineering Support Plan (CESP) as part of the joint operation planning process.

c. Develop combatant command training and exercise programs to evaluate and improve preparedness for civil engineering missions.

d. Are responsible for prioritizing, planning, and coordinating theater civil engineering support requirements. As a minimum, with regard to civil engineering support, combatant commanders should support requirements identified in Figure I-1.

COMBATANT COMMANDER REQUIREMENTS

- Evaluate component commanders' civil engineering support requirements with respect to combatant commander's plans.
- Assess the risk of civil engineering support shortfalls on the ability to accomplish assigned missions.
- Validate component commanders' civil engineering support requirements and prioritize requirements, use of civil engineering forces, and other civil engineering support capabilities and assets.
- Coordinate with and provide guidance to DOD specified contract construction agents (CCAs).
- Direct the allocation of component commanders' civil engineering forces and construction material (Class IV).
- Establish theater construction policy.
- Set priorities for theater civil engineering missions.
- Task components for theater civil engineering missions, tasks, or projects.
- Develop and prioritize national disaster or hostile action infrastructure recovery plans.
- Review Service civil engineering support and construction programs for validity in support of joint operation plans.
- Identify and support civil engineering support requirements for joint operations that exceed component funding authorities.

Figure I-1. Combatant Commander Requirements

3. Services

Additional responsibilities are outlined in DOD Directive 5100.1 and Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)," to include civil engineering support. Specifically, the Services:

a. Staff, organize, train, and equip civil engineer resources that can perform the civil engineering support tasks indicated with an "X" in Figure I-2.

b. Provide, through their Service components, input to each CINC's CESP

Mission	Army	Navy	Air Force	Marine Corps
Emergency repair of war damage to facilities	X	X	X	X
Beddown of units and weapons system	X	X	X	X
Base development, including lines of communication	X	X	X	X
Operation and maintenance of own facilities and installations	X	X	X	X
Crash rescue and fire suppression	X		X	X
Construction management of troop and contract work	X	X	X	X
Limited facility denial measures	X	X	X	X
Limited decontamination		X	X	X
Participation in rear area defense	X	X	X	X
Redeployment and retrograde construction	X	X	X	X
Enemy prisoner of war and civilian internees facilities	X	X		X
Topographic support	X			
Real estate acquisition	X	X	X	
Combating terrorism	X	X	X	X

Figure I-2. Civil Engineering Support Tasks

Mission	Army	Navy	Air Force	Marine Corps
Counterdrug*	X	X	X	X
Security assistance*	X	X	X	X
Civil-military operations*	X	X	X	X
Combined training*	X	X	X	X
Support to US Government agencies*	X	X	X	X
Environmental protection	X	X	X	X
International or domestic emergencies*	X	X	X	X
Nation assistance*	X	X	X	X

* Peacetime missions for which civil engineering forces may be made available. Each mission is affected by unique laws and regulations. In many cases, missions may be performed only in conjunction with other legitimate activities of the Department of Defense or other government departments or agencies.

Figure I-2. Civil Engineering Support Tasks (cont'd)

development process regarding Service component requirements. Service component CESP's reflect guidance provided in the CINC's CESP and include detailed plans for execution of civil engineering support. CESP's should be developed using data from JEPES.

c. **Maintain**, through their Service components' staff, **capability to accomplish the civil engineering planning and execution staff functions** described in subparagraph 3b above.

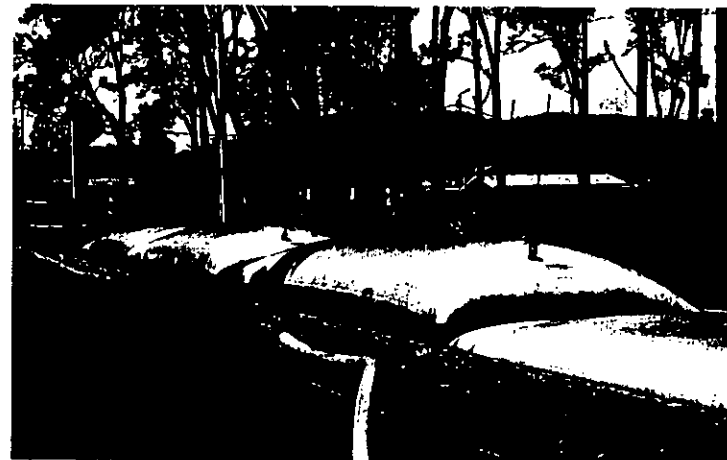
d. **Provide personnel and logistic support required to conduct the real estate and environmental activities** described in Chapter II, "Planning."

4. Department of the Army

In addition to, or coincident with, component missions specified by the CINC, the Army provides military troop construction support to the Air Force overseas and ensures that Army units needed for that purpose are equipped, staffed, and trained at the level required to support the Air Force. This support specifically includes:

a. **Assisting the Air Force with emergency repair of war-damaged air bases** when that requirement exceeds the Air Force organic capability.

b. **Repairing and restoring war damage to air bases beyond emergency repair.**



Army engineers install water bladders for storage of purified water in Zaire in support of Operation SUPPORT HOPE.

c. **Assisting the Air Force with force beddown** when that requirement exceeds the Air Force organic capability.

d. **Acquiring, improving, replacing, constructing, or expanding terrain and facilities for support of Air Force base development** (excluding Air Force beddown requirements).

e. **Managing construction for repair and restoration of war damage and base development**, including the direction and control of Army units and personnel, within priorities established by the air base commander.

5. Department of the Navy

In addition to, or coincident with, component missions specified by the CINC, the Navy provides:

a. **General engineering support to Marine air-ground task forces (MAGTFs).** This support consists of Naval Construction Force (NCF) units under the operational control of a MAGTF. These NCF units are

necessary to reinforce and augment the MAGTF's limited engineering capability. They are integral to the organization of the MAGTF and ensure immediate and effective delivery of combat service support (CSS). Specific tasks of the NCF include:

- **Providing civil engineering support to Fleet Marine Forces**, including construction and maintenance of operational, logistic, underwater, and ship-to-shore facilities.
- **Providing military and amphibious assault construction support to MAGTF operations**, subsequent Navy combat support (CS) and CSS ashore, rear area security support, and defense against overt or clandestine enemy attacks directed toward personnel, camps, and facilities under construction.
- **Enhancing MAGTF capability to provide disaster relief**, including furnishing of assistance to civilian agencies under conditions of emergency, disaster, or catastrophe caused by enemy action or natural causes.

