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US Army Corps
of Engineers

ESC'S MIDDLE EAST STUDIES

Engineer
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13. ABSTRACT (Maximum 200 words) This paper reviews current and past Engineer Studies Center (ESC) analytical efforts that address issues on or about US military operations in the Middle East. This paper also provides unclassified abstracts of classified and unclassified ESC publications written about critical U.S. military issues in the Middle East. ESC found in its review that for over 33 years (1958 to 1991), it has provided high-quality, critical, and responsive studies that have helped U.S. military planners solve problems relating to operations in support of U.S. national interests in the Middle East. These studies address a wide range of topics and problems--from terrain analysis to the effectiveness of engineers in support of contingency operations. These studies look not only at engineer related problems--but also at intelligence, logistical, and strategic planning problems.				
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U.S. Army Corps of Engineers

April 1991

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This paper was prepared by the U.S. Army Engineer Studies Center under the supervision of Mr. Stephen Reynolds, Senior Project Manager. Mr. Richard Taylor was the Project Manager and principal author. Thanks are extended to Ms. Susan Wright and Mr. Terry Atkinson who provided valuable insights to this paper. Publication of this paper was approved by Colonel C. O. LaFond, Commander/Director of ESC, and Mr. Bruce Springfield, Acting Technical Director. Mrs. Kathy Richards and Ms. Marilyn Fleming provided editorial support.

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ABBREVIATIONS AND ACRONYMS

DTIC	Defense Technical Information Center
EAC	echelons above corps
ESC	Engineer Studies Center
FCZ	forward combat zone
FY	fiscal year
LOC	lines of communication
MC&G	mapping, charting, and geodesy
MGD	military geographic documentation
MEAPO	Middle East Africa Projects Office
OPLANs	operation plans
SWA	Southwest Asia
TUSA	Third United States Army
U.S.	United States
USACE	United States Army Corps of Engineers
USAES	United States Army Engineer School
USCENTCOM	United States Central Command
WRSC	Water Resources Support Center

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I. INTRODUCTION

1. **PURPOSE.** This paper reviews past and current analytical efforts by the Engineer Studies Center (ESC) supporting U.S. defense interests in the Middle East.

2. **SCOPE.** This paper --

- Summarizes ESC's analysis supporting U.S. military contingency planning for the Middle East.
- Synopsizes ESC's current programmed support to U.S. forces with contingency missions for the Middle East.
- Reviews ESC's past efforts supporting U.S. defense planning in the Middle East.
- Provides unclassified abstracts of classified and unclassified ESC publications that have been written in support of U.S. security interests in the Middle East.

3. BACKGROUND.

a. **ESC's Middle East Studies.** Three major factors prompted ESC to publish this short paper about our work analyzing problems relating to the defense and stability of the Middle East Region.

(1) Desert Shield/Desert Storm refocused attention on a region of the world known for its volatile politics, harsh environment, and unique culture. U.S. military commands, with that region of the world as an area of responsibility, were interested in data and information that could better inform them of the challenges ahead. In response to queries regarding ESC's past and current involvement with the issues of the Middle East, ESC undertook a review of its analytical contributions. As a result of this review, ESC found that for over 33 years it has provided analytical support to various U.S. commands with responsibilities in the Middle East.

(2) Recent changes in the geo-political environment in Eastern Europe have lessened the threat to U.S. security interests in that region. This change in the U.S. security focus has affected interests and operations in the Pacific, Latin American, and other areas of the world, particularly in the Middle East. Decision makers want to know what effect these recent geo-political changes will have on the political, military, and economic situation in the Middle East. More directly, these leaders want to know what analytical agencies can provide information to support the decisions that must be made in the upcoming years. This paper provides information on ESC study efforts that address this important region.

(3) The shrinking defense budget magnifies the effects of factors 1 and 2. The U.S. defense budget is tightening and the decision makers want to know how congressional budgetary constraints will affect our national security interests in the Middle East. Perceptive leaders also realize the value of quality analysis that supports their decisions on how to best spend defense dollars in light of outstanding security issues. This paper reveals how ESC has addressed some of these issues in the past, and how we can apply our experience to future problems.

b. **ESC's Other Regional Analytical Efforts.** ESC's analytical efforts are not directed strictly at problems affecting U.S. military operations in the Middle East. ESC's mission is to help the U.S. Army Corps of Engineers (USACE), the U.S. Army, and the Department of Defense decision makers resolve critical issues through innovative and cost-effective studies. Our strength lies in our ability to target a problem, analyze it thoroughly, and recommend viable solutions. Our efforts can be grouped not only according to functional categories, but also according to geographical categories. Today, we are conducting combat engineer assessments, emergency preparedness analyses, computer simulations, and war damage assessments. Concurrently, our efforts cover problems affecting the United States, the Republic of Korea and Europe -- as well as the Middle East.

4. **ORGANIZATION.** This paper has three major sections:

a. **Section I: *Introduction*,** briefly describes the paper.

b. **Section II: *Discussion*,** is divided into three parts:

- (1) An overview of ESC's Middle East studies.
- (2) A look at the current ESC Middle East study program.
- (3) A summary of past ESC Middle East studies.

c. **Section III: *Abstracts of ESC's Middle East Studies*,** provides abstracts of the ESC studies related to the Middle East.

