



**STRATEGY
RESEARCH
PROJECT**

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**CIVIL ENGINEER SUPPORT IN THE USEUCOM AOR:
CAN THE COMPONENTS MEET THE REQUIREMENTS?**

BY

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USAWC STRATEGY RESEARCH PROJECT

**Civil Engineer Support in the USEUCOM AOR:
Can the Components Meet the Requirements?**

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ABSTRACT

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With the collapse of the Soviet Union and the end of the Cold War, the United States emerged as the world's only remaining superpower. This position gives America a tremendous opportunity to shape and influence world affairs as never before. Our national security strategy of engagement, together with our national military strategy of Shape, Respond and Prepare Now set the framework for how the United States will promote peace and prosperity at home and abroad. No longer looking at the world from a global context as we did during the Cold War, we now take a regional approach as to how we will shape our security environment. As such, regional Commanders in Chiefs play an important role in how they will develop their strategy to shape their respective areas of responsibility. The amount and type of forces assigned to them weigh heavily in formulating this strategy. Army, Navy and Air Force engineers can be an important part of this strategy. This paper looks at the capabilities of the Component engineers within the U.S. European Command area of responsibility, the means they have at their disposal and how they are postured to support CINCEUR in the execution of his Theater Engagement Plan.

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CIVIL ENGINEER SUPPORT IN THE USEUCOM AOR: CAN THE COMPONENTS MEET THE REQUIREMENTS?

ENGAGEMENT

As we approach the beginning of the 21st century, the United States remains the world's most powerful force for peace, prosperity and the universal values of democracy and freedom. Our nation's challenge – and our responsibility – is to sustain that role by harnessing the forces of global integration for the benefit of our own people and the people around the world.¹

With the fall of the Soviet Union and the end of the Cold War in 1991, our national security strategy of containment came to a close after withstanding a forty-year test of time. “No longer committed to a strategy based on containing the spread of communism influence and ideology”², the United States entered into a new era of complex international relations. Instead of a simplified international stage with well-defined interest groups and clear roles and obligations for the United States, America was faced with a situation so turbulent and ill defined that a clear definition of the period has yet to be articulated.³ Even though there is a reduced threat of nuclear confrontation, this new period we are now in is considerably more complex and unstable rather than less. From this “New World order” as coined by the Bush Administration, we see a new security strategy based on engagement and enlargement and being focused on a regional versus global perspective. In this strategy we seek to further develop and strengthen our ties with those nations which have interests and goals similar to ours.

In order to achieve our security objectives in today's increasingly complex global environment, “we must be willing and able to use all appropriate instruments of national power to influence the actions of other states and non-state actors”.⁴ By doing so, we reduce the potential for conflict and further increase global peace and stability. A stable environment is absolutely critical prior to the implementation of other agendas. Emerging democracies and the opening of new markets throughout the world will continue to receive American support and for this reason, the United States will continue to advance its strategy of engagement. Our position as the world's only superpower with no immediate peer competitor within the next ten-fifteen years provides us with a tremendous opportunity to shape and influence the world as never before.

American leadership in the world has never been more important. If we exert our leadership abroad, we can make America safer and more prosperous – by deterring aggression, by fostering the peaceful resolution of dangerous conflicts, by opening new markets, by helping democratic regimes and by tackling global problems. Without our active leadership and engagement abroad, threats will fester and our opportunities will narrow.⁵

In the post-Cold War era, American leadership and engagement abroad has increasingly taken the form of military intervention. The vast majority of these deployments have been for operations short of war such as peace enforcement, peacekeeping, crisis response humanitarian assistance and disaster relief. Although the potential of a superpower confrontation faded with the fall of the Soviet Union, operations short of war have increased almost exponentially with the rising demands to use the military to solve the problems of ethnic conflicts, humanitarian and disaster assistance, and civil unrest. Since 1989, the U.S. Military has deployed at a rate almost three times the frequency of the previous fifty years. A review of 27 operations mounted between March 1991 and October 1994 reveals that more than half were staged from Europe.⁶

U.S. Military history is replete with noncombatant operations to deter war, restore peace at the conclusion of combat operations, maintain peace and provide for the logistic support of disaster victims. When viewed through historical precedence, operations other than war are indicative of business as usual for the U. S. Military, whereas combat operations are the exception.⁷ Peacetime engagement and conflict prevention by U.S. Military forces will continue well into the foreseeable future as we look to promote our national interests and support our security strategy of engagement. The most critical military aspect of the engagement strategy is forward deployment.⁸ While nuclear deterrence remained a cornerstone, forward presence sought deterrence and reassurance for Allies through the active engagement of U. S. forces by way of deployments and exercises.⁹

Our success in shaping the international security environment cannot be guaranteed. No one can predict with certainty the time and magnitude of natural disasters or where the next crisis will occur. Likewise, quick intervention by military forces may be the best way to resolve or contain a situation prior to it becoming a larger crisis or conflict. U.S. forces must be multi-mission capable and they must be organized, trained, equipped, and managed with multiple missions in mind.¹⁰

The Quadrennial Defense Review (QDR) is the primary process for the review of defense strategy and programs, including force structure, force mix, readiness and modernization.¹¹ As we prepare for the future, we must retain our military superiority in the face of new, evolving threats and challenges. We must become more proficient in our ability to conduct joint and combined operations, and we must "improve our methods for integrating our forces and capabilities with those of our allies and coalition partners".¹² In order to do this we must look to pursuing a focused equipment modernization effort and exploiting technological revolutions in new military systems. We must also exploit the "Revolution in Business Affairs" to include acquisition reform, outsourcing and privatizing a wide range of support activities, leveraging commercial activities and taking those steps necessary to respond more effectively to unanticipated or asymmetric threats.

As we look to help shape the international security environment in ways favorable to U. S. interests, our National Military Strategy was formulated based on principles contained in the President's National Security Strategy and the Quadrennial Defense Review sponsored by the Secretary of Defense.¹³ The three main elements of our National Military Strategy are to shape the international environment through engagement, respond to the full spectrum of crises, and to prepare now for an uncertain future. By articulating Prioritized Regional Objectives (PROs) through the Joint Strategic Capabilities Plan (JSCP) to the Commander in Chiefs (CINCs) for use in their Theater Engagement Plans (TEPs), the Department of Defense sought to "operationalize" the emphasis of engagement.¹⁴

Chairman Joint Chiefs of Staff Manual (CJCSM) 3113.01, Theater Engagement Planning requires the CINCs to report various engagement activities as part of the TEP process. This includes operational activities such as ongoing operations involving U. S. Forces, combined exercises between Service components with foreign military forces and other foreign military interaction such as combined training and education, military to military contacts, as well as security and humanitarian assistance. The level of these various engagement activities within a CINC's Area of Responsibility (AOR) depends on many things. These may include the size of the region, the overall stability of the region, and the number of military forces assigned to the region to name but a few. Those CINCs with forward-deployed forces in their AOR are better postured to conduct a wide range of military engagement activities.