- **Enhancing MAGTF capabilities to provide forces for civic action** employment that complements the military, social, and psychological programs of the joint force and other government agencies.

requirements exceed another Service's capabilities and when support is not detrimental to the Air Force mission.

7. Defense Logistics Agency

In support of deploying forces, the **Defense Logistics Agency is responsible for the reuse of material**, which includes establishing capabilities to dispose of hazardous waste and personal property.

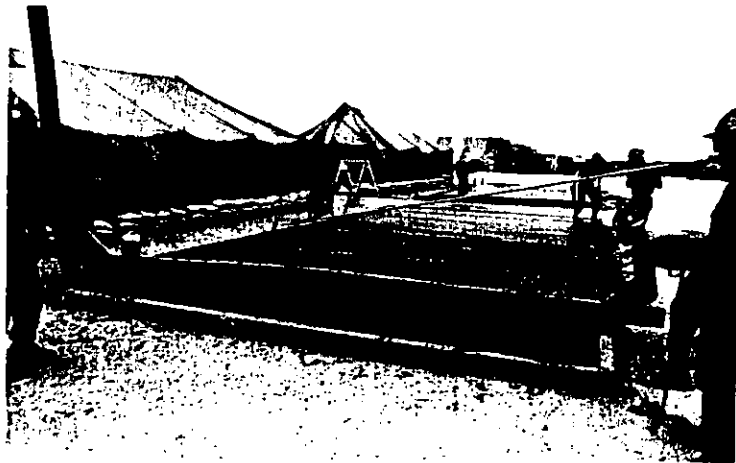
8. Contract Construction Agents (CCA)

CCA responsibilities to support deployed US forces are conducted in accordance with current law and DOD policy.

- b. **Military troop construction to the Air Force in those instances where Air Force contingency engineering requirements exceed both Air Force and Army capabilities.**

6. Department of the Air Force

The Air Force may provide military troop engineer support to other Services when



Navy SEABEES spread concrete for a Marine base camp during Operation DESERT STORM.

CHAPTER II PLANNING

"In forming the plan of a campaign, it is requisite to foresee everything the enemy may do, and be prepared with the necessary means to counteract it."

**Napoleon I
Maxims of War, 1831**

1. Civil Engineering Support Plan

Formats and Guidance)," Chapter III, Annex D, Appendix 5.

a. **Civil engineering planning is an integral part of the joint operation planning process** and should be conducted within the joint planning and execution community as part of the Joint Operation Planning and Execution System.

- When a subunified commander, a joint task force (JTF) commander, or component commander is tasked to prepare a CESP, the **tasking should consider the elements shown in Figure II-1.**

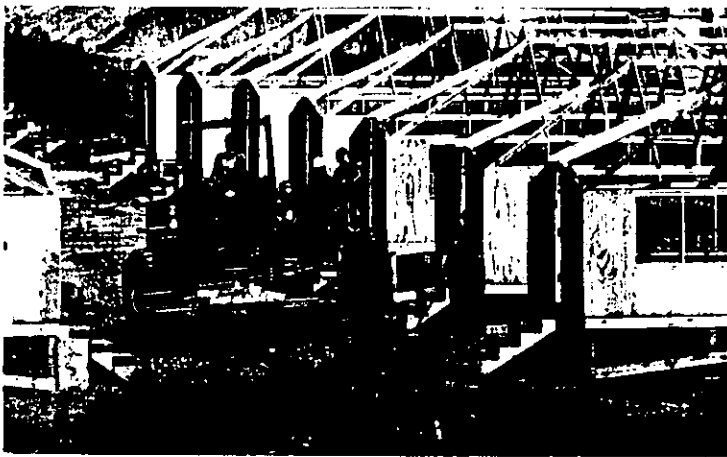
b. **The CESP should identify minimum essential facilities and civil engineering capabilities needed to support the commitment of military forces.** These requirements will be identified in terms of host nation (HN) provided and US provided through leasing or construction by contractor or US forces. After considering war damage repair on these facilities, construction, materiel, and civil engineering unit requirements are determined. Additionally, construction support requirements such as beach preparation for logistics-over-the-shore operations, offshore petroleum discharge system, and inland petroleum distribution system operations are considered.

- **Implementing directives will be published** by the supported commanders to specify the procedures for participation of their Service components in the civil engineering support planning required.

c. **The JEPES replaces the Civil Engineering Support Plan Generator (CESPG) as a planning tool to develop data to assist CINC and Service component staffs in determining their civil engineering support requirements and documenting their CESP.** JEPES is a computer model that should be used by CINC planners to estimate theater-level wartime requirements for facilities, construction material, and civil engineering capability in support of deployed US forces. JEPES should be used wherever possible in the planning process in order to provide consistent civil engineering support planning across all combatant commands.

- **CINCs are responsible for preparing CESPs as an integral part of the joint operation planning process.** A CESP will be included in the logistics annex of the CINC OPLANs that involve deployment or redeployment of military forces to or within theaters of operation requiring civil engineering support. The CESP will be prepared in the format described in Joint Pub 5-03.2, "Joint Operation Planning and Execution System Vol II (Planning and Execution

- **The primary purpose of JEPES is to assist CINC and component planners in determining whether an OPLAN provides sufficient civil engineering capabilities at the correct locations and at the appropriate times to support**



Navy SEABEES use contingency construction skills to construct strong back tent villages for Cuban migrants during Operation SEA SIGNAL.

determine the priorities in the programming of facilities necessary to support the mission. Contingency construction project requests in overseas areas require validation by the CINC. The CINC may establish a Joint Facilities Utilization Board (JFUB) to assist in managing facilities.