5. **COMMENTS AND SUGGESTIONS.** Inquiries regarding how to obtain ESC's help, ESC and its current study program, or its study efforts relating to the Middle East can be directed to:

Director/Technical Director
U.S. Army Engineer Studies Center
Casey Building # 2594
Fort Belvoir, Virginia 22060-5583
(703) 355-2373

Requests for ESC studies and publications should be directed to:

Administrator
Defense Technical Information Center (DTIC)
Alexandria, Virginia 22304-6145
(703) 274-7633

6. **AUTHOR'S NOTE.** This paper uses the term Middle East to refer collectively to the countries of Egypt, Ethiopia, Sudan, Somalia, Turkey, Lebanon, Syria, Israel, Iran, Iraq, Jordan, and the countries of the Arabian Peninsula. In recent years the term Southwest Asia (SWA) has also been used to refer to these countries.

II. DISCUSSION

7. **OVERVIEW OF ESC'S MIDDLE EAST STUDIES.** ESC has provided high-quality, critical, and responsive studies in support of U.S. security interests in the Middle East for over 33 years (1958 to 1991). These studies address a wide range of topics and problems -- from terrain analysis to the effectiveness of engineer forces supporting contingency operations in the Middle East. The studies highlighted in this paper represent efforts requested by commanders responsible for U.S. operations in that region and dedicated exclusively to issues about the Middle East. ESC has produced other studies that include issues relating to the Middle East, but only as part of a larger umbrella topic. ESC has *not* included these umbrella type studies in this paper.

8. **ESC's CURRENT MIDDLE EAST STUDIES.** The Chief of Engineers, Lieutenant General Henry J. Hatch, has approved the ESC FY 1991 study program. This program provides analytical support that benefits a wide variety of major commands and Unified and Specified Commands -- including U.S. Central Command (USCENTCOM), the U.S. Army Engineer School (USAES), and Third U.S. Army (TUSA). Specifically, ESC has programmed analytical support for five major Middle East study efforts this fiscal year. These five study efforts are:

a. **Desert Shield/Desert Storm Operations.** Support to Desert Shield/Desert Storm is ESC's top priority in FY 1991. About 12 percent of ESC's analytical resources are directly supporting this effort. In September 1990, the Deputy Chief of Engineers for Desert Shield (MG Stemley) tasked ESC with providing support to USCENTCOM. ESC reported the results of engineer experiences from past desert operations and exercises, and current desert operations and exercises.

b. **Engineer Requirements at Echelons Above Corps-Southwest Asia.** The Commander, USAES, requested ESC's analytical support in November 1990 to look at this issue. The objective of the study effort is directed in three main areas. First, determine and rank EAC engineer task requirements according to various study scenarios. Second, examine and calculate available engineer resources available to address EAC engineer requirements. Third, compare requirements to available resources, determine shortfalls, and recommend how shortfalls can be mitigated.

c. **Strategic Water Issues in the Middle East.** The Chief of Engineers has commissioned a survey of strategic water issues in the Middle East. The USACE Office of Strategic Initiatives is directing this survey and has tasked the USACE Water Resources Support Center (WRSC) as the principle study agency. WRSC has called upon ESC personnel to participate in their survey. ESC personnel continue to contribute research and data collection assistance, as well as analysis of various water resource issues.

d. **War Damage Assessment, SWA.** This study quantifies the expected war damage to critical facilities within SWA and translates the data into the format contained in the Army Force Planning Data and Assumptions. ESC relied heavily on intelligence documents and CAA's OMNIBUS 91 analysis in determining the war damage factors. The final report is now in the final production stage and is expected to be published in April 1991.

c. **SWA Engineer Capability Options for Heavy Divisions.** This study will determine the engineer capability of 12 alternative engineer structures. Elements that make up the 12 alternatives are unit design, tactical phase, and time frame. The study rates three unit designs in both offensive and defensive scenarios. ESC will rate these six scenarios in 1990 and 1999. Capability results include both personnel and equipment systems.

9. **PAST ESC MIDDLE EAST STUDIES.** During the last 33 years, ESC has dedicated a portion of its analytical power to assessing key military planning issues that affect the mission of U.S. forces assigned to protect our interests in the Middle East. These studies addressed a wide range of defense-related issues. A summary of these efforts is found below, while detailed abstracts of studies published after 1969 are found in Section III.

a. **1958-1980.** ESC began to turn away from nuclear operations planning in the late 1950s, and devoted resources to develop Middle East military planning expertise. ESC's efforts during this period were directed at military geographic planning and general land force planning in the Middle East.

(1) ***Military Geographic Planning.*** In July 1958, ESC received a formal request asking for the most recent information on airfields and other LOCs in the Middle East, and their capacity to support American military operations in the area. This study was a catalyst for other military geographic information studies that would be performed by ESC for years to come. Later, in 1971, ESC published a terrain analysis of the Middle East that included several topics of military geographic significance.