USEUCOM THEATER ENGAGEMENT PLAN

The United States European Command (USEUCOM) was at the tip of the spear when the Cold War ended and the Soviet Union and Warsaw Pact dissolved. After forty years of being held hostage under Soviet dominance, the emerging nations of Central and Eastern Europe looked to the West as model states to follow. NATO's Partnership for Peace (PfP) and USEUCOM's Joint Contact Team Program (JCTP) are two of the larger and better known of the many programs established to assist the new democracies transition to western style institutions. Through PfP, countries seeking membership under the NATO umbrella work closely with NATO nations to demonstrate their readiness to join the alliance. With the JCTP, USEUCOM fielded "small teams of military personnel to work with the Ministries of Defense in Central and Eastern European countries to help facilitate formal assistance".¹⁵ These programs and others came with their own funding. In order to coordinate and bring some sense of order to these and previously existing Department of Defense, Department of State and other agencies' programs within the theater, the Theater Engagement Plan Management Information System (TEPMIS) was created. It is a large, integrated database covering all of the various activities and programs and is used to develop regional campaign and Country Plans. Within these various training, exercise and assistance programs are activities which the Services' civil engineers are involved in. Three of these are

Joint Chiefs of Staff (JCS) Exercise Related Construction, the CORNERSTONE series of joint and combined engineer exercises, and humanitarian and civil assistance projects.

EXERCISE RELATED CONSTRUCTION

The Exercise Related Construction (ERC) program was initiated in 1987 to support JCS exercises. Authorized under Title 10, U.S.Code Section 2805, ERC projects are unspecified minor Military Construction (MILCON) and are limited to a maximum of \$1.5M per project. ERC projects must satisfy a JCS exercise requirement and be located outside of the continental United States (OCONUS). The project may be new construction or restoration/conversion of an existing facility and can be accomplished by U. S. engineer forces, contract, or a combination of the two. Worldwide, the ERC program totals between \$3.5M and \$7.0M annually. Unified commands submit project requests annually to the Joint Staff, which in turn selects and prioritizes projects for submission to appropriate congressional committees.

The ERC program in USEUCOM averages three to five projects a year with a total dollar value ranging from \$900K to \$1.5M. Typical projects include expeditionary base camp facilities, weapons ranges, and airfield and road repairs. These projects are generally located in remote areas where there is limited basic infrastructure. New construction or upgrades to existing facilities often represents significant improvement in the quality of life for exercise participants. Although ERC projects are intended to benefit U. S. Forces, corollary benefits may accrue to host countries and foster improved relations. Recently executed projects are spread throughout the USEUCOM AOR to include Norway, Lithuania, Albania, Romania, Tunisia, Morocco, Uganda and Botswana. Air Force Active and Reserve Component engineers and Navy Seabee detachments have provided the vast majority of the forces needed to execute this program. Due to the effects of the drawdown and ongoing commitments in the Balkans, U.S. Army Europe (USAREUR) does not have the engineer resources to support this program.

CORNERSTONE EXERCISES

Under the Partnership for Peace (PfP) program, a series of engineer exercises was developed in 1995. Named "CORNERSTONE", they foster engagement of U. S. engineer forces with engineer forces from an emerging democratic state in Eastern Europe or the Central Independent States. When first conceived in 1995, there was to be one project each year. Lead for each project was to rotate between USAREUR, U.S. Navy Europe (USNAVEUR) and U.S. Air Force Europe (USAFE). The projects were to include as many joint U. S. engineer forces as possible, utilizing both Active and Reserve Component personnel. The result would be a joint and combined engineer operation that promotes interoperability

between the Services' engineers and host nation engineers. To date, project locations have included Albania, Romania, Georgia, Bulgaria, Latvia and Lithuania.

In 1999, two projects were planned, but due to ongoing operations in the Balkans, the USAREUR led project scheduled for Macedonia was delayed until 2001. The 2001 program now has three projects scheduled, with each of the Components taking the lead for one of them. The three focused countries are Moldova, Estonia and Macedonia. Future year exercises will be limited to one project a year due primarily to funding cuts in the exercise program. Limiting the projects to one per year reduces the planning effort of the lead Component engineer headquarters to once every three years. The level of troop participation by each Component will generally remain the same.

HUMANITARIAN AND CIVIC ASSISTANCE

The Humanitarian and Civic Assistance (HCA) program provides humanitarian and civic assistance projects in conjunction with military operations in a foreign country. Authorized under Title 10, USC 401, HCA projects are planned activities and conducted with military operations and exercises. They must promote the security interests of both the United States and the country in which the activity is to be carried out. They must also promote the specific operational readiness skills of the members of the armed forces who are to participate in the country. Included in the definition of "humanitarian and civic assistance" projects are;

- Medical, dental and veterinary care provided in rural areas of a country
- Construction of rudimentary surface transportation systems
- Well drilling and construction of basic sanitary facilities
- Rudimentary construction and repair of public facilities
- Detection and clearance of landmines

Of these five, the three related to construction are candidates for engagement activities by engineer forces within USEUCOM. A new program within the theater, it represents another means by which engineers "can fulfill a unit-training requirement that incidentally creates humanitarian benefit to the local population".¹⁶ The difficulty with this program is that with an AOR as large as USEUCOM (83 countries) and the allocated resources so small (less than \$1.5M annually), the countries must be prioritized by region and the project scope kept to a minimum (to keep costs down). This program targets primarily the lesser-developed countries of Western and Sub-Saharan Africa. Since USAREUR partakes in very few, if any, exercises in this region, the conditions (conducted with military operations and exercises) are not met for Army engineers. The most effective way to execute this program is with Navy Seabee detachments in conjunction with ship portcalls to countries along the littorals. By doing so, all

required personnel, equipment and material needed for the project arrive with the ship, thereby keeping transportation and material delivery costs within budget.