- The JFUB evaluates and reconciles component requests for real estate, use of existing facilities, inter-Service support, and construction to ensure compliance with Joint Civil-Military Engineering Board (JCMEB) priorities.
- The JFUB is activated on the order of a joint force commander and chaired by the J-4, with members from component commands and any required special activities (e.g., legal and civil affairs).
- The JFUB also provides administrative support and functions as the executive agency for the tasking of the JCMEB. (See Chapter III, "Command and Control," subparagraph 4b.)

b. Facility requirements are optimized consistent with expected operational requirements, duration of need, and forces to be supported. If facilities must be acquired to support joint operations, the requirements should be satisfied in the following order, consistent with operational imperatives and economic judgment.

- Use existing facilities owned, occupied, or leased by the United States in a theater of operations.
- Use US-owned relocatable buildings and facility substitutes prepositioned in the theater of operations.
- Exercise the provisions of HN support agreements.
- Acquire existing facilities in the theater of operations from commercial sources.
- Use US-owned relocatable buildings and facility substitutes located outside the theater of operations.
- Construct new facilities.

c. Facility designs are developed using the following principles:

- Maintenance requirements are considered in the design of facilities.
- Facility scopes are based on MJCS-275-89.
- Standard facility designs are developed to meet Service doctrinal requirements based on site condition assumptions and structural configurations to sustain anticipated unit equipment. The standard designs should, therefore, be construed as valid for most situations. The designs may be modified based on operational, environmental, unusual site, or unique customer requirements. The availability

of relocatable shelters or facility substitutes also may have design implications.

d. Construction standards, shown in Figure II-2, determine the types of materials and construction techniques used in constructing facilities in support of contingency operations. Contingency construction standards provide criteria that minimize engineer efforts while providing facilities of a quality consistent with the mission requirements, personnel health and safety, and the expected availability of construction resources. Where mission requirements are similar, facilities should be constructed to the same standards by all Services. Construction requirements may be met by commercial, off-the-shelf building systems that are austere and rapidly erectable,

CONSTRUCTION STANDARDS

Initial Standard

- Characterized by austere facilities requiring minimal engineer effort
- Intended for immediate austere operational use by units upon arrival in theater for a limited time ranging up to 6 months (depending on the specific facility)
- May require replacement by more substantial or durable facilities during the course of operations

Temporary Standard

- Characterized by minimum facilities
- Intended to increase efficiency of operations for use extending to 24 months
- Provides for sustained operations
- Replaces initial standard in some cases where mission requirements dictate. Temporary standard construction can be used from the start of an operation if directed by a combatant commander

Figure II-2. Construction Standards

and yet have a life span that exceeds even the temporary standard if that alternative is as cost or operationally effective.

• Figure II-3 provides examples of the types of construction considered under initial and temporary standards.

TYPE OF CONSTRUCTION	INITIAL	TEMPORARY
Site preparation	Clearing and grading for facilities sites, including drainage, revetments for POL and ammo storage and aircraft parking; aggregate for heavily used hardstands; and soil stabilization.	Engineering site preparation, including pavement for vehicle traffic areas and aircraft parking, building foundations, and concrete floor slabs.
Troop housing	Tents (may have wood frames and flooring).	Wood frame structures; relocatable structures; mobile structures.
Electricity	Tactical generators; high and low voltage distribution.	Nontactical generators and high or low voltage distribution.
Water	Water points, wells, and/or other potable water production and pressurized water distribution systems.	Limited distribution to hospitals, dining halls, and other large users.
Cold storage	Portable refrigeration with freezer units for medical, food, and maintenance storage.	Refrigeration installed in temporary structures.
Sanitation	Organic equipment, evaporative ponds, pit or burnout latrines, lagoons for hospitals, and sewage lift stations.	Waterborne to austere treatment facility. Priorities are hospitals, dining halls, bath houses, decontamination sites, and other high volume water users.
Airfield pavement	Tactical surfacing, including matting aggregate, soil stabilization, and concrete pads.	Conventional pavement.*
Fuel storage	Bladders.	Bladders and steel tanks.

* The type of airfield surfacing to be used will be based on the expected number and weight of aircraft involved in operations.

Figure II-3. Standards of Construction

3. Real Estate

a. The CINC is responsible for coordinating real estate requirements within the command. Inter-Service use of real estate should be encouraged to the maximum extent possible. Conflicting requirements for additional real estate and incompatible use of existing real estate will be resolved by the CINC.

b. The Service components conduct the following real estate activities in support of operations:

- Determining requirements.
- Selecting property.
- Acquiring property.
- Maintaining property.
- Disposing of property.
- Processing claims.
- Maintaining accurate records.

c. Maximum use should be made of existing property before additional property is acquired.

d. Where practicable, the CINC assigns a single agent the responsibility for real estate operations for all Service components in a theater of operations.

e. When land and facilities are no longer required, they are relinquished in accordance with existing agreements, regulations, and statutes.

4. Environment

a. Joint civil engineering operations should be planned and conducted with appropriate consideration of their effect on the environment in accordance with applicable US and HN agreements, environmental laws, policies, and regulations.

b. All joint civil engineering operations planned and conducted within the United States and US territories and possessions will be conducted in compliance with all applicable Federal, state, or local environmental laws and standards. This includes the preparation of adequate environmental documentation and coordination with the Federal and state environmental, natural resources, and historic preservation agencies.

c. Early planning is essential to ensure that all appropriate environmental reviews have been completed in accordance with DODD 6050.7, "Environmental Effects Abroad of Major Department of Defense Actions," and the Overseas Environmental Baseline Guidance and applicable Final Governing Standards, and that no HN environmental restrictions are required by the status-of-forces agreement or other international agreements. Additionally, a separate annex or appendix for ensuring that proper attention is given to environmental considerations should be included in each OPORD and OPLAN under which units will deploy. The annex or appendix should include, but not be limited to, the major sections shown in Figure II-4.