(2) ***Land Force Planning.*** ESC published several reports pertaining to planning for military operations in the Middle East during the 1970s. ESC produced three in-depth studies that looked at the factors facilitating the movement and stationing of U.S. military forces in the region.

b. **1980-1990.** ESC produced approximately 65 percent of its Middle East studies during this period. It is not hard to ascertain the reasons for this emphasis. The Carter administration declared the security of the Persian Gulf a vital U.S. interest. This declaration and the subsequent Iranian revolution provided the stimulus for the formation of another major U.S. military command: the Rapid Deployment Joint Task Force. The majority of ESC studies during the 1980s were sponsored by the successor of the Rapid Deployment Joint Task -- USCENTCOM. The Army component of USCENTCOM, TUSA-Assistant Chief of Staff Engineer, sponsored many engineer related studies. Although ESC's studies were diverse, its efforts were concentrated on solving problems in four major areas:

(1) ***Contingency Planning.*** ESC supported USCENTCOM with several studies that addressed specific engineer issues. One of these studies, *Staging Base Facilities for Underdeveloped Areas*, was a tremendous aid to USCENTCOM engineer planners. ESC also aided logistics planners by examining the engineer requirements for the SWAPDOP petroleum distribution system.

(2) **Combat Engineering.** In the mid-1980s, ESC published a series of studies that provided a foundation for more comprehensive combat engineer assessments. One of these baseline studies was *Workload Estimates for Combat Engineers in the Desert*. Using the information in these baseline studies, ESC went on to publish a series of combat engineer assessments in the latter portion of the decade. An in-depth look at the requirements and capabilities of engineer forces in the forward combat zone (FCZ) during a conflict in the Middle East was published in 1987 (*Engineer Assessment, Southwest Asia, Vol III: XVIII Airborne Corps Analysis*). Concurrently, ESC published an examination of the roles of engineers in the communications zone (*Engineer Assessment, Southwest Asia, Vol II: Echelons-Above-Corps Analysis*). These studies were summarized in a Middle East theater-wide combat engineer analysis in 1987 (*Engineer Assessment, Southwest Asia, Vol I: Theater Level Analysis*).

(3) **Target Vulnerability.** In the early 1980s, ESC took a macro look at the vulnerability of targets in the Middle East. Building upon that effort, ESC took an in-depth look at several regional LOC networks in the study *Engineer Effort to Repair Key Interdiction Targets on Lines of Communication in Southwest Asia*. ESC also focused upon the problems associated with the air and special-purpose forces threat to targets in the Middle East (*Soviet Air and Unconventional Warfare Damage, Southwest Asia*).

(4) **Topographic Engineering.** ESC supported the Topographer of the Army, Lieutenant General Henry J. Hatch, with analytical assessments of his topographic engineering mission. These assessments included a review of topographic engineer support during a conflict in the Middle East. That study is entitled *Topographic Assessment, Southwest Asia*. ESC used an earlier published effort entitled *Status of Mapping, Charting, and Geodesy (MC&G) and Military Graphic Documentation (MGD) Coverage in Southwest Asia*, to support our most recent topographic assessment. Of value to engineers, logisticians, and terrain analysts is a detailed examination of several major ports in the Middle East published in *Physical Description of Ports and Logistics Over-the-Shore Operations (Southwest Asia)*.

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III. ABSTRACTS OF ESC'S MIDDLE EAST STUDIES

10. **GENERAL.** This section is divided into two parts. For quick reference, the first part presents publication numbers and the titles of ESC's Middle East studies, starting with the most recent title. The titles are followed by abstracts. The abstracts provide information needed to obtain a better concept of a particular study. The abstracts also provide key elements of information needed to order any of ESC's publications from the Defense Technical Information Center (DTIC).

CEESC-R-90-14	Engineer Experiences Applicable to Desert Shield
CEESC-R-90-4	Topographic Assessment, Southwest Asia
CEESC-R-89-4	Engineer Assessment, Southwest Asia: Volume III XVIII Airborne Corps Analysis (Data Supplement) *
ESC-R-88-10	Engineer Assessment, Southwest Asia, Volume II: Echelons-Above-Corps Analysis (Data Supplement) *
ESC-R-88-1	Selected Class IV Survivability and Countermobility Requirements in Support of OPLAN 1008-86
ESC-R-87-14	Engineer Assessment, Southwest Asia, Volume III: XVIII Airborne Corps Analysis
ESC-R-87-13	Engineer Assessment, Southwest Asia, Volume II: Echelons-Above-Corps Analysis
ESC-R-87-12	Engineer Assessment, Southwest Asia, Volume I: Theater Level Analysis
ESC-R-87-7	Soviet Air and Unconventional Warfare Damage, Southwest Asia
ESC-R-87-2	Physical Description of Ports and Logistics Over-the-Shore Operations (Southwest Asia)
ESC-R-86-8	Staging Base Facilities for Underdeveloped Areas (Southwest Asia), Volumes 1a and 1b
ESC-R-86-2	Workload Estimates for Combat Engineers in the Desert
ESC-R-85-19	Engineer Effort to Repair Key Interdiction Targets on Lines of Communication in Southwest Asia
ESC-R-85-18	Status of Mapping, Charting, and Geodesy (MC&G) and Military Graphic Documentation (MGD) Coverage in Southwest Asia (SWA)