CIVIL ENGINEERING

Civil engineering is defined as 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.¹⁷

Each of the Services possess distinct civil engineering force capabilities which when properly used and/or coupled with contracted support, can provide a tremendous synergistic affect and serve as a significant force multiplier. Army engineer units, particularly combat heavy battalions and combat support equipment companies, "provide a full range of engineering capabilities to construct, maintain and repair facilities and structures as well as airfields, roads, bridges, and other lines of communication in support of the ground commander".¹⁸ Navy engineer units, primarily Naval Mobile Construction Battalions (MNCBs) perform both generalized and specialized construction missions in support of joint forces. They "possess extensive horizontal construction and earthmoving capabilities supporting the construction of major supply routes, expeditionary airfields, ammunition supply points, and all types of force beddown and logistics facilities".¹⁹ Air Force Prime Base Engineer Emergency Force (Prime BEEF) and Rapid Engineer Deployable Heavy Operational Repair Squadron, Engineering (RED HORSE) units "provide support ranging from expeditionary civil to general engineering in support of air expeditionary operations".²⁰ In addition, the Army, Navy and Air Force have a wide variety of civil engineering support agencies and labs that they can draw upon. These include the Army's Corps of Engineers' (USACE) Waterways Experimentation Station (WES), Cold Regions Research and Engineering Laboratory (CRREL), Topographic Engineering Center (TEC), and Construction Engineering Research Laboratory (CERL), the Navy's Facilities Engineering Command (NAVFAC) and the Air Forces' Civil Engineering Support Agency (AFCESA) and Center for Environmental Excellence (AFCEE). They also have augmentation contract tools that leverage the extensive worldwide capabilities of large civilian contractors. By understanding the various capabilities available and utilizing them to the fullest, civil engineering support can be a significant force multiplier for the commander and enhance the overall capabilities of the force in each of the operational phases, from pre-hostilities through post hostilities and redeployment.

Within the USEUCOM AOR the Services can draw upon their respective engineer capabilities to help shape the environment through a variety of engagement activities. Army combat heavy battalions, Navy Mobile Construction Battalions, and Air Force Prime BEEF and RED HORSE units can provide

significant construction and support capabilities when called upon. Whether providing support to U. S. Forces engaged in ongoing operational activities such as in Bosnia and Kosovo, participation in joint and combined engineer exercises such as the CORNERSTONE series, or by providing rapid response to disaster assistance or humanitarian relief operations, engineer forces provide critical civil engineering and support to both U. S. Forces and the host nation.

If a Service's civil engineering and support requirements exceed the capability of available in-theater engineer forces, the Services have the ability to tap into other resources as a means to accomplish the mission. These resources include support from another Service, reaching back to the United States for additional Active or Reserve Component forces, through the use of contractor support, or a combination of the above.

ARMY ENGINEERS

Army engineer units provide a full range of engineering capabilities at all levels of the force structure from small, highly specialized detachments to echelon above corps organizations. Army engineers execute mobility, counter-mobility, and survivability (M/CM/S) operations in support of the maneuver commander and provide civil engineer support throughout the theater as well as providing terrain analysis, terrain visualization and special map products. Whereas up until the late 1980's when there were three corps engineer brigades with six combat heavy battalions and multiple CSE companies, today there is only the one corps engineer brigade. It consists of a combat engineer battalion (Mech), a small combat heavy battalion, a CSE company, two bridge companies and a few small detachments. This paper will address only those Army engineer organizations within the USEUCOM AOR that provide civil engineer support, namely, the corps engineer brigade, engineer battalion (Combat)(Heavy), and engineer company (Combat Support Equipment, or CSE). (The 412th ENCOM does provide a small forward-deployed cell for liaison and planning, but is not actively engaged in on-going operations).

The engineer brigade headquarters is a corps level organization that commands, plans and coordinates the operations of engineer units that are engaged in combat support and constructing and rehabilitating facilities in support of the corps. Its primary capability lies in the construction design and management section which can design, plan, and control engineer activities throughout the area of operations. Although the engineer brigade headquarters did support V Corps' Task Force HAWK as it deployed to Albania last year, it was stripped of its construction design and management section for USAREUR's operations in Bosnia and Kosovo. For both of these operations the section was attached to the divisional engineer brigade headquarters as they are not configured, nor can they properly support engineer construction, repair and maintenance operations without such augmentation.

The engineer battalion (Combat)(Heavy) consists of a headquarters and Headquarters Company (HHC) and two line companies with a total authorized strength of 515 personnel. (CONUS battalions have three line companies, one of which is from the National Guard). The HHC provides administrative, medical, food service, legal and direct support maintenance capabilities to the line companies. Each of the two line companies has two platoons that provide vertical construction capabilities to include carpenters, masons, plumbers and electricians. The battalion can task organize, however, will generally not do so below company level. With its horizontal and vertical construction assets, the battalion is capable of providing a wide range of civil engineer support. If required, it can also perform certain tactical engineer operations as well. Designed primarily for large horizontal construction projects such as roads and airfields, the battalion's oversized equipment is often difficult to move.

The CSE company's large earth moving equipment makes it similar to the combat heavy battalion in many respects. Authorized 178 personnel, it is designed to augment the heavy battalions with its horizontal construction capabilities. The company does not have a vertical construction capability and is therefore used almost exclusively for large earthmoving projects such as airfields, roads and logistic base development. Although it can operate independently, it is usually deployed with other engineer units.

Recent operations in Albania have shown that if ground forces had been required for the operation in Kosovo, the amount of engineering support would have been substantial. In underdeveloped countries such as Albania and Kosovo, considerable improvements to transportation infrastructure (airfields, seaports, road and rail networks) would be needed to support the introduction of ground combat forces. Such demands would have exceeded the capability of in-theater engineer assets and in a hostile environment, contractor support may not have been available. Deploying additional engineers from CONUS would have adversely affected the CINC's concept of operations due to the strategic lift required to move these additional engineer units. Airlift requirements would have been enormous, and at the expense of combat systems. Sealift would have been very slow, thereby delaying critical infrastructure improvements required for the movement of forces into the area of operations.

The Army no longer has the massive construction capability it had up until the late 1980s in Europe. The Army-wide draw down hit engineer units especially hard. Three-quarters of the Army's engineer capabilities now lie in the Reserve Components. Even the engineer equipment once stored in Pre-Positioning of Materiel Configured to Unit Sets (POMCUS) sites has been removed. Today, USAREUR is severely stretched to meet its peacetime and contingency engineer requirements in theater. As long as the Army's "zero-sum-gain" policy remains in effect, it is highly unlikely that additional active duty engineer units will be assigned to USAREUR. Likewise, even though individuals from the Reserve Components were used extensively during operations in the Balkans, present policy makes it unlikely that there will be any Reserve Component engineer units to execute contingency operations in the region.