ELEMENTS OF ENVIRONMENTAL PLANNING

- Policies and responsibilities to protect and preserve the environment during the deployment
- Certification of local water sources by appropriate medical field units
- Solid and liquid waste management:
 - Open dumping
 - Open burning
 - Disposal of gray water
 - Disposal of pesticides
 - Disposal of human waste
 - Disposal of hazardous waste
- Hazardous materials management including the potential use of pesticides
- Flora and fauna protection
- Archeological and historical preservation
- Base field spill plan

Figure II-4. Elements of Environmental Planning

COMMAND AND CONTROL

"Congress can make a general, but only organization and communication can make a commanding general."

Omar Bradley

1. Authority and Control

a. **Commanders of combatant commands may exercise directive authority over civil engineering.** The exercise of directive authority over civil engineering by a combatant commander includes the authority to issue directives to subordinate commanders, including peacetime measures necessary to ensure the following: effectiveness of the execution of approved operation plans; effectiveness and economy of operation; and prevention or elimination of unnecessary duplication of facilities and overlapping of functions among the Service component commands. A combatant commander's directive authority does not discontinue Service responsibility for logistic support; discourage coordination by consultation and agreement, or disrupt effective procedures, efficient utilization of facilities, or organization.

b. Unless otherwise directed by the Secretary of Defense, **the Military Departments and Services continue to have responsibility for the logistic and administrative support of Service forces assigned or attached to joint commands, subject to the following guidance:**

- Under conditions other than war, the scope of the logistic and administrative responsibilities exercised by a CINC will be consistent with the limitations imposed by legislation, departmental policy or regulations, budgetary constraints, local conditions, and other

specific conditions prescribed by the Secretary of Defense or the Chairman of the Joint Chiefs of Staff. Additional guidance may be found in Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)."

- **During crisis action or wartime conditions,** when critical situations mandate diversion from the normal logistic process, **logistic authority and responsibility is expanded to authorize CINCs to use all facilities and resources of all forces assigned to their commands necessary for the accomplishment of their missions.**

2. Implementation and Execution

The implementation and execution of civil engineering functions remain the responsibility of the Services and the Service component commanders (consistent with responsibilities described in Chapter I, "Responsibilities.")

3. Transfer of Functions and Facilities

a. **A CINC has the authority to issue and implement directives to transfer civil engineering functions between or among Service components within the area of responsibility (AOR) during war or military operations other than war.** However, in peacetime, the CINC must obtain the concurrence of the affected Service or



SEABEES and RED HORSE engineers work together to construct temporary camps for Cuban migrants in Guantanamo Bay, Cuba.

refer the matter through the Chairman of the Joint Chiefs of Staff to the Secretary of Defense for resolution.

b. A CINC's directive authority is not intended to abrogate Service responsibility for civil engineering support. Every effort will be made to obtain the Service's concurrence through coordination with Service component commands or directly to the headquarters of the appropriate Service. Under all conditions, the implementation of such directed transfers, including administrative and procedural aspects, is the responsibility of the Service component commander involved. The CINC retains the responsibility for overseeing and resolving issues.

4. Organizational Considerations

Because contingency operations and war operations can come swiftly, peacetime organizations should be tailored and trained to meet those requirements. The following guidance is general in nature and not directive. The degree of application will vary among combatant commands.

a. The CINCs should ensure that qualified personnel are available to carry out CINC responsibilities delineated in Chapter I, "Responsibilities," and provide staffing and support for any commander to whom operational authority has been delegated.

b. Joint boards and organizations that CINCs may establish to manage and coordinate civil engineering efforts are as follows:

- **Contingency Engineering Management Organizations.** A Contingency Engineering Management Organization may be formed to augment the combatant commander's staff with additional Service engineering expertise necessary for deliberate planning and construction management in wartime operations and MOOTW. A CINC may form a Theater Contingency Engineering Management (TCEM) cell, with similar organizations formed at subordinated levels of command, structured and staffed as required to support the CINC's concept of operations. These could be

Regional Contingency Engineering Management (RCEM) cells and/or JTF Contingency Engineering Management (JTFCEM) cells as conditions warrant. Service components with operational forces in the CINC's AOR should assign personnel to the TCEM to facilitate coordination. Contingency engineering organizations are augments to the staff they support and do not form an engineer command "stovepipe." The TCEM, RCEM, and JTFCEM organizations support OPLAN and CESP development and the management of contingency engineering operations by performing the following basic functions:

- Continually analyzes the combatant commander's intentions for wartime operations and MOOTW and formulates or advances a construction program based on the commander's priorities.

- Identifies potential shortfalls in construction capabilities, assesses associated risks, and develops related options.

- Develops policy guidance to include construction standards, project approval levels, processes for conflict resolution, and reporting requirements.

- Reviews and monitors host-nation support agreements as they pertain to the civil engineering effort. This includes tracking HN construction, infrastructure, and facility support capabilities and the status of projects accomplished by HN forces or agencies.

- Monitors and recommends the allocation and use of theater construction assets against priority operational requirements and recommends tasking for civil engineering assets.

- Monitors the operational status of theater engineering forces and influences engineer or construction logistics issues on behalf of those forces.

- Monitors and influences the management of funds for the construction effort in theater.

- **Joint Civil-Military Engineering Board.** The JCMEB is a temporary board activated by the CINCs and staffed by personnel from the component commands and DOD agencies or activities in support of the CINCs. The JCMEB:

- Establishes policies, procedures, priorities, and overall direction for civil-military construction and engineering requirements in the theater.

- Arbitrates all issues referred by the JFUB and, if directed, assumes responsibility for the preparation of the CESP.

- Coordinates its activities with the regional or theater construction managers having responsibility for the assigned AOR. Construction and engineering requirements the JCMEB cannot satisfy from within the joint force resources will be elevated to the next appropriate level for support.

- **Joint Facilities Utilization Board.** The JFUB helps manage facility requirements within the AOR. (See Chapter II, "Planning," subparagraph 2a.)

c. CINC engineering staffs (to include contingency engineering staffs) are expected to be prepared to respond immediately to wartime and MOOTW requirements.