ESC-R-85-10	Southwest Asia Petroleum Distribution Operational Project (SWAPDOP) Engineer Support Study
ESC-R-84-11	The USACE in the Middle East--Benefits and Experiences for Future Construction Challenges
ESC-R-83-2	Middle East Target Analysis
ESC-R-353	Appendix 5 (Civil Engineering Support Plan) to Annex D (Logistics) to COMRDJTF OPLAN 1001-81
ESC-R-315	Concept for MED Division-level Planning
ESC-R-270	Land Force Planning Estimates, Middle East (Case 3)
ESC-R-266	United States Involvement in the Middle East--A Framework for Assessment
ESC-R-251	United States Involvement in the Middle East--A Framework for Assessment
ESC-R-208	Middle East Scenario
ESC-R-207	Middle East Terrain Analysis
ESC-R-177	Military Master Planning, Ethiopia

* Not in DTIC

CEESC-R-90-14

TITLE: *Engineer Experiences Applicable to Desert Shield*

SHORT TITLE: Desert Shield

DATE PUBLISHED: September 1990

CLASSIFICATION: UNCLASSIFIED

NUMBER OF PAGES: 114

AD NUMBER: N/A

STUDY TEAM: Mr. Larry W. Wright
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CPT Dale M. Bleckman
Mr. Otha W. Evans
Mr. James F. Thompson
Ms. Karen C. Guevara
Mr. James E. Scott
Mr. Lester E. Bergen
Ms. Linda W. Smith

STUDY CATEGORY: Operations and Force Structure

PREPARED FOR: United States Army Corps of Engineers

ABSTRACT: This report presents the results of an Engineer Studies Center (ESC) literature search of previous engineer lessons learned and experiences in a desert environment. In just two weeks, ESC extracted the information from nearly 200 documents and interviews with military planners and engineers. Each entry was selected for its significance and its relevance to potential *DESERT SHIELD* engineer operations. ESC grouped these entries into nine basic categories: policy and planning, force structure, construction, operations and maintenance, mobility, countermobility, survivability, sustainment engineering, and topographic engineering. Because of the short suspense, ESC did not attempt to verify the accuracy of statements from literature sources or interviews.

CEESC-R-90-4

TITLE: *Topographic Assessment, Southwest Asia*

SHORT TITLE: TASWA

DATE PUBLISHED: February 1990

CLASSIFICATION: SECRET-NOFORN

NUMBER OF PAGES: 270

AD NUMBER: C957262

STUDY TEAM: Mr. Michael Kishiyama
Mr. Charles R. Bailey
Mr. Stephan E. Ryeczek
Mr. Dennis W. Bowser
Mr. John F. Sustar

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Third United States Army (TUSA)

ABSTRACT: This study assesses the topographic support required to support the Third United States Army (TUSA) when deployed as the Army component of the U.S. Central Command. The assessment used the TUSA Letter of Instruction for OPLAN 1021 as the base document to make the assessment. The requirements were developed from the October 1988 (draft) TPFDD to present the support required to provide topographic support to the deploying forces.

The results of the assessment show a requirement for 10.7 million copies of map products, and over 500,000 hours of topographic support to meet the commander's requirements, from theater to brigade level, for terrain analysis, survey support, and map storage and distribution throughout the theater. All deploying units were located in their final disposition location and the topographic support requirements were computed based on the geographical locations of all units. The theater was divided into a forward combat zone and a rear combat zone. The requirements were computed for all three phases of the OPLAN -- the Base Case, the Deterrent Case, and the Warfighting Case.

CEESC-R-89-4

TITLE: *Engineer Assessment, Southwest Asia: Volume III, XVIII Airborne Corps Analysis (Data Supplement)*

SHORT TITLE: None

DATE PUBLISHED: February 1989

CLASSIFICATION: CONFIDENTIAL

NUMBER OF PAGES: 137

AD NUMBER: N/A

STUDY TEAM: LTC Joseph Deitzel
Mr. Terry Atkinson

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Third United States Army (TUSA)

ABSTRACT: This data supplement presents the data used to prepare the report, *Engineer Assessment, Southwest Asia: XVIII Airborne Corps Analysis*. Engineer work requirements data are:

(1) presented for those engineer activities performed in support of an operational deployment of the XVIII Airborne Corps to Southwest Asia

(2) shown for each engineer task priority increment and task priority group

The deployment schedules and the sequencing of combat events are as depicted in a war game scenario of the main report.

ESC-R-88-10

TITLE: *Engineer Assessment, Southwest Asia, Volume II: Echelons-Above-Corps Analysis (Data Supplement)*

SHORT TITLE: None

DATE PUBLISHED: April 1988

CLASSIFICATION: SECRET

NUMBER OF PAGES: 229

AD NUMBER: Not in DTIC

STUDY TEAM: Mr. Dean E. Considine
Ms. Susan J. Wright

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Third United States Army (TUSA)

ABSTRACT: This data supplement was provided to the study sponsor for use in future planning. It contains all the engineer task requirement calculations used as the basis for the results presented in Volume II. The requirement calculations include facility sizes needed along with engineer man-hours to construct those facilities for each time period of the scenario. Data is aggregated by varying levels of detail from individual facility types at a single base location to a theater wrap-up by priority categories (vital, critical, essential, and necessary).