To meet the engineering challenges that USAREUR faces as it moves into the 21st century, it will need to further leverage all of the resources and capabilities it has at its disposal. USAREUR can alleviate some of these challenges by looking at several different courses of action, or through a combination of different approaches. These might include trying to reduce the number of peacetime engagement engineer activities, continuing to press for more active duty engineer forces, increased reliance on the Reserve Components, or greater use of contractor support. Another possibility might be an Army-wide rotational deployment system to provide additional engineer assets to the theater, similar to that used by the Navy with its NMCBs, or the Air Force with its Air Expeditionary Force.

NAVY ENGINEERS

The Naval Construction Force (NCF), whose sailors are called "Seabees", is a responsive, highly mobile and versatile engineer force capable of supporting the entire spectrum of military engineer operations. Although primarily designed to support Marine Air-Ground Task Forces (MAGTFs) and Navy forces ashore, they also support Component missions specified by the CINCs during war or Military Operations Other Than War (MOOTW). There are several different types of NCFs. The one that this paper will address is the Naval Mobile Construction Battalion (NMCB).

A NMCB provides responsive military construction support to Navy, Marine Corps and other services throughout the spectrum of military operations. They possess robust vertical and heavy earthmoving capabilities and can build roads, construct and improve airfields; ammunition supply points and provides all types of force beddown and logistics facilities. In addition to standard wood, steel, masonry and concrete construction, they also perform specialized construction such as water well drilling and battle damage repair. They are the only engineer unit in any service that is totally self-contained and entirely independent. They can produce their own power and water, provide their own ground transportation, and sustain themselves through organic medical, dental, logistics and security assets. This flexible command and control allows them to tailor the force to meet the requirements with the right composition of engineer expertise at the right time and place.

The peacetime organization of a Seabee battalion consists of 21 officers and 605 enlisted personnel. Within the officer ranks there are 16 Civil Engineer Corps officers, 2 Supply Corps officers, a doctor, a dentist and a Chaplain. Within the enlisted ranks there are 436 construction workers (masons, carpenters, steelworkers, electricians, etc.) and 169 support personnel (personnel, legal, mess management, postal, hospital corpsmen, communications and weapons specialists, etc.). Operationally, they can be tasked organized and routinely operate as independent detachments.

There are a total of 8 active and 12 Reserve Component Seabee battalions that are equally split to provide support to the Atlantic and Pacific Fleets. Within the Atlantic Fleet's AOR, the 4 active duty battalions are homeported out of Gulfport, Mississippi. Of these 4 battalions, 2 are always forward deployed to two of the four forward deployment sites. (The same is true with the 4 battalions homeported out of Post Hueneme, California that supports the Pacific Fleet). The four forward deployment sites are 1) Camp Mitchell in Rota, Spain; 2) Camp Moscript in Roosevelt Roads, Puerto Rico; 3) Camp Covington in Guam; 4) Camp Shields in Okinawa, Japan. The normal rotation period is seven months at homeport followed by seven months at one of the forward deployment sites. All battalions (supporting both fleets) rotate between their homeport and each of the four forward deployment sites on a seven-month cycle. This cycle is designed to give the battalions experience working with both fleets in different areas of the world. It also prevents the same battalions being deployed from their homeport the same time each year.



NMCB DEPLOYMENT PLAN

		1999			2000												2001														
		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC			
DEPLOYED	OKINAWA, JA	NMCB-74			NMCB-74												NMCB-5			NMCB-5											
	GUAM, MI	NMCB-133			NMCB-40			NMCB-3						NMCB-1			NMCB-133														
	ROTA, SPAIN	NMCB-3			NMCB-1			NMCB-133						NMCB-40			NMCB-3														
	ROOSEVELT ROADS, PR	NMCB-1			NMCB-5												NMCB-74			NMCB-74											
HOMEPORT PORT HUENEME, CA	NMCB-3 (55103)	ROTA			HOMEPORT						GUAM			HOMEPORT						ROTA											
	NMCB-4 (55114)	PUERTO RICO			HOMEPORT						OKINAWA			HOMEPORT						ROTA											
	NMCB-5 (55115)	HOMEPORT			PUERTO RICO						HOMEPORT			OKINAWA						ROTA											
	NMCB-40 (55488)	HP			GUAM			HOMEPORT						ROTA			HOMEPORT														
HOMEPORT GULFPORT, MS	NMCB-1 (55101)	HP			ROTA			HOMEPORT						GUAM			HOMEPORT														
	NMCB-7 (55117)	OKINAWA			HOMEPORT						PUERTO RICO			HOMEPORT																	
	NMCB-74 (55488)	HOMEPORT			OKINAWA						HOMEPORT			PUERTO RICO																	
	NMCB-133 (55451)	GUAM			HOMEPORT						ROTA			HOMEPORT						GUAM											

TABLE 1 - NMCB DEPLOYMENT PLAN

While at homport, the battalions recover from their previous deployment, rotate personnel, and reorganize and train for their next deployment. While forward deployed to each of the four deployment sites, the battalion can be further deployed to another location, or be tasked organized to provide needed engineer support to multiple sites within the theater. These additional sites can be in support of ongoing

operations such as Bosnia or Kosovo, or simply to provide base operations support to different Navy installations such as Naples or Sigonella, Italy; Souda Bay, Crete; or St. Mawgan, United Kingdom.

The NMCB Air Detachment is a specially configured detachment that is organized, equipped and ready to deploy within 96 hours of notification. Its basic configuration consists of 89 personnel and 38 pieces of C-130 deployable equipment; however, it can be tasked organized to meet specific mission requirements. All equipment and supplies to support one NMCB are prepositioned in each maritime prepositioning squadron (MPS).