APPENDIX A REFERENCES

1. Title 10, United States Code.
2. DODD 6050.7, "Environmental Effects Abroad of Major Department of Defense Actions."
3. DODD 6050.16, "DOD Policy for Establishing and Implementing Environmental Standards at Overseas Installations."
4. Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)."
5. Joint Pub 1-02, "DOD Dictionary of Military and Associated Terms."
6. Joint Pub 3-07, "Joint Doctrine for Military Operations Other Than War."
7. Joint Pub 4-0, "Doctrine for Logistic Support of Joint Operations."
8. Joint Pub 5-0, "Doctrine for Planning Joint Operations."
9. Joint Pub 5-03.2, "Joint Operation Planning and Execution System Vol II (Planning and Execution Formats and Guidance)."
10. MJCS-275-89, "Planning Factors for Military Construction in Contingency Operations."

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**APPENDIX B
ADMINISTRATIVE INSTRUCTIONS**

1. User Comments

Users in the field are highly encouraged to submit comments on this publication to the Joint Warfighting Center, Attn: Doctrine Division, Fenwick Road, Bldg 96, Fort Monroe, VA 23651-5000. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

The lead agent and Joint Staff doctrine sponsor for this publication is the Director for Operational Logistics (J-4).

3. Change Recommendations

a. Recommendations for urgent changes to this publication should be submitted:

TO: JOINT STAFF WASHINGTON DC//J4-SMED//J-7-JDD//

Routine changes should be submitted to the Director for Operational Plans and Interoperability (J-7), JDD, 7000 Joint Staff Pentagon, Washington, D.C. 20318-7000.

b. When a Joint Staff directorate submits a proposal to the Chairman of the Joint Chiefs of Staff that would change source document information reflected in this publication, that directorate will include a proposed change to this publication as an enclosure to its proposal. The Military Services and other organizations are requested to notify the Director, J-7, Joint Staff, when changes to source documents reflected in this publication are initiated.

c. Record of Changes

CHANGE NUMBER	COPY NUMBER	DATE OF CHANGE	DATE ENTERED	POSTED BY	REMARKS

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4. Distribution

a. Additional copies of this publication can be obtained through Service publication centers.

b. Only approved pubs and test pubs are releasable outside the combatant commands, Services, and Joint Staff. Release of any joint publication to foreign governments or foreign nationals must be requested through the local embassy (Defense Attache Office) to DIA Foreign Liaison Branch, C-AS1, Room 1A674, Pentagon, Washington D.C. 20301-7400.

c. Additional copies should be obtained from the Military Service assigned administrative support responsibility by DOD Directive 5100.3, 1 November 1988, "Support of the Headquarters of Unified, Specified, and Subordinate Joint Commands."

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GLOSSARY

PART I—ABBREVIATIONS AND ACRONYMS

AOR	area of responsibility
CCA	contract construction agent (DOD)
CESP	Civil Engineering Support Plan
CESPG	Civil Engineering Support Plan Group
CINC	commander of a combatant command; commander in chief
CS	combat support
CSS	combat service support
DODD	DOD Directive (with number)
HN	host nation
JCMEB	Joint Civil-Military Engineering Board
JEPES	Joint Engineer Planning and Execution System
JFUB	Joint Facilities Utilization Board
JTF	joint task force
JTFCEM	joint task force contingency engineering management
LOGSAFE	logistic sustainment analysis and feasibility estimator
MAGTF	Marine air-ground task force
MJCS	Joint Chiefs of Staff Memorandum
MOOTW	military operations other than war
NCF	Naval Construction Force
OPLAN	operation plan
OPORD	operation order
POL	petroleum, oils, and lubricants
RCEM	regional contingency engineering management
TCEM	theater contingency engineering management
TPFDD	time-phased force and deployment data
UNAAF	Unified Action Armed Forces

PART II—TERMS AND DEFINITIONS

base development (less force beddown).

The acquisition, development, expansion, improvement, and construction and/or replacement of the facilities and resources of an area or location to support forces employed in military operations or deployed in accordance with strategic plans. (Approved for inclusion in the next edition of Joint Pub 1-02)

base development. The improvement or expansion of the resources and facilities of an area or a location to support military operations. (Joint Pub 1-02)

civil engineering. Those combat support and combat service support activities that identify, design, construct, lease, or provide facilities, and which operate, maintain, and perform war damage repair and other engineering functions in support of military operations. (Approved for inclusion in the next edition of Joint Pub 1-02)

civil engineering support plan. An appendix to the Logistics annex or separate annex of an operation plan that identifies the minimum essential engineering services and construction requirements required to support the commitment of military forces. Also called CESP. (Approved for inclusion in the next edition of Joint Pub 1-02)

civil-military operations. Group of planned activities in support of military operations that enhance the relationship between the military forces and civilian authorities and population and which promote the development of favorable emotions, attitudes, or behavior in neutral, friendly, or hostile groups. (Joint Pub 1-02)

combatant command. A unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the

Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Combatant commands typically have geographical or functional responsibilities. (Joint Pub 1-02)

combatant command (command authority).