ESC-R-88-1

TITLE: *Selected Class IV Survivability and Countermobility Requirements In Support Of OPLAN 1008-86*

SHORT TITLE: Class IV Requirements

DATE PUBLISHED: September 1988

CLASSIFICATION: SECRET

NUMBER OF PAGES: 207

AD NUMBER: C004396

STUDY TEAM: Mr. Bruce Springfield
MAJ Dave Kiser

STUDY CATEGORY: Installations and Logistics

PREPARED FOR: Third United States Army (TUSA)

ABSTRACT: This study estimated selected Class IV support requirements for U.S. forces operating in the Southwest Asian theater of operations. The estimate is limited to selected Class IV materiel needed to support countermobility (barrier and obstacle) and survivability (construction of unit defensive positions) operations. This report used the scenario and study guidance from an ESC study entitled, *Engineer Assessment, Southwest Asia*. The scenario was used to generate unconstrained, but realistic requirements and to make an average-case estimate of the theater's Class IV supply and general-cargo transportation capability.

ESC-R-87-14

TITLE: *Engineer Assessment, Southwest Asia Volume III: XVIII Airborne Corps Analysis*

SHORT TITLE: None

DATE PUBLISHED: September 1988

CLASSIFICATION: SECRET

NUMBER OF PAGES: 381

AD NUMBER: Not in DTIC

STUDY TEAM: Mr. Dean Considine
Mr. Terry O. Atkinson
MAJ James M. Rigsby

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Third United States Army (TUSA)

ABSTRACT: This study analyzes the engineer requirements and capabilities of the XVIII Airborne Corps during a contingency deployment into Southwest Asia. Companion reports present similar analyses of both the echelons above corps and the total TUSA theater. The three-volume study examined both a conventional and a chemical war fought in 1986. This volume examines the engineer requirements, phased over time, of the Corps' scheduled deployment of combat, combat support, and combat service support units. The ability of the U.S. Army engineers to provide timely support is also examined. Support requirements are divided into four categories depending on their importance to the overall Corps mission: vital, critical, essential, and necessary. The study presents detailed estimates of requirements generated by elements in both the Corps rear and the division areas of operations. Four different types of combat divisions are used to generate engineer requirements: airborne, airmobile, light, and mechanized. The study concludes that the XVIII Airborne Corps has enough engineer assets programmed to support its combat operations.

ESC-R-87-13

TITLE: *Engineer Assessment, Southwest Asia, Volume II: Echelons-Above-Corps Analysis*

SHORT TITLE: None

DATE PUBLISHED: January 1988

CLASSIFICATION: SECRET-NOFORN-
WNINTEL

NUMBER OF PAGES: 314

AD NUMBER: C955728

STUDY TEAM: Mr. Dean E. Considine
Ms. Susan J. Wright
Mr. James F. Thompson

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Third United States Army (TUSA)

ABSTRACT: This study analyzes the engineer requirements for TUSA at echelons above corps (EAC) during wartime. Companion reports present analyses of the engineer requirements and capabilities of the XVIII Airborne Corps areas of operation and of the entire TUSA theater of operations. This volume examines the EAC support requirements and the existing U.S. Army engineer force's ability to provide that support when needed. Requirements are divided into four categories depending on their importance to the continuance of the combat force: vital, critical, essential, or necessary. The results show the workload for EAC engineers in the early periods of the scenario to be overwhelming. The lack of host nation support causes the U.S. Army to rely totally on its own engineers for all engineer support. Even when the most austere standards of construction are applied, the requirements far outstrip the existing U.S. Army engineers capability.

ESC-R-87-12

TITLE: *Engineer Assessment, Southwest Asia, Volume I: Theater Level Analysis*

SHORT TITLE: None

DATE PUBLISHED: August 1988

CLASSIFICATION: SECRET

NUMBER OF PAGES: 93

AD NUMBER: C044093L

STUDY TEAM: Mr. Stephen C. Reynolds
Mr. Terry Atkinson
Ms. Susan J. Wright

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Third U.S. Army (TUSA)

ABSTRACT: This study analyzes the engineer requirements and capabilities of the Third United States Army during a contingency deployment into Southwest Asia. Companion reports present similar analyses of both the echelons above corps and the XVIII Airborne Corps. The three-volume study examines both a conventional and a chemical war fought in 1986. Volume I presents the implications to the Southwest Asia theater of shortages in U.S. engineer capability. Data supporting the analysis in this volume are found in the two companion volumes.