With their organic capabilities, and the ability to task organize and deploy on short notice, NMCBs are an ideal force to use during contingency operations. They have proven themselves uniquely capable of providing critical engineer support during numerous contingency operations in the USEUCOM AOR. In support of peace enforcement and peacekeeping Operations JOINT ENDEAVOR and JOINT GUARD in Bosnia-Herzegovina Seabees provided critical construction and general engineer support for the entire U. S. Implementation/Sustainment (IFOR/SFOR) operation. Typical taskings included road repair and upgrades, force protection improvements, and the construction and subsequent multi-million dollar upgrades to living and quality of life (QOL) facilities. In support of humanitarian relief Operation SHINING HOPE in Albania Seabees supported humanitarian relief efforts along with other NATO country engineer forces by upgrading critical road infrastructures to facilitate the transport of refugees from northern Albania down to the camps located in the south. In Kosovo, the Seabees, together with U.S Army engineers and contractor personnel provided support to Task Force FALCON by constructing critical force protection, operational and living/QOL facilities for the 7,000 U.S. military personnel assigned to the U.S. patrolled sector. With a different NMCB rotating into Rota, Spain every seven months, USEUCOM is able to provide a constant stream of engineer missions for the battalions to execute. In doing so, USEUCOM is able to successfully leverage the NMCB's substantial capabilities to support not only ongoing operations, but also ERC, PfP and HCA projects as well throughout the AOR.

AIR FORCE ENGINEERS

Air Force engineer units are organized as either Prime Base Engineer Emergency Force (Prime BEEF) or Rapid Engineer Deployable Heavy Operational Repair Squadron, Engineering (RED HORSE). Prime BEEF and RED HORSE units have complementary missions and both can deploy as part of an Aerospace Expeditionary Force (AEF) or as small units operating in support of specific missions and operational taskings. Although they provide engineer support across the spectrum of military operations, they have only limited combat engineering capabilities, and these are focused on the defense of deployed Air Force personnel and base denial.

Prime BEEF units deploy in unit type code (UTC) sets. UTCs can be added or subtracted as needed, based on mission requirements. Prime BEEF lead teams deploy with basic command, control and communication equipment to establish, sustain or recover an Air Force beddown site. Other teams may follow to satisfy additional support requirements as needed. Additional teams may include such teams as pavements evaluation, rapid runway repair, snow removal, etc. Although Prime BEEF teams deploy with selective team equipment, most construction supplies and equipment, to include necessary vehicles must be provided at the deployment location.

Prime BEEF teams deploy with the principle objective of providing engineer support to an AEF. There are three basic categories of support; aircraft, personnel and infrastructure. Aircraft support is associated with the flying mission and includes providing such things as squadron operations centers, maintenance shops, and fuel and munitions storage facilities. Personnel support includes administration, housing, latrine and messing facilities. Infrastructure support includes utilities, waste disposal and base communications within the beddown site. The beddown locations can range from large existing bases with facilities already in place to bare bases with no facilities other than a runway, taxiway and aircraft parking aprons. Generally speaking, the barer the base, the greater the support requirements and larger the engineer force needed.

The primary mission of a RED HORSE squadron is to support regional CINCs in response to Major Theater War (MTW) taskings and to Smaller Scale Contingencies (SSC). They are wartime-structured units capable of accomplishing major horizontal and vertical construction in forward locations, often in advance of the main deploying force. Like Prime BEEF units, RED HORSE squadrons are deployed in UTCs and provide a highly mobile, largely self-sufficient (for limited periods of time) engineer force to support large force beddown requirements, heavy war damage repair, bare base development, and heavy engineer operations. RED HORSE squadrons are stand-alone units with a regional responsibility and are not tied to any peacetime base support, maintenance or sustainment operations. They deploy self-sustainment capabilities to include organic logistics, medical, transportation and contracting. Their equipment can be airlifted, (via C-5 or C-17), sealifted, drawn from prepositioned stockpiles or contracted from host nation sources (if available).

RED HORSE squadrons consist of 404 personnel and are organized into four echelons, R-1 through R-4. An R-1 (16-person team) is the advanced echelon and provides advance planning for the establishment and future development of an operational location during contingencies and preliminary beddown of follow-on forces. It can self-sustain itself at the deployed location for up to 5 days. An R-2 (148-person team) closely follows an R-1 and forms the nucleus of the squadron's horizontal and vertical construction capabilities. It includes the necessary command and control assets for the deployment of

the entire squadron and is largely self-sufficient for up to 30 days, although fuel, water and rations must be resupplied. An R-3 (120-person team with heavy horizontal, light vertical package) and/or an R-4 (120-person team with heavy vertical, light horizontal package) will then follow the R-2, if needed. Depending on mission requirements, six supplemental equipment UTCs are available. This concept allows for a lighter initial deployment package and better tailoring of vehicle and equipment needs. The six equipment UTCs are 1) H-1, Heavy Equipment Package (additional earthmoving equipment), 2) H-2, Specialized Building Construction (K-span machine, concrete formwork), 3) H-3, Well Drilling, 4) H-4, Asphalt Batch Plant, 5) H-5, Concrete Batch Plant, and 6) H-6, Quarry Operations.

Within USEUCOM's AOR, there are seven Prime BEEF Civil Engineer squadrons. There are no RED HORSE squadrons in Europe; however, there is a composite U.S./German squadron that has many of the same capabilities. This unit executes the bulk of USAFE's heavy construction missions. Very active in numerous ERC construction projects, it was also instrumental in executing some high priority projects in Bosnia, Albania and Kosovo. USAFE also maintains two sets of RED HORSE engineer equipment in Livorno, Italy for use during contingency operations. This pre-positioned equipment was used extensively in Albania during Operation SHINING HOPE, the U. S. effort to bring in food, water, medicines and relief supplies for the refugees fleeing from Kosovo. Elements of two CONUS based RED HORSE squadrons linked up with this equipment and worked on several high priority projects to upgrade airfield and road structures to facilitate increased air operations. As the frequency of contingency deployments continued to rise throughout the 1990's, the Air Force recognized the need to re-look how it was organized in order to support the full range of operations.

While still evolving, the Aerospace Expeditionary Force (AEF) will provide warfighting CINCs with rapid, responsive support, tailored to meet specific needs across the spectrum of operations from disaster and humanitarian relief to full combat operations. The AEF is an integrated force structure (with active duty Air Force, Air National Guard and Air Force Reserve units) to support known rotational, steady-state deployments and provides an "on-call" capability to support no-notice contingency requirements. Similar in many respects to the Navy's ship-shore rotations, the Air Force will be organized into ten AEFs, two of which would be "in-the-box" at any one time for three month periods over an approximate fifteen month cycle. The main advantages of this reorganized structure is that it provides the CINCs with a known, predetermined capability that can be quickly tailored to support a wide range of contingencies, integrates Active, Guard and Reserve forces, and will provide better stability and predictability across the force.