Nontransferable command authority established by title 10 ("Armed Forces"), United States Code, section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM. (Joint Pub 1-02)

combat service support. The essential capabilities, functions, activities, and tasks necessary to sustain all elements of operating forces in theater at all levels of war. Within the national and theater logistic systems, it includes but is not limited to that

support rendered by service forces in ensuring the aspects of supply, maintenance, transportation, health services, and other services required by aviation and ground combat troops to permit those units to accomplish their missions in combat. Combat service support encompasses those activities at all levels of war that produce sustainment to all operating forces on the battlefield. (Joint Pub 1-02)

combating terrorism. Actions, including antiterrorism (defensive measures taken to reduce vulnerability to terrorist acts) and counterterrorism (offensive measures taken to prevent, deter, and respond to terrorism), taken to oppose terrorism throughout the entire threat spectrum. (Joint Pub 1-02)

contingency. An emergency involving military forces caused by natural disasters, terrorists, subversives, or by required military operations. Due to the uncertainty of the situation, contingencies require plans, rapid response, and special procedures to ensure the safety and readiness of personnel, installations, and equipment. (Joint Pub 1-02)

crash rescue and fire suppression. Extraction of aircrew members from crashed or burning aircraft and the control and extinguishing of aircraft and structural fires. (Approved for inclusion in the next edition of Joint Pub 1-02)

decontamination. The process of making any person, object, or area safe by absorbing, destroying, neutralizing, making harmless, or removing, chemical or biological agents, or by removing radioactive material clinging to or around it. (Joint Pub 1-02)

denial measure. An action to hinder or deny the enemy the use of space, personnel, or facilities. It may include destruction,

removal, contamination, or erection of obstructions. (Joint Pub 1-02)

doctrine. Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application. (Joint Pub 1-02)

DOD construction agent. The Corps of Engineers, Naval Facilities Engineering Command, or other such approved DOD activity, that is assigned design or execution responsibilities associated with military construction programs, facilities support, or civil engineering support to the combatant commanders in contingency operations. (Approved for inclusion in the next edition of Joint Pub 1-02)

domestic emergencies. Emergencies affecting the public welfare and occurring within the 50 states, District of Columbia, Commonwealth of Puerto Rico, US possessions and territories, or any political subdivision thereof, as a result of enemy attack, insurrection, civil disturbance, earthquake, fire, flood, or other public disasters or equivalent emergencies that endanger life and property or disrupt the usual process of government. The term domestic emergency includes any or all of the emergency conditions defined below:

a. civil defense emergency--A domestic emergency disaster situation resulting from devastation created by an enemy attack and requiring emergency operations during and following that attack. It may be proclaimed by appropriate authority in anticipation of an attack.

b. civil disturbances--Riots, acts of violence, insurrections, unlawful obstructions or assemblages, or other disorders prejudicial to public law and order. The term civil disturbance includes all domestic conditions requiring or likely

to require the use of Federal Armed Forces pursuant to the provisions of Chapter 15 of Title 10, United States Code.

c. major disaster--Any flood, fire, hurricane, tornado, earthquake, or other catastrophe which, in the determination of the President, is or threatens to be of sufficient severity and magnitude to warrant disaster assistance by the Federal Government under Public Law 606, 91st Congress (42 United States Code 58) to supplement the efforts and available resources of state and local governments in alleviating the damage, hardship, or suffering caused thereby.

d. natural disaster--All domestic emergencies except those created as a result of enemy attack or civil disturbance. (Joint Pub 1-02)

emergency repair. The least amount of immediate repair to damaged facilities necessary for the facilities to support the mission. These repairs will be made using expedient materials and methods (such as AM-2 aluminum matting, cold-mix asphalt, plywood scabs, temporary utility lines, emergency generators). Modular or kit-type facility substitutes would be appropriate if repairs cannot be made in time to meet mission requirements. (Approved for inclusion in the next edition of Joint Pub 1-02)

facility. A real property entity consisting of one or more of the following: a building, a structure, a utility system, pavement, and underlying land. (Joint Pub 1-02)

facility substitutes. Items such as tents and prepackaged structures requisitioned through the supply system that may be used to substitute for constructed facilities. (Approved for inclusion in the next edition of Joint Pub 1-02)

force beddown. The provision of expedient facilities for troop support to provide a platform for the projection of force. These facilities may include modular or kit-type facility substitutes. (Approved for inclusion in the next edition of Joint Pub 1-02)

host-nation support. Civil and/or military assistance rendered by a nation to foreign forces within its territory during peacetime, crises or emergencies, or war based upon agreements mutually concluded between nations. (Joint Pub 1-02)

humanitarian and civic assistance. Assistance to the local populace provided by predominantly US forces in conjunction with military operations and exercises. This assistance is specifically authorized by title 10, United States Code, section 401, and funded under separate authorities. Assistance provided under these provisions is limited to (1) medical, dental, and veterinary care provided in rural areas of a country; (2) construction of rudimentary surface transportation systems; (3) well drilling and construction of basic sanitation facilities; and (4) rudimentary construction and repair of public facilities. Assistance must fulfill unit training requirements that incidentally create humanitarian benefit to the local populace. (Joint Pub 1-02)

Joint Facilities Utilization Board. A joint board that evaluates and reconciles component requests for real estate, use of existing facilities, inter-Service support, and construction to ensure compliance with Joint Civil-Military Engineering Board priorities. (Approved for inclusion in the next edition of Joint Pub 1-02)

joint operation planning process. A coordinated Joint Staff procedure used by a commander to determine the best method

of accomplishing assigned tasks and to direct the action necessary to accomplish the mission. (Joint Pub 1-02)

Joint Operation Planning and Execution System. A continuously evolving system that is being developed through the integration and enhancement of earlier planning and execution systems: Joint Operation Planning System and Joint Deployment System. It provides the foundation for conventional command and control by national- and theater-level commanders and their staffs. It is designed to satisfy their information needs in the conduct of joint planning and operations. Joint Operation Planning and Execution System (JOPES) includes joint operation planning policies, procedures, and reporting structures supported by communications and automated data processing systems. JOPES is used to monitor, plan, and execute mobilization, deployment, employment, and sustainment activities associated with joint operations. Also called JOPES. (Joint Pub 1-02)

joint planning and execution community. Those headquarters, commands, and agencies involved in the training, preparation, movement, reception, employment, support, and sustainment of military forces assigned or committed to a theater of operations or objective area. It usually consists of the Joint Staff, Services, Service major commands (including the Service wholesale logistics commands), unified commands (and their certain Service component commands), subunified commands, transportation component commands, joint task forces (as applicable), Defense Logistics Agency, and other Defense agencies (e.g., Defense Intelligence Agency) as may be appropriate to a given scenario. Also called JPEC. (Joint Pub 1-02)