ESC-R-87-7

TITLE: *Soviet Air and Unconventional Warfare Damage, Southwest Asia*

SHORT TITLE: None

DATE PUBLISHED: September 1987

CLASSIFICATION: SECRET-NOFORN-
WNINTEL

NUMBER OF PAGES: 146

AD NUMBER: N/A

STUDY TEAM: Mr. Dean E. Considine
Mr. Richard Taylor

STUDY CATEGORY: Unconventional Warfare

PREPARED FOR: Third United States Army (TUSA)

ABSTRACT: This study was conducted as part of the umbrella study entitled *Engineer Assessment, Southwest Asia*. The purpose of the report was to estimate war damage incurred by fixed, critical facilities in the U.S. Army Central Command (USARCENT) area of responsibility in Southwest Asia. The analysis uses a wartime 90-day scenario to identify threat forces and notional targets and target elements in the USARCENT areas of operation. It also presents a methodology for estimating USARCENT war damages. The report presents damages to six target elements that are deemed important to land combat engineer operations. These six elements are: airfield runways; command, control, and communication facilities; port piers and wharves; POL storage; ammunition storage; and highway bridges. Supporting annexes address scenario relationships, target selection, threat assessment, and study methodology.

ESC-R-87-2

TITLE: *Physical Description of Ports and Logistics Over-The-Shore-Operations (Southwest Asia)*

SHORT TITLE: None

DATE PUBLISHED: February 1987

CLASSIFICATION: SECRET-NOFORN-
WNINTEL

NUMBER OF PAGES: 142

AD NUMBER: C954362L

STUDY TEAM: Mr. Dean E. Considine
Mr. James F. Thompson

STUDY CATEGORY: Logistics, Military Facilities, and Supplies

PREPARED FOR: Third United States Army (TUSA)

ABSTRACT: This report was prepared in support of the umbrella study *Engineer Assessment, Southwest Asia*. The goal of the study was to analyze U.S. Army engineer support requirements and capabilities. This report quantifies the present operational conditions of five ports within SWA, identifies the deficiencies of each port, identifies the possible area that will require a LOTS operation to support port operations, and quantifies the engineer effort necessary to construct the LOTS site.

ESC-R-86-8

TITLE: *Staging Base Facilities for Underdeveloped Areas (Southwest Asia)*

SHORT TITLE: None

DATE PUBLISHED: September 1986

CLASSIFICATION: UNCLASSIFIED

VOL 1a

SECRET

VOL 1b

NUMBER OF PAGES: 147, Vol 1a
37, Vol 1b

AD NUMBERS: B106036
C039753

STUDY TEAM: LTC Joseph Dietzel
Ms. Susan J. Wright

STUDY CATEGORY: Logistics, Military Facilities, and Supplies

PREPARED FOR: United States Central Command

ABSTRACT: This study determines the minimum amount of permanent facilities that must be built or made available by host nations in peacetime, to meet the requirements of a multifunctional wartime staging base in the Southwest Asia area of operations. The report documents the development of the Army and Air Force modules and facility planning factors, and the methodology applied to calculate facility requirements. Facility requirements are developed for nine different Air Force squadron modules, an Air Force core operations support module, five different Army divisions, and three Army echelons-above-corps support modules. The study then estimates which facilities should be constructed in peacetime or identified as available for use by the host nation in peacetime to support the forces' mobilization and deployment requirements during wartime. The study also recommended consolidation of ammunition and POL facility requirements among and across service lines, and the construction of a standard-sized runway that could be used by all aircraft considered in the study.

ESC-R-86-2

TITLE: *Workload Estimates for Combat Engineers in the Desert*

SHORT TITLE: Desert Study

DATE PUBLISHED: April 1986

CLASSIFICATION: UNCLASSIFIED

NUMBER OF PAGES: 541

AD NUMBER: A169799

STUDY TEAM: LTC Joe Dietzel
Mr. Terry O. Atkinson

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: United States Central Command

ABSTRACT: This analysis defines the engineer workload requirements for 26 tasks traditionally performed in support of maneuver units in the forward combat zone of a desert environment. It focuses on three of the four engineer mission areas: survivability, countermobility, and mobility. It measures the equipment and manpower effort needed for work performed in common earth (Europe) and for work performed in three desert soils: sand, rock plateau, and salt marsh. In addition, it measures the degradation of work efficiency caused by intense desert heat.

ESC-R-85-19

TITLE: *Engineer Effort to Repair Key Interdiction Targets on Lines of Communication in Southwest Asia*

SHORT TITLE: Repair of LOCs in SWA

DATE PUBLISHED: December 1985

CLASSIFICATION: SECRET-NOFORN

NUMBER OF PAGES: Volume I - 178
Volume II - 676

AD NUMBERS: Vol I - C953645
Vol II - C953646

STUDY TEAM: LTC Joe M. Dietzel
Mr. Stephen C. Reynolds
Mr. Richard Taylor

PREPARED FOR: United States Central Command

ABSTRACT: This study analyzes six LOC networks within the USCENCOM area of responsibility. It identifies bridge and tunnel targets along the principal roads within the LOC networks and assesses US Engineer effort to repair or bypass the targets. Repair and bypass times are estimated for three damage levels and two seasons. The three damage levels are based on hypothesized threat interdiction attacks. The two seasons are based on the hot and dry season (when high temperatures affect personnel work rates) and the temperate and wet season (when repair and bypass work may be more difficult because normally shallow or dry streams are at high water levels).