CONTINGENCY CONTRACTING

Throughout the history of warfare, civilians have traveled with armies and accomplished those functions that we now call logistical support.²¹

A nation's employment of civilians in such capacity is recognized in the laws of armed conflict as defined by the Laws of the Hague in 1907 and the Articles and Protocols of the Geneva Conventions, last held in 1949. The support provided to armies by civilians has been universally accepted based on the thought that these noncombatants could accomplish support tasks as long as they were not in direct confrontation with the enemy. With this premise in mind, soldiers would do the warfighting while civilians did whatever logistical functions they were experienced with. In today's world of ever increasing automation, complexity and technical sophistication, the requirements of warfare have changed considerably. Along with this change in requirements has come a change in the scope and relevance of the associated support tasks, thus diluting what was a relatively clear line separating warfighting from support.

The use of civilians by the military to provide support during various operations is well documented. In our own history, as far back as General Washington's Continental Army, civilians were employed to drive wagons, provide architect/engineering and carpentry services, to obtain food stuffs (when not foraged), run telegraph communications, and to provide medical services.²² The Continental Congress believed civilians should accomplish these tasks so that the soldiers could be freed up to be with their units and focus on their warfighting responsibilities.²³ It made sense to use civilians to accomplish these logistical tasks because they were considered to be either too menial for soldiers, i.e., driving wagons or were well established or specialized functions in commercial industry like telegraph operators.²⁴

An additional philosophy with regards to the military employing civilians was "the closer the function came to the sound of battle, the greater the need to have soldiers perform the function because of the greater need for discipline and control."²⁵ The use of civilians as cited above remained generally constant throughout the years up to the time of the Vietnam War.

It was during this time that military equipment was making substantial leaps forward in terms of its technical complexity and sophistication. No longer were civilian contractors simply performing basic logistical tasks. They were often times up on the front lines, checking equipment and ensuring that the instruments of war were operationally ready. The same was true during the Panama Invasion and the Gulf War, except at a much higher level. "There might have been a time in the past when the site of military operations was an exclusive club for those in uniform, but those days are waning."²⁶ Since the Gulf War, the trend of using civilian contractors during military operations has risen to unprecedented levels and will continue to rise during future deployments.

Three factors have contributed to this trend: deep cuts in uniformed personnel, a push to privatize functions that can be done outside the military, and a growing reliance on contractors to maintain

increasingly sophisticated weapons systems.²⁷ Actually there is a fourth reason for the deployment of contractors into the battlefield, to provide flexibility in the face of Congressional, Executive Branch or host-country mandated troop ceilings.²⁸ Personnel cuts, the push to privatize and mandated troop ceilings are all directly linked to the increase in the number of contractor personnel now performing engineer related activities.

Since the end of the Cold War, the Department of Defense (DOD) has cut more than 700,000 active duty troops from the ranks.²⁹ The total active duty end strength is down 36% from 1989 while reserve forces and DOD civilian personnel are down 29% and 42% respectively. These positions were eliminated even though the military has experienced a threefold increase in operational requirements over the past ten years. Especially hard hit by the draw down were the support units as the Services targeted these to decrease their "tooth-to-tail" ratio. Consequently, each of the services must now rely on contractor support to accomplish many of the functions previously accomplished by military members.

There are two basic types of contractors to support military operations, systems and contingency. Systems contractors provide support to a specific system, usually a weapon or a specified set of components within a system. Contingency contractors provide a variety of support services during operations, generally broad-based logistics support, which is generic in nature. They routinely provide base operations type support, to include construction and real estate management and maintenance to deployed military forces in austere areas of operation. They can frequently perform necessary services for which no U.S. military capability exists, such as sewage treatment and disposal of many types of hazardous wastes. Contingency contractors can further be broken down into two types, one which provides prearranged logistics support and the other being operation specific. Prearranged contract support is negotiated in advance and is pre-planned, coordinated, and integrated into the overall support plan prior to the commencement of actual operations.

The operation specific contract can provide most, if not all of the same support that the prearranged contracts can provide. The big difference between the two is that the operation specific contract is done "on-the-move", it is not prearranged. This generally occurs when there are unanticipated requirements or conditions that arise that the prearranged contractor may not be able to meet. They are usually negotiated during the deployment or course of operation and must be integrated into the overall support plan as they are developed.

To meet the engineer requirements during sustained deployment operations, the Army, Navy and Air Force have come up with separate engineer contract augmentation programs. These programs are designed to provide the wide range of engineer capabilities the services themselves can no longer provide due to unit inactivation or repositioning into the Reserve Components. The Army's Logistics Civil

Augmentation Program (LOGCAP), the Air Force's Contract Augmentation Program (AFCAP) and the Navy's Construction Capabilities Program (CONCAP) all play a significant role towards mission accomplishment. In joint operations, a single contractor managed by a single contract agent integrates the construction, facilities maintenance, and logistics more effectively and efficiently than individual contractors managed by each of the component commands. Additionally, a single contractor prevents multiple agencies and their respective contractors from bidding against one another for services and materials in the same operational area. Leveraging the private-sector efficiencies of large, multi-national organizations with worldwide experience and expertise frees up soldiers for combat related work while reducing the military presence in certain missions. Although contractors do not replace force structure, they augment the services' capabilities and provide an additional option for meeting support requirements.

There are numerous advantages to using contractor support. First, contractors free up soldiers for redeployment or reassignment to other locations for other missions. Second, as recent experience has shown, contractors can be used to provide support capabilities found in low-density units within the active and reserve components, thereby reducing a high demand unit's frequency and duration of deployments. Third, depending on the missions involved, well-established and experienced contractors can save the services time and money. They are often more efficient, have a greater support base to draw from in many areas of the world, and cheaper than soldiers to use, especially if one considers the training and deployment costs associated with uniformed personnel. In addition to the advantages cited above, there are other benefits associated with contractor support. More often than not, local national civilians are hired to perform the work. This puts jobless people to work, teaches them a skill, helps build self-esteem and helps to stimulate the local economy, which in many cases, has been ravaged by humanitarian disaster or conflict.

The use of contractors to provide support throughout the spectrum of military operations is not without risks or costs. Many considerations must be taken into account. With respect to contracting engineer support and services, the following considerations must be made during the planning phase:

- Contractors do not replace force structure, but augment capabilities and provide an additional option for meeting support requirements.
- Contractors may deploy throughout the area of operations, depending on the operational and tactical situation. Commanders are legally responsible for protecting the contractors in their area of operations.
- Contractors must have enough employees available with the appropriate skills to meet the planned requirements.
- Back up plans must be made to address support continuation if a contractor fails to perform.