joint task force. A joint force that is constituted and so designated by the Secretary of Defense, a combatant commander, a subunified commander, or an existing joint task force commander. Also called JTF. (Joint Pub 1-02)

lines of communications. All the routes, land, water, and air, which connect an operating military force with a base of operations and along which supplies and military forces move. Also called LOC. (Joint Pub 1-02)

materiel. All items (including ships, tanks, self-propelled weapons, aircraft, etc., and related spares, repair parts, and support equipment, but excluding real property, installations, and utilities) necessary to equip, operate, maintain, and support military activities without distinction as to its application for administrative or combat purposes. (Joint Pub 1-02)

military construction. Any construction, alteration, development, conversion, or extension of any kind carried out with respect to a military installation. (Approved for inclusion in the next edition of Joint Pub 1-02)

military installation. A base, camp, post, station, yard, center, or other activity under the jurisdiction of the Secretary of a Military Department or, in the case of an activity in a foreign country, under the operational control of the Secretary of a Military Department or the Secretary of Defense. (Approved for inclusion in the next edition of Joint Pub 1-02)

military operations other than war. Encompasses the use of military capabilities across the range of military operations short of war. These military actions can be applied to complement any combination of the other instruments of national power and

occur before, during, and after war. Also called MOOTW. (Joint Pub 1-02)

nation assistance. Civil and/or military assistance rendered to a nation by foreign forces within that nation's territory during peacetime, crises or emergencies, or war based on agreements mutually concluded between nations. Nation assistance programs include, but are not limited to, security assistance, foreign internal defense, other US Code title 10 (DOD) programs, and activities performed on a reimbursable basis by Federal agencies or international organizations. (Joint Pub 1-02)

operational control. Transferable command authority which may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for

logistics or matters of administration, discipline, internal organization, or unit training. Also called OPCON. (Joint Pub 1-02)

operation and maintenance. Maintenance and repair of real property, operation of utilities, and provision of other services such as refuse collection and disposal, entomology, snow removal and ice alleviation. (Approved for inclusion in the next edition of Joint Pub 1-02)

operation plan. Any plan, except for the Single Integrated Operation Plan, for the conduct of military operations. Plans are prepared by combatant commanders in response to requirements established by the Chairman of the Joint Chiefs of Staff and by commanders of subordinate commands in response to requirements tasked by the establishing unified commander. Operation plans are prepared in either a complete format (OPLAN) or as a concept plan (CONPLAN). The CONPLAN can be published with or without a time-phased force and deployment data (TPFDD) file.

a. OPLAN. An operation plan for the conduct of joint operations that can be used as a basis for development of an operation order (OPORD). An OPLAN identifies the forces and supplies required to execute the CINC's Strategic Concept and a movement schedule of these resources to the theater of operations. The forces and supplies are identified in TPFDD files. OPLANs will include all phases of the tasked operation. The plan is prepared with the appropriate annexes, appendixes, and TPFDD files as described in the Joint Operation Planning and Execution System manuals containing planning, policies, procedures, and formats. Also called OPLAN.

b. CONPLAN. An operation plan in an abbreviated format that would require

considerable expansion or alteration to convert it into an OPLAN or OPORD. A CONPLAN contains the CINC's Strategic Concept and those annexes and appendixes deemed necessary by the combatant commander to complete planning. Generally, detailed support requirements are not calculated and TPFDD files are not prepared. Also called CONPLAN.

c. CONPLAN with TPFDD. A CONPLAN with TPFDD is the same as a CONPLAN except that it requires more detailed planning for phased deployment of forces. (Joint Pub 1-02)

prisoner of war. A detained person as defined in Articles 4 and 5 of the Geneva Convention Relative to the Treatment of Prisoners of War of August 12, 1949. In particular, one who, while engaged in combat under orders of his or her government, is captured by the armed forces of the enemy. As such, he or she is entitled to the combatant's privilege of immunity from the municipal law of the capturing state for warlike acts which do not amount to breaches of the law of armed conflict. For example, a prisoner of war may be, but is not limited to, any person belonging to one of the following categories who has fallen into the power of the enemy: a member of the armed forces, organized militia or volunteer corps; a person who accompanies the armed forces without actually being a member thereof; a member of a merchant marine or civilian aircraft crew not qualifying for more favorable treatment; or individuals who, on the approach of the enemy, spontaneously take up arms to resist the invading forces. (Joint Pub 1-02)

rear area. For any particular command, the area extending forward from its rear boundary to the rear of the area of responsibility of the next lower level of command. This area is provided primarily

for the performance of combat service support functions. (Joint Pub 1-02)

redeployment. The transfer of a unit, an individual, or supplies deployed in one area to another area, or to another location within the area, or to the zone of interior for the purpose of further employment. (Joint Pub 1-02)

relocatable building. A building designed to be readily moved, erected, disassembled, stored, and reused. All types of buildings or building forms designed to provide relocatable capabilities are included in this definition. In classifying buildings as relocatable, the estimated funded and unfunded costs for average building disassembly, repackaging (including normal repair and refurbishment of components), and nonrecoverable building components, including typical foundations, may not exceed 20 percent of the building acquisition cost. Excluded from this definition are building types and forms that are provided as an integral part of a mobile equipment item and are incidental portions of such equipment components, such as communications vans or trailers. (Approved for inclusion in the next edition of Joint Pub 1-02)

repair. The restoration of an item to serviceable condition through correction of a specific failure or unserviceable condition. (Joint Pub 1-02)

repair and restoration. Repair, beyond emergency repair, of war-damaged facilities to restore operational capability in accordance with combatant command standards of construction, which includes repair and restoration of pavement surfaces. Normally, repairs to facilities will be made using materials similar to those of the original construction. For severely damaged facilities (i.e., essentially destroyed), restoration may require