ESC-R-85-18

TITLE: *Status of Mapping, Charting, and Geodesy (MC&G) and Military Graphic Documentation (MGD) Coverage in Southwest Asia (SWA)*

SHORT TITLE: MC&G and MGD Coverage in SWA

DATE PUBLISHED: December 1985

CLASSIFICATION: SECRET-NOFORN

NUMBER OF PAGES: 40

AD NUMBER: None

STUDY TEAM: LTC Joe M. Dietzel
Mr. Richard L. Taylor

PREPARED FOR: United States Army Engineer Studies Center

ABSTRACT: This study was conducted by the Engineer Studies Center as an adjunct to another study titled *Repair of LOCs in Southwest Asia (SWA)*. Both studies were done either directly or indirectly for the U.S. Central Command (USCENTCOM). This study assesses the availability and currency of various MC&G and MGD coverage along various lines of communications (LOCs) in SWA, compares that assessment to the current requirement and production cycle at the Defense Mapping Agency (DMA), and identifies a number of specific shortfalls.

ESC-R-85-10

TITLE: *Southwest Asia Petroleum Distribution Operational Project (SWAPDOP) Engineer Support Study*

SHORT TITLE: SWAPDOP

DATE PUBLISHED: December 1985

CLASSIFICATION: SECRET

NUMBER OF PAGES: 58

AD NUMBER: ADC038377L

STUDY TEAM: Mr. Bruce W. Springfield
Mr. Michael A. Alexander

STUDY CATEGORY: Operations and Force Structure

PREPARED FOR: Assistant Chief of Engineers, U.S. Army Corps of Engineers

ABSTRACT: This study quantifies the U.S. Army Engineer effort required to install the Southwest Asia Petroleum Distribution Operational Project. Through this quantification, it recommends engineer unit allocations for the Southwest Asia Petroleum Distribution Operational Project and presents a force planning estimate to be used in the Total Army Analysis (TAA-92) planning cycle.

ESC-R-84-11

TITLE: *The USACE in the Middle East--Benefits and Experiences for Future Construction Challenges*

SHORT TITLE: None

DATE PUBLISHED: December 1984

CLASSIFICATION: UNCLASSIFIED

NUMBER OF PAGES: 117

AD NUMBER: A150017

STUDY TEAM: Ms. Jill M. Davis

STUDY CATEGORY: Management

PREPARED FOR: U.S. Army Engineer Division--Middle East, U.S. Army Corps of Engineers

ABSTRACT: This study is a management analysis of the USACE involvement in planning, engineering, and construction activities for the Kingdom of Saudi Arabia and other nations in the Middle East. It documents the surveys and interview processes that compose the research phase, details the analysis process, and organizes detailed evaluations of USACE performance. The focus of the analysis is to identify significant lessons learned which would be of concern to USACE planners setting out to conduct future large-scale construction programs, overseas or in CONUS, where USACE has no existing relationships with the client organization.

ESC-R-83-2

TITLE: *Middle East Target Analysis*

SHORT TITLE: META

DATE PUBLISHED: February 1983

CLASSIFICATION: SECRET-NOFORN-
WINTEL

NUMBER OF PAGES: 538 pages

AD NUMBER: Volume I-C031143
Volume II--C031144
Volume III--C952195L

STUDY TEAM: MAJ Glen F. Weien

STUDY CATEGORY: Intelligence

PREPARED FOR: Chief, Studies, Analysis, and Gaming Agency, Office of the Joint
Chiefs of Staff

ABSTRACT: This study provides an analysis of certain notional LOC targets. Its purpose is to examine the relationships of interdiction effort to target damage, and target damage effects on threat forward movement. In the study, "cost ratio" and total delay factors are developed for each notional target under different equipment- and terrain-related conditions. The targets are then ranked according to "cost ratio" and total delay in order to identify the most attractive targets for interdiction. A significant bibliography is included.

ESC-R-353

TITLE: *Appendix 5 (Civil Engineering Support Plan) to Annex D (Logistics) to COMRDJTF
OPLAN 1001-81*

SHORT TITLE: CESP for OPLAN 1001-81

DATE PUBLISHED: April 1981

CLASSIFICATION: SECRET

NUMBER OF PAGES: 50

AD NUMBER: None

STUDY TEAM: Mr. Gerard F. Greco

STUDY CATEGORY: Logistics

PREPARED FOR: U.S. Army Forces Command and Rapid Deployment Joint Task Force

ABSTRACT: This Civil Engineering Support Plan supports the OPLAN in the identification of minimum time-phased facilities essential to the operational and logistical support of military forces employed within the joint operational area identified in Southwest Asia. Information provided should be used for the development of detailed reception plans. Initially, this CESP can serve as a guide for negotiations with the respective host-nation governments for the commitment of existing facilities for United States use. Facility requirements not satisfied by a host-nation commitment of assets will be obtained, at the discretion of the COMRDJTF, through self-help, local contract, force engineer units, U.S.-managed third-nation labor forces, or a combination of these alternatives.

ESC-R-315

TITLE: *Concept for MED Division-Level Planning*

SHORT TITLE: None

DATE PUBLISHED: April 1978

CLASSIFICATION: UNCLASSIFIED

NUMBER OF PAGES: 14

AD NUMBER: None

STUDY TEAM: Mr. Gerard F. Greco

STUDY CATEGORY: Management

PREPARED FOR: Office of the Chief of Engineers, Middle East Division

ABSTRACT: This paper recommends a general framework for developing MED division-level plans. It identifies key considerations bearing on division-level planning and offers several recommendations concerning incorporation of certain project functions into an overall Division Master Plan. This paper establishes guidelines for MED to proceed in actually developing parts of a Division Master Plan.

ESC-R-270

TITLE: *Land Force Planning Estimates, Middle East (Case 3)*

SHORT TITLE: None

DATE PUBLISHED: October 1975

CLASSIFICATION: SECRET

NUMBER OF PAGES: 94

AD NUMBER: None

STUDY TEAM: Mr. Lyle Surprise

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Office, Deputy Chief of Staff for Military Operations

ABSTRACT: This study develops a land force planning estimate for a limited U.S.-U.S.S.R. confrontation in the Middle East. It is the Army portion of a joint Army-U.S. Marine Corps study. A common scenario is developed which leads from U.S. unilateral interposition of forces--studies by the Marine Corps--to the limited confrontation. Terrain characteristics and logistics capabilities of the area of operations are evaluated and taken into account. Land forces, time-phased for defensive and counteroffensive operations, are presented.

ESC-R-266

TITLE: *United States Involvement in the Middle East--A Framework for Assessment*

SHORT TITLE: None

DATE PUBLISHED: October 1975

CLASSIFICATION: SECRET-FORMERLY
RESTRICTED DATA

NUMBER OF PAGES: 2 Volumes

AD NUMBERS: Volume I--C004709L
Volume II--C004710L

STUDY TEAM: Mr. Milton Moss

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Office of the Secretary of Defense

ABSTRACT: This document is an expanded update of the ESG study published on 1 July 1974. As such, it provides the Department of Defense and other users an overview of existing intertwined relationships between the United States and the Middle East region. It develops a data base which could facilitate planning for and assessment of current and future U.S. policies toward this region. United States strategic interests in the area--specifically pertaining to oil, the Palestinians, nuclear considerations, military and economic assistance, the Suez Canal, the Indian Ocean, and Persian Gulf are analyzed in some detail. The volume is designed for ready maintenance and future update.

ESC-R-251

TITLE: *United States Involvement in the Middle East--A Framework for Assessment*

SHORT TITLE: None

DATE PUBLISHED: 1 July 1974

CLASSIFICATION: SECRET-NOFORN

NUMBER OF PAGES: 250

AD NUMBER: None

STUDY TEAM: Mr. Milton Moss

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Office of the Secretary of Defense

ABSTRACT: This document provides the Department of Defense and other users an overview of existing intertwined relationships between the United States and the Middle East region. It develops a data base which could facilitate planning for and assessment of current and future U.S. policies toward this region. United States strategic interests in the area--specifically pertaining to oil, military and economic assistance, the Suez Canal, and base rights are analyzed in some detail. The volume is designed for ready maintenance and future update.

ESC-R-208

TITLE: *Middle East Scenario*

SHORT TITLE: None

DATE PUBLISHED: January 1971

CLASSIFICATION: CONFIDENTIAL

NUMBER OF PAGES: 20

AD NUMBER: None

STUDY TEAM: Mr. William H. Norris

STUDY CATEGORY: Force Levels

PREPARED FOR: Office, Deputy Chief of Staff for Military Operations

ABSTRACT: This is a scenario for the deployment of an Army force to the Middle East. It consists of before-battle general and special situations; a map analysis of the battle; and a description of the land battle, air war, and logistic support concept.

ESC-R-207

TITLE: *Middle East Terrain Analysis*

SHORT TITLE: None

DATE PUBLISHED: May 1971

CLASSIFICATION: SECRET

NUMBER OF PAGES: 29

AD NUMBER: None

STUDY TEAM: Mr. William H. Norris

STUDY CATEGORY: Strategic

PREPARED FOR: Joint Chiefs of Staff

ABSTRACT: This special terrain analysis of a Middle East area was requested by the Assistant to the Chairman, Joint Chiefs of Staff. The report identifies critical terrain features to include avenues of approach, principal defensive positions, cross-country mobility characteristics, and logistic constraints (e.g., road capacities, water sources). The study was conducted to provide a source of input to a subsequent war game conducted by the Studies, Analysis and Gaming Agency (SAGA) of the Joint Staff.

ESC-R-177

TITLE: *Military Master Planning, Ethiopia*

SHORT TITLE: None

DATE PUBLISHED: June 1969

CLASSIFICATION: CONFIDENTIAL

STUDY CATEGORY: Force Structure

ABSTRACT: This study analyzes peacetime troop deployment, facilities required for permanent posts, and the capabilities of existing installations, and develops optimum installation master plans for the Imperial Ethiopian Military Forces (IEMF). Construction cost estimates for optimum and alternate master plans are presented. Methodology is sufficiently detailed to permit ready use by IEMF engineers in making changes that may become necessary during the 1968-78 time frame of the study. "Data are presented in a format which can be used by Ethiopian military planners to program improvements for existing permanent army installations and facilities on an incremental basis, as funds become available. The same data can be used by local commanders to provide local improvements based on standardized plans, and the use of military labor in self-help efforts."

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