- The services must be capable of performing their required functions (or do without them) prior to the contractor's arrival or in the event the contractor cannot perform the contracted support.
- Contractor support is based on a contractual agreement, a legal document outlining a statement of work (SOW) and expectations. If operational requirements change, the SOW may need to be revised if not written in sufficiently broad terminology. This may require contract modification, and possibly additional costs.
- Although use of contractor support generally provides a commander greater flexibility, there may be times when using a contractor actually decreases his flexibility.

Peacetime planning and preparation is critical to the successful use of contractors during contingency operations. Planning staffs must become familiar with the contractor's capabilities, his strengths and weaknesses, and the terms and conditions of the contract itself. With prearranged contracts such as Logistics Civil Augmentation Program (LOGCAP), Construction Capabilities Program (CONCAP) and Air Force Contract Augmentation Program (AFCAP), this is possible during deliberate planning and exercises. Significant concerns to be resolved during planning include a multitude of legal issues such as the contractor's ability to enter into a given country and conduct business there, liability for host nation taxes and import duties, labor laws and government permits. The U. S. Government is usually in a better position to negotiate these things for the contractor. As is usually the case, the better the relationship between the commander's staff and the contractor's staff, the higher the contractor's success will be in supporting the force when needed.

LOGISTICS CIVIL AUGMENTATION PROGRAM

The Army developed the Logistics Civil Augmentation Program (LOGCAP) in 1992. It was originally awarded to Brown and Root Services Corporation (BRSC) as a one-year contract with four one-year options and was managed by the Corps of Engineers. It was a cost-plus contract, meaning the contractor is reimbursed for all reasonable costs plus an award or performance fee, typically one to eight percent of the contract. After competitive bidding when the contract came up for renewal in 1997, DynCorp was awarded the contract under management of the Army Materiel Command. In peacetime, the LOGCAP contractor maintains an on-call, preplanned, ready capability. The contractor demonstrates his readiness through the development of a worldwide plan, supporting plans to Operational Plans (OPLANS), specific regional plans, and participation in exercises.

In order to maintain continuity of support for the ongoing operation in Bosnia, BRSC was awarded a one-year, sole source sustainment contract with four option years to continue its logistical support. The scope of this contract is very broad and includes everything from food services, laundry, transportation,

fuel and supply operations to water production, construction and complete base camp maintenance. A recent study conducted to quantify the capabilities civilian contractors brought to Task Force EAGLE in Bosnia concluded that "to replace BRSC alone (not considering any other contractors) the Army would need approximately the equivalent of a reinforced Corps Support Group and two engineer battalions capable of vertical and horizontal construction".³⁰ Since each deployed soldier requires food, housing, medical and other such support, "support soldiers themselves become consumers of resources and generate additional requirements for even more support soldiers".³¹

The original LOGCAP contract used in Bosnia and Hungary was not without significant difficulties that had to be overcome. Issues concerning labor laws, taxes, and import duties on construction materials and equipment all led to delays in BRSC getting its foot on the ground and providing sufficient support in a timely manner to U. S. Forces. In addition, few soldiers had ever worked with a civilian contractor before. This created confusion, as leaders did not understand the extent of the contract or how to interact with BRSC.³² Funding played an important role in determining what could and could not be done and so development of a work order and prioritization process had to be established and closely followed. Despite significant efforts to effectively manage LOGCAP, U. S. Army Europe Officials' inexperience and lack of understanding the contract, the contractor's capabilities, and program management created problems during deployment and resulted in unnecessary costs.³³ General Accounting Office (GAO) estimates that LOGCAP costs exceeded the estimated budget for the first year in Bosnia by thirty-two percent, partially due to changes in the operation plan and failure to coordinate early estimates properly.³⁴

Lessons learned and experiences gained from this operation, together with continued planning and coordination between all parties entering into Albania and Kosovo resulted in tremendous improvements in efficiencies and the ability to accomplish engineer tasks in support of Operations TF HAWK and TF FALCON. Additional participation in training exercises, planning conferences and actual operations will serve to further strengthen the synergistic effects of engineer forces and contractor capabilities.

CONSTRUCTION CAPABILITIES PROGRAM

The Navy's Construction Capabilities Program (CONCAP) was introduced in 1995. Unlike LOGCAP which was awarded to a single contractor for worldwide use, CONCAP is actually two contracts administered by the Atlantic and Pacific Engineering Field Divisions of Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM). Both are cost plus award fee, indefinite quantity contracts for construction, engineering and related services. They were awarded to joint venture partners who are large, international construction firms with significant engineer worldwide capabilities.

Perini-Jones handles all requirements in NAVFACENGCOC's Atlantic Division (LANTDIV) while Dillingham/Holmes and Narver handles all requirements in the Pacific Division's (PACDIV) AOR. Both contracts have the capability for engineering, design and construction for airfields and port facilities, roads, bridges and transportation facilities, power plants and distribution systems and communications and supply systems. In addition, they both can provide base operations support to include facilities operations and maintenance, billeting, food services, waste management and recreation.

Department of Defense (DOD) Directive 4270.5, Military Construction Responsibilities, assigns overseas responsibility for design, award and management of military construction contracts to the Army Corps of Engineers (USACE) or Naval Facilities Engineering Command (NAVFACENGCOC) based on assigned countries of responsibility. The Navy is the DOD Contract Construction Agent (CCA) for what was formerly Yugoslavia. As such, LANTDIV uses CONCAP for its design/construction needs just as the Army and Air Force use USACE for their needs.

As a result of the Dayton Peace Agreement, there was the need to develop a conceptual design with accurate cost estimate for a 110 kilometer two-lane, all weather road through the heavily mined, mountainous terrain between Sarajevo and Gorazde. LANTDIV turned to its CONCAP contractor, Perini-Jones to accomplish this time-sensitive, complex engineering requirement. Using state-of-the-art aerial surveying and photogrammetry in early May 1996 (after the snow had melted, but before foliage grew), Perini-Jones was able to gather the data necessary to begin its engineering analysis. By November 1996 an accurate topographic survey, together with analysis of alternate road alignments, final road alignment and profile with details and sections, and a construction cost estimate was completed. Once funding is secured and the road is constructed, economic development in this region will be enhanced considerably.

AIR FORCE CONTRACT AUGMENTATION PROGRAM

The Air Force Contract Augmentation Program (AFCAP) was introduced in 1997. It is a cost plus award fee contract that is administered by the Air Force's Civil Engineer Support Agency through the Air Force's major command civil engineers. Awarded to Readiness Management Support (RMS), it is a wholly owned subsidiary of Johnson Controls and works closely with large, reputable subcontractors to include Bechtel Corporation, Lockwood Greene Technologies, General Dynamics Communications and Lockheed Martin Logistics Management. Like LOGCAP, AFCAP leverages the efficiencies of these large corporations to provide timely facilities operations and maintenance, civil engineering and construction support, and the full spectrum of logistics and sustainment services to the military and other federal and state government agencies. It too is a cost-plus incentive award fee contract, designed to provide responsive, worldwide support for contingency operations.

A recent example of its use was for the humanitarian relief operation SHINING HOPE in Albania during the spring of 1999. With the exodus of refugees fleeing out of Kosovo and into neighboring states with nowhere to go, "The National Command Authority, through a Chairman of the Joint Chiefs of Staff (CJCS) order, committed the United States to construct a 20,000 person refugee camp in Albania".³⁵ The scope of work directed "the contractor will provide construction, engineering and logistics services to construct, operate and maintain a refugee camp(s) capable of sustaining 20,000 refugees at site(s) in southern Albania".³⁶ Due to political reasons at the highest level, U.S. Military forces were not to be used. Additionally, the urgency of the situation necessitated that responsive support was of the utmost importance. Two subsequent CJCS orders within a two week period directed two additional camps of the same magnitude be constructed. USEUCOM gave the mission to the Commander, JTF – SHINING HOPE, a 3rd Air Force led humanitarian assistance operation already established with a forward presence in Albania at the time.

The Commander chose AFCAP to execute this highly visible, time sensitive project. RMS turned to its engineering and construction subcontractor, Bechtel to accomplish the work. Although there were significant engineering and operational challenges to overcome given the austere environment and required timelines, the contractor was able to successfully complete the project. In fact, it was considered to be one of the best refugee camps of the 45-50 that were built by other nations and international organizations for the relief effort. The contractor was required to perform a considerable amount of engineer effort to support a projected refugee population of 20,000 people within a very short period of time. In addition to erecting over 1800 general purpose equivalent size tents and nearly 200 latrine facilities, the contractor provided over 17 kms of gravel road, 23 kms of drainage, 20 kms of water lines, 17 kms of electrical distribution lines and 10 kms of fencing within 45 days. This effort was for the construction of the first of three refugee camps that were to be built. As the contractor was nearing completion of the first camp and had started working on the second camp, word was given that the additional camps would not be needed. At that time, work on the second camp and planning activities for the third camp were stopped. All construction materials were then rerouted to other projects or placed in storage for future requirements.

CONCLUSIONS

U. S. engagement around the world is essential for building and maintaining stable regional environments. As the world's only superpower, what America does now to shape the international environment is critical to the well being of the nation in the future. Only by engaging with foreign governments and international organizations can the United States take an active role in insuring the

continued security and stability of our vital interests. Our national security strategy of engagement and national military strategy of shape, respond and prepare now, together with the USEUCOM Theater Engagement Plan sets the framework for how CINCEUR will promote peace, stability and prosperity within the AOR.

As it has throughout its history, the U.S. Military will continue its engagement activities and play a leading role in helping to shape a stable environment. Although significantly reduced in size from its Cold War days, it still maintains a credible forward presence, interacts with foreign militaries and host governments on a daily basis, and has the ability to respond quickly in order to influence developing situations. Within the USEUCOM AOR, military engagement with engineer forces will continue to play a very important role in supporting MOOTW and helping to shape the international environment. With the vast majority of deployments over the past ten years, and the increasing trend of future deployments being for Military Operations Other Than War, the need for civil engineer construction and support capabilities has never been greater. Unfortunately, these capabilities were a prime target for those looking for places to cut force structure during the drawdown years. As a result, today's civil engineer and support force structure in each of the components is well below that which was available to draw upon during the Cold War period.

Although engineer forces in the USEUCOM AOR have downsized considerably over the past ten years, they can still provide significant engineer support to their Services and to joint and combined operations across the full spectrum of military operations. When coupled with contractor support, they leverage tremendous civil engineer capabilities and the synergistic effect created is a substantial force multiplier. Recent operations in the Balkans have clearly shown steady, sustained improvements in the ability of engineer forces to successfully execute a wide range of tasks together with contractors, engineers from other nations, and governmental and non-governmental agencies alike.

Although there will continue to be those who favor additional reductions in force structure and forward deployment of U. S. Forces abroad, it is highly unlikely that further cuts to engineer forces will be made within the EUCOM AOR. Recent findings in DOD's Kosovo/Operation Allied Force After-Action Report to Congress has led to a reassessment of pre-positioning engineering assets worldwide. The concern is that had ground forces been committed to combat, European based engineers would most likely have been overwhelmed, requiring lengthy deployment of reinforcements from the United States. A working group of CINC and Service engineers is currently "assessing worldwide requirements for forward deployed, strategically located engineering assets to ensure that theater commanders have sufficient engineering support for rapid response contingencies in their theaters".³⁷

The Navy's organization and forward employment of its NMCBs make them ideally suited for the conduct of contingency operations. The responsiveness of the air detachment, coupled with the

battalion's ability to task organize and operate independently, enable the "Seabees" to provide the full range of engineer support not only to the Navy, but the other Components as well. The Air Force's Prime BEEF squadrons provide a wide range of responsive support to deployed Air Force elements in moderate to well developed bases. In austere environments, additional engineer assets may be required. If needed, RED HORSE squadrons from CONUS may fall in on pre-positioned equipment within the theater to execute large engineer support requirements. Army engineer forces in Europe can no longer provide the massive capabilities it did up until the late 1980's. It can provide substantial engineer effort with its combat heavy battalion and CSE company, but only for a limited duration. Large support requirements or lengthy deployments will require additional engineer assets from CONUS or support from contractors. As seen with operations in the Balkans, the Army is clearly leaning towards increased contractor support to augment its engineer capabilities.

Joint and combined operations will continue to be the norm, and engineer forces and contractor personnel will continue to have significant responsibilities in order to insure mission success. With the large majority of contingency operations taking place in the lesser-developed regions of the world, "the engineering challenges will continue to be disproportionately large when compared to the total military effort".³⁸ Therefore, commanders and Component engineers must be knowledgeable about the engineering capabilities and limitations of each Service and of civilian contractors to fully integrate them into future contingency operations.³⁹ Only by doing so will they be able to fully meet the requirements for civil engineering construction and support throughout the USEUCOM AOR.

Word count: 9508

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