ELEMENTS TO BE INCORPORATED INTO CIVIL ENGINEERING SUPPORT PLANNING

- ✓ Responsibility for preparing the Civil Engineering Support Plan
- ✓ Restrictions imposed on the use of bases and installations
- ✓ Assumptions regarding availability of host-nation critical support
- ✓ Major construction resources to be allocated
- ✓ Standards of construction to be used
- ✓ Responsibility for construction management
- ✓ Responsibility for determining facility use in light of competing requirements
- ✓ Priorities for development in broad categories with time-phased requirements and provisions for developing a joint theater facility priority list
- ✓ Provision for withdrawal, such as base denial and movement of relocatable residual assets
- ✓ Contract construction agent missions and responsibilities
- ✓ Responsibility of the combatant commanders for ensuring that civil engineering intelligence information requirements are defined, and that resources requested in the Consolidated Intelligence Program are available to enable development of information for use in the Civil Engineering Support Plan

Figure II-1. Elements to be Incorporated into Civil Engineering Support Planning

deployment, mission accomplishment, and sustainment of OPLAN forces. Specifically, the civil engineering and facility requirements generated by JEPES are intended to aid engineer planners in preparing the CESP.

- JEPES extracts unit and population data from the time-phased force and deployment data (TPFDD), applies facility planning factors to compute total facility requirements at unit locations in theater, and then subtracts

existing infrastructure assets to determine remaining civil engineering support requirements. JEPES estimates war damage repair by applying attrition factors to infrastructure assets. Civil engineer manpower necessary to support the requirements and gross construction material requirements are compiled in a time-phased format and made available in report form.

- The civil engineering requirements generated by JEPES serve as the starting point for planning specific wartime construction projects. JEPES requirements are, however, based on many assumptions and simplifications of reality. For example, JEPES only considers expected war damage to existing facilities in developing Class IV material requirements which are less comprehensive than the Unit Type Code-related requirements produced by the logistic sustainment analysis and feasibility estimator (LOGSAFE) program. Therefore, construction requirements generated by JEPES should be considered notional until validated by planners with firsthand knowledge of

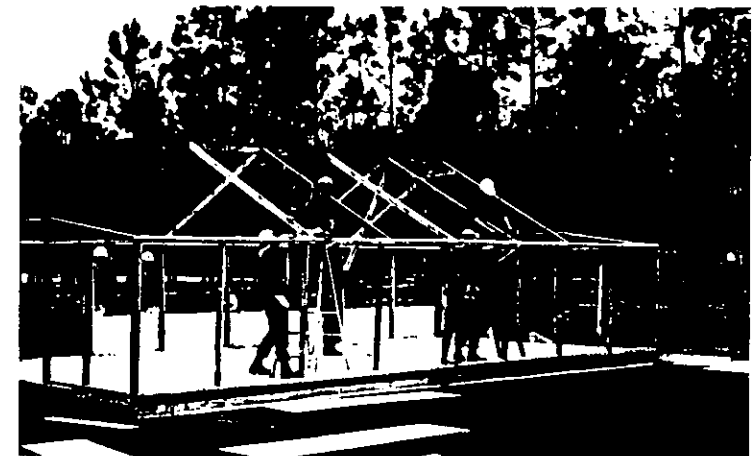
specific installations. JEPES can and should be used to validate gross tonnage requirements for construction materials (Class IV-A) obtained by other means.

- JEPES provides assistance to planners in determining civil engineering support requirements and shortfalls during operation planning. Planners need not use JEPES if the deviation from CINC and Service standards in JEPES can be justified. Planners must explain in the CESP the method used to determine their civil engineering support requirements and shortfalls if they elect not to use JEPES.

d. As stated in Chapter I, "Responsibilities," Service component commanders develop their CESP in support of the CINC CESP. Both CESP are reviewed by the Services for supportability.

2. Facilities

a. The CINC is responsible for the coordination of planning, programming, and construction of facilities within the command. Additionally, the CINC should



Air Force engineers construct strong back tent frames during training for contingency construction.

reconstruction. (Approved for inclusion in the next edition of Joint Pub 1-02)

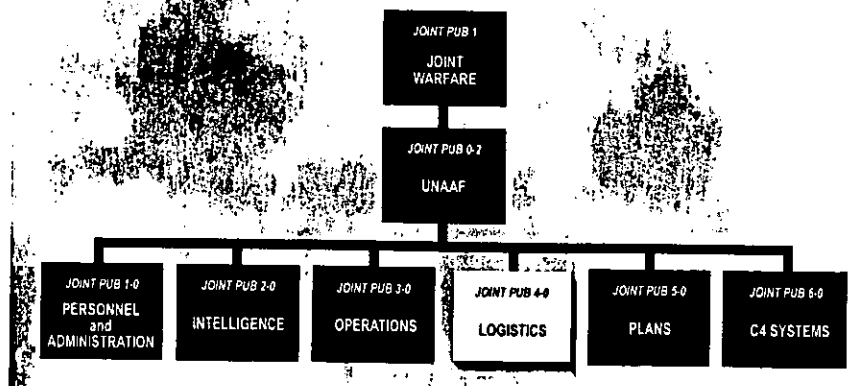
security assistance. Group of programs authorized by the Foreign Assistance Act of 1961, as amended, and the Arms Export Control Act of 1976, as amended, or other related statutes by which the United States provides defense articles, military training, and other defense-related services, by grant, loan, credit, or cash sales in furtherance of national policies and objectives. (Joint Pub 1-02)

Service component command. A command consisting of the Service component commander and all those Service forces, such as individuals, units, detachments, organizations and installations under the command, including the support forces that have been assigned to a combatant command, or further assigned to a subordinate unified command or joint task force. (Joint Pub 1-02)

strategic plan. A plan for the overall conduct of a war. (Joint Pub 1-02)

theater. The geographical area outside the continental United States for which a commander of a combatant command has been assigned responsibility. (Joint Pub 1-02)

JOINT DOCTRINE PUBLICATIONS HIERARCHY



All joint doctrine and tactics, techniques, and procedures are organized into a comprehensive hierarchy as shown in the chart above. Joint Pub 4-04 is in the Logistics series of joint doctrine publications. The diagram below illustrates an overview of the development process